CLOSEOUT REPORT
BROOKHAVEN NATIONAL LABORATORY
OPERABLE UNIT I AREA OF CONCERN (AOC) 10
WASTE CONCENTRATION FACILITY

Text, Figures and Appendices

September 2005

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VOLUME 2 OF 2

Attachment 1
Final Status Survey Plan

FINAL STATUS SURVEY PLAN
FOR BUILDING 811
UNDERGROUND STORAGE TANK REMOVAL
AND SOILS REMEDIATION

BROOKHAVEN NATIONAL LABORATORY SITE
BROOKHAVEN, NY

December 2004

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SECTION 1.0
INTRODUCTION

The purpose of this Final Status Survey Plan (FSSP) is to guide the collection and analysis of samples supporting the release of formerly radiologically contaminated soil at the Brookhaven National Laboratory (BNL). The remedial activities consist of 1) the excavation and disposal of radiologically contaminated soils to meet prescribed cleanup goals and 2) the removal, demolition, segmentation, and disposal of six underground storage tanks and associated piping from Area of Concern (AOC) 10 Building 811 Waste Concentration Facility (WCF), as defined in the Operable Unit (OU) I *Record of Decision* (ROD). The scope of remedial work and the historical background of the WCF are outlined in detail in the *Remedial Action Work Plan - AOC 10 Building 811 Waste Concentration Facility.*

Sampling activities will be performed under the direct supervision of BNL's Environmental Management Directorate (EMD) and in full compliance with the OU I ROD, and U.S. Environmental Protection Agency (EPA) requirements. Sampling activities will fulfill the obligations of the U.S. Department of Energy (DOE) for the BNL site, as established in the Interagency Agreement (IAG) between the DOE, EPA and the New York State Department of Environmental Conservation (NYSDEC).

Weston Solutions Inc. has been retained by Brookhaven National Laboratory (BNL) to provide a radiological Final Status Survey Plan (FSSP) in support of the final decommissioning of Building 811 and Underground Storage Tank removal and soils remediation.

This FSSP implements the FSS technical approach provided in NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) to demonstrate compliance with the release criteria. This FSSP documents the approach, methods, and techniques for the radiological FSS to be used to achieve unrestricted release of the Brookhaven 811 area.

To assure a proper transition from the remedial action support survey (RASS) phase of remediation to the FSS phase, the RASS approach, methods, and techniques are also included in this FSSP.

The DP addresses the remediation of the affected portions of the Brookhaven 811, Underground Storage Tank and Soils remediation area. These areas are introduced further in Sections 1.2 and 1.3. The area is divided into two parts the D tank area and adjacent soil area. The known affected area covers approximately 1000m^2.

1.1 HISTORICAL OPERATIONS PERSPECTIVE

BNL is located in Upton, Suffolk County, New York, near the geographic center of Long Island. The U.S. Army formerly occupied the BNL site as Camp Upton during World Wars I and II. The Civilian Conservation Corps operated it between the wars. The site was transferred to the

Atomic Energy Commission, which later became the Energy Research and Development Administration and is now DOE, in 1947.

BNL carries out basic and applied research in the following fields: high-energy nuclear physics and solid-state physics; fundamental material and structure properties and the interaction of matter; nuclear medicine; biomedical and environmental sciences; and, selected energy technologies. Major operating facilities include the High Flux Beam Reactor, the Brookhaven Medical Research Reactor, the National Synchrotron Light Source, and the Alternating Gradient Synchrotron.

The BNL site was included on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priority List on December 21, 1989. In May 1992, DOE entered into an IAG with EPA and NYSDEC under CERCLA, section 120. The IAG established the framework and schedule for characterizing, assessing, and remediating the site in accordance with requirements of CERCLA and the Resource Conservation and Recovery Act (RCRA). BNL's Response Strategy Document grouped the identified AOCs into seven OUs. Several OUs were subsequently combined, and five OUs (including those combined into one) are currently under investigation.

Liquid radioactive waste received from the Brookhaven Graphite Research Reactor, the Hot Laboratory Complex-Building 801, and the High Flux Beam Reactor was temporarily stored at the WCF (Building 811) and eventually distilled to remove particulates and suspended and dissolved solids. The D-waste tanks (Tanks D-l, D-2, and D-3) were three 100,000-gallon above-ground storage tanks that were part of the original WCF configuration. BNL defines D waste as liquid waste with a gross beta concentration greater than 90 picocuries per milliliter (pCi mL–1). BNL used the tanks from 1949 to 1987.

The Building 811 Waste Concentration Facility was used to store and distill liquid radioactive waste received from the Brookhaven Graphite Research Reactor (BGRR), the Hot Laboratory Complex (Building 801), and the High Flux Beam Reactor (HFBR).

There are six (6) existing out-of-service 8,000-gallon, underground storage tanks (USTs) known as the A & B USTs. The USTs (A-I, A-2, A-3, B-1, B-2, B-3) are located approximately 50 feet north of Building 811 in a below grade, celled, concrete vault. Each UST has a diameter of approximately ten (10) feet. The total height of each UST is approximately 14 feet-10 7/8 inches. The walls of the USTs are approximately 5/8-inch thick stainless steel. Based upon the best available information, the stainless steel USTs weigh between 15,080 pounds to 15,620 pounds each. The cover of the concrete vault is approximately six (6) feet below grade, with piping penetrations and ancillary concrete structures that rise up to six (6) inches above grade. There are connected process piping underground, such as fill lines, overflow lines, and vent lines. The piping are known as the A & B waste transfer lines and the off-gas pipe. Including overburden cover/burial depth, the bottom of the six USTs are approximately 21 to 22 feet below existing site grades.

Three documented leaks from the D-tanks have occurred. A leak was discovered in 1982 around a nipple in a valve at the bottom of Tank D-l. Tank D-l was subsequently removed from service and emptied. However, some leakage continued from remaining sludge in the bottom of the tank. A pin-hole leak was discovered in 1985 in the side plate on the northwest side of Tank D-3. The wall plate was tested for soundness and a small patch was welded on for repair. The third documented leak occurred in 1987 when Tank D-3 was found to be leaking from the bottom seam between the tank bottom plate and a side wall plate. No leakage from Tank D-2 is documented.

All three tanks were dismantled and removed in 1995 as a removal action under the DOE/EPA/NYSDEC IAG. The contaminated concrete pads were given an additional temporary cover in 1998 to prevent the collection of rainwater that could become contaminated through leaching.

In addition to the three D-tanks, six 8,000-gallon stainless steel underground storage tanks (USTs) are located 50 feet north of Building 811. The six USTs (AOC 10C) were used to store radioactive wastes. These tanks will be removed as part of this project.

1.2 UST VAULT AREA DESCRIPTION

International Technology Corporation (IT) performed further characterization of soils associated with the former tanks. Surface soil samples were collected from eight sites up to 1-foot depths. Subsurface soil borings samples were also collected from seven sites at a depth between 23 feet and 25 feet using a Geoprobe.

Samples were analyzed for gross alpha and beta activity, tritium, 89, 90-Sr, isotopic thorium, isotopic americium, and, by gamma spectroscopy, gamma emitters. The only radiological parameter or radiochemical species detected in samples above its calculated risk-based remediation goal for future residential use was 137Cs, which was detected at a little more than 40 pCi g–1 at one surface soil location.

No radioactive species were found above remediation goals in any of the subsurface samples.

This plan was prepared to address the decommissioning of the Storage Tank Area. The UST vault area considered for remediation is bounded on the south by the 811 area fence line, on the east by the adjacent soil/asphalt area, the southeast by building on the north by the 811 fence line, on the west by 811 fence line. The area contains six vaults containing tanks. Weston has remediated this area by excavation and removing the tanks and contaminated soil. Affected soil generated during remediation of the adjacent land is considered as part of the on-site decommissioning.

The area is encompassed by the following rectangular area surrounding the UST vaults:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
A	Northwest corner	259455.11	1295026.01
B	Northeast corner	259442.08	1295074.64
C	Southeast corner	259399.93	1295063.35
D	Southwest corner	259412.95	1295014.72

The area is also encompassed by an overlapping rectangular area:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
15	Northwest corner	259423.97	1295005.84
15,18	Northeast corner	259423.97	1295038.85
19	Southeast corner	259396.75	1295034.85
28,50	Southwest corner	259406.65	1295003.74

The area is also encompassed by this rectangular area:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
49	Northwest corner	259417.19	1295000.21
28	Northeast corner	259416.31	1295003.74
28,50	Southeast corner	259406.65	1295003.74
50	Southwest corner	259406.65	1294997.42

The area is also encompassed by this rectangular area:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
25	Northwest corner	259408.79	1294981.05
20	Northeast corner	259401.21	1295018.43
21	Southeast corner	259396.24	1295017.48
25,21	Southwest corner	259396.24	1294981.05

The area is also encompassed by this rectangular area:

Reference Point #	Location	Northing coordinate	Easting Coordinate
25,22	Northwest corner	259398.03	1294981.05
22	Northeast corner	259398.03	1295007.43
23	Southeast corner	259372.12	1295007.43
24	Southwest corner	259377.26	1294981.05

1.2.1 Remediation Criteria

Having developed an understanding of the spatial distribution of contamination, the RESRAD model was used to calculate a preliminary Derived Concentration Guideline Level (DCGLW) for three isotopes Cs-137, Ra-226 and Sr-90. The DCGLWs (23 pCi/g for Cs-137, 5 pCi/g for Ra-226 and 15pCi/g for Sr-90) were calculated to correspond with the basic dose limit criterion of 15 millirem per year (mrem/yr). The radioactive contaminants of concern are 90Sr, Ra226 and 137Cs. All of the radionuclides were in the contamination when it occurred originally. However, the transport of strontium through the environment is greater than that of cesium or Radium. Thus, it is safe to assume that when 137Cs contamination above its DCGL is remediated, so is 90Sr contamination. This will allow for hand-held gamma instruments to guide most remediation efforts.

However, it must be verified that 90Sr contamination is below its DCGL in places where remediation for 137Cs does not occur. Further, the unity rule applies for both contaminants together. That is, the soil concentrations C of the two radioisotopes, n, must meet the following requirement for each survey unit:

$$C(90Sr)/DCGL(90Sr) + C(226Ra)/DCGL(226Ra) + C(137Cs)/DCGL(137Cs) =$$

$$C(90Sr)/15pCi/g + C(226Ra)/5pCi/g + C(137Cs)/23pCi/g < 1$$

Therefore, measurements of 90Sr and 226Ra soil concentrations are also necessary. In particular, measurements for 90Sr must be made following remediation guided by 137Cs measurements to confirm that remediation has met the unity rule requirement.

1.2.2 Remediation Method

The remediation alternative chosen for implementation requires excavating material with a Cesium-137 activity concentration greater than the established $DCGL_w$ of 23.0 picocuries per gram (pCi/g), based on a dose limit criterion of 15 mrem/yr. Material with Cesium-137 activity concentrations greater than 23.0 pCi/g will be segregated and disposed off site as either exempt or nonexempt material at a permitted facility. Material with activity concentrations less than 23.0 pCi/g Cesium-137 that also meet the Unity rule will be left in place. A layer of clean soil obtained from an off-site source will be placed over the below-criteria fill and graded in a manner to direct drainage away from the site, after which the site will be revegetated.

During remediation, the site will be excavated to depths up to 20-25 feet and to an average depth estimated at 8 feet across most of the Area. The site will be graded and vegetated to minimize soil erosion and promote positive drainage.

The reported 5'6" of overburden soils above the vault and trench will be removed prior to excavation of the underlying radioactively-contaminated materials. Soil samples of the overburden material above the vault cover and radioactive soil contamination (pre-characterization) will be collected for analysis. The soil samples will be analyzed using alpha spectroscopy, ISOCS and beta scintillation (for Sr-90).

The soil will be removed with a trackhoe in six-inch lifts, screened for radiological contamination. The first remediation efforts will remove all concrete cover, asphalt cover, stone blend or the top six inches (15 centimeters) of soil in all survey units. The Subcontractor will perform a 100 percent gamma-walkover survey with an appropriate instrument to determine whether the 137Cs DCGL has been met after completion of remediation. Additional six-inch cuts will be removed in those sections that do not meet the 137Cs DCGL until the 137Cs DCGL is met. When all parts of the Class 1 survey units meet the 137Cs DCGL, they will be assessed with the BetaScintTM system to determine compliance with the unity rule.

Remediation and additional sample measurements will proceed as above until the unity rule criterion is met. Soil that was beneath the underground storage tanks and in trenches will be characterized at an appropriate time using excavation as necessary. Remediation and sample measurements will proceed as above until the unity rule criterion is met. Clean structural surfaces remaining (six separate vaults) for release. Soil remaining beneath the vaults will be surveyed and removed as necessary.

Once the site is remediated to acceptable levels, it will be cleared through a MARSSIM-directed final status survey. For FSS planning purposes, it is anticipated that clearance will be conducted in stages where certain units will be cleared and backfilled as excavation occurs in other areas. Measurements for the final status survey may be made at any time during the project in places where remediation is considered complete and will be unaffected by further remediation.

1.3 SOIL AREAS ADJACENT TO D-TANK AREA DESCRIPTION

The DP identified the potential for radioactive material in soil areas adjacent to the D-Tank Area. Soils adjacent to and below the D-tanks were characterized in the engineering evaluation/cost analysis (EE/CA) for the D-Tanks Removal Action (Dames and Moore, 1993). Eight borings were installed down to between 7 feet and 12 feet below ground surface. Elevated levels of cesium-137 (137Cs) (maximum was almost 1500 picocuries per gram (pCi g–1)) and strontium-90 (90Sr) (maximum was about 450 pCi g–1) were detected in several surface soil samples.

Subsurface soils were also contaminated in the 5-feet to 7-feet interval at two boring locations (maximum 137Cs, about 40 pCi g–1, and maximum 90Sr, about 150 pCi g–1) and in the 10-feet to 12-feet interval (maximum 137Cs, about 20 pCi g–1 and maximum 90Sr, about 45 pCi g–1).

Contaminated soil was not removed at the same time the tanks were removed. Its removal was deferred to the present project.

This plan was prepared to address the decommissioning of the adjacent soil area. The area surrounds the D-tank pad area. The adjacent soil area considered for remediation is bounded on the north by building 810, on the east by the UST vault area and building 811 on the south by the 811 fence line, on the west by the fence line. Affected soil generated during remediation of the adjacent land is considered as part of the on-site decommissioning.

The area is encompassed by the following rectangular area:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
1	Northwest corner	259462.55	1294850.66
2	Northeast corner	259428.51	1294982.40
3	Southeast corner	259362.31	1294964.65
4,14	Southwest corner	259423.03	1294840.56

The following areas inside the above rectangular area are not part of the remediation or final status survey area:

Rectangular area encompassing:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
14	Northwest corner	259462.55	1294840.56
13	Northeast corner	259420.49	1294852.94
4	Southeast corner	259394.03	1294847.75
4,14	Southwest corner	259394.03	1294840.56

Rectangular area encompassing:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
12	Northwest corner	259447.55	1294860.17
12,41	Northeast corner	259447.55	1294878.62
41	Southeast corner	259401.84	1294878.62
3	Southwest corner	259392.03	1294840.56

Rectangular area encompassing:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
12,51	Northwest corner	259447.56	1294880.46
11,8	Northeast corner	259420.11	1294928.96
8	Southeast corner	259395.59	1294928.96
51	Southwest corner	259408.59	1294968.32

Rectangular area encompassing:

Reference Point #	Location	Northing Coordinate	Easting Coordinate
11,8	Northwest corner	259420.11	1294928.96
11	Northeast corner	259420.11	1294968.32
10	Southeast corner	259381.58	1294958.94
9	Southwest corner	259389.54	1294927.34

1.3.1 Remediation Criteria

The remediation criterion for the adjacent soil area is the same as that for UST Vault Area.

1.3.2 Remediation Method

The first remediation efforts will remove all concrete cover, asphalt cover, stone blend or the top six inches (15 centimeters) of soil in all survey units. Additional six-inch cuts will be removed in those sections that do not meet the 137Cs DCGL until the 137Cs DCGL is met. When all parts of the Class 1 survey units meet the 137Cs DCGL, they will be assessed with the BetaScintTM system to determine compliance with the unity rule. Remediation and additional sample measurements will proceed as above until the unity rule criterion is met. Soil that was beneath the underground storage tanks and in trenches will be characterized at an appropriate time using excavation as necessary. Remediation and sample measurements will proceed as above until the unity rule criterion is met.

Once the site is remediated to acceptable levels, it will be cleared through a MARSSIM-directed final status survey. The Subcontractor will perform a 100 percent gamma-walkover survey with an appropriate instrument to determine whether the 137Cs DCGL has been met. For FSS planning purposes, it is anticipated that clearance will be conducted in stages where certain units will be cleared and backfilled as excavation occurs in other areas. Measurements for the final status survey may be made at any time during the project in places where remediation is considered complete and will be unaffected by further remediation.

1.4 FINAL STATUS SURVEY PLAN OVERVIEW

This FSSP has been developed to address a wide range of decommissioning activities in accordance with the guidance of MARSSIM. The plan's technical approach is based on performing an FSS for open land (soil) and structural surface areas (including vaults) that are classified as impacted. The goal of this survey plan is to present a combination of measurements and analytical sampling/analyses based on the current guidance of MARSSIM that will achieve unrestricted release of the 811 area.

The remainder of this document provides a derivation of the dose-based acceptance criteria (Chapter 2.0), the survey unit classifications (Chapter 3.0), MARSSIM survey design parameters (Chapter 4.0), survey instrumentation and measurement techniques (Chapter 5.0), survey unit measurement strategy (Chapter 6.0), quality assurance/quality control (QA/AC) (Chapter 7.0), interpretation of survey results (Chapter 8.0), Appendix A - listing of Class 1 land area survey units and Appendix B – listing of Class 1 Structural units.

SECTION 2.0
RELEASE CRITERIA

This chapter provides the radionuclide-specific release criteria for unrestricted release of both structural surfaces and open land areas at the 811 Area. The dose-based radionuclide-specific release criteria are referred to as working DCGLs ($DCGL_W$). The DCGL value is the activity concentration of a radionuclide corresponding to a dose limit under an assumed set of prospective exposure conditions or scenarios for potential exposure. Site-specific input parameters can be used in lieu of default values when deriving acceptance criteria. The resulting $DCGL_W$ values are site specific. The affected areas are remediated in accordance with the decommissioning criteria of 10 CFR Part 834, Radiation Protection for the public and environment. Specifically, Subpart E, 10 CFR 20.1402, Radiological Criteria for Unrestricted Use, allows release of a site for unrestricted use if the residual radioactivity distinguishable from background results in a Total Effective Dose Equivalent (TEDE) to an average member of the critical group that does not exceed 15 mrem/yr and the residual radioactivity has been reduced to levels that are ALARA.

The cleanup goal for radionuclides in soil is based on a total effective dose equivalent limit of 15 millirems per year above background as suggested in "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (EPA Office of Solid Waste and Emergency Response Directive 9200.4-18, August 1997). Cleanup levels were calculated using the RESRAD* computer code, 15 millirems per year, the assumed future land use, and 50 years of continued DOE control. The NYSDEC guidance of 10 millirems per year above background has been adopted as an as-low-as-reasonably-achievable (ALARA) goal that will be considered during the design and construction phase.

Calculations using the RESRAD computer code led to DCGLs for ^{90}Sr of 15 pCi g^{-1}, ^{226}Ra of 5 pCi g^{-1} and for ^{137}Cs of 23 pCi g^{-1}.

Gamma count rates with a 2-inch × 2-inch NaI(Tl) or comparable detector will be needed to determine the efficacy of remediation for 137Cs and 226Ra. While it may be presumed that remediation for 137Cs and 226Ra will remediate 90Sr contamination at the same time, measurements with the BetaScintTM system will also be made from time to time to support that presumption.

MARSSIM provides release criteria adjustments for elevated localized total contamination based on dose modeling of smaller areas. Such adjustments are made by applying "area factors" in an

* RESRAD is a computer model designed to estimate radiation doses and risks from RESidual RADioactive materials. Work on the RESRAD family of codes is sponsored jointly by the Office of Environmental Policy and Assistance in DOE's Office of Environment, Safety and Health and the Office of Site Closure in DOE's Office of Environmental Management. There is also independent support for the RESRAD code from the U.S. Nuclear Regulatory Commission.

elevated measurement comparison (EMC) test. Table 2-1 presents area factors (based upon MARSSIM guidance) to be used for elevated measurement comparisons and to determine sampling requirements in situations where the scan instrument's minimum detectable concentration is greater than the appropriate $DCGL_W$. The appropriate $DCLG_{EMC}$ values are calculated by multiplying the appropriate $DCGL_W$ and the area factors presented in Table 2-1. Those for the tank and land areas (area where material will be separated into above- and below-criteria material) were estimated based on the $DCGL_W$ and are presented in Table 2-2.

$DCGL_{EMC}$ = Area Factor * $DCGL_W$

The elevated measurement criterion is only applicable to Class 1 areas since elevated activity exceeding the $DCGL_W$ is not expected in Class 2 or 3 areas. For Class 1 soil survey units, total activity measurements above the $DCGL_w$ may be allowed provided that:

- The average contamination level within the survey unit is less than the applicable $DCGL_w$ and the determined $DCGL_{EMC}$ is not exceeded.
- Application of the elevated measurement comparison "sigma" test results in a value less than 1. The formula below will be used for this comparison:

$$\frac{\delta}{DCGL} + \frac{(\text{average concentration in elevated area} - \delta)}{(\text{area factor for elevated area})(\text{DCGL})} + \ < 1$$

The value of δ is the average of the measurements outside of any elevated areas. A separate term is included for each elevated reading exceeding the $DCGL_W$.

Table 2-1
Area Factors

Area Factors									
Radio-nuclide	1 m^2 (11 ft^2)	3 m^2 (32 ft^2)	10 m^2 (108 ft^2)	30 m^2 (323 ft^2)	100 m^2 (1,076 ft^2)	300 m^2 (3,229 ft^2)	1,000 m^2 (10,764 ft^2)	3,000 m^2 (32,292 ft^2)	10,000 m^2 (107,639 ft^2)
Cs-137	11	5	2.4	2.3	1.7	1.4	1.1	1.1	1.0

Table 2-2
$DCGL_{EMC}$ Values

$DCGL_{EMC}$ (pCi/g)									
Radio-nuclide	1 m^2 (11 ft^2)	3 m^2 (32 ft^2)	10 m^2 (108 ft^2)	30 m^2 (323 ft^2)	100 m^2 (1,076 ft^2)	300 m^2 (3,229 ft^2)	1,000 m^2 (10,764 ft^2)	3,000 m^2 (32,292 ft^2)	10,000 m^2 (107,639 ft^2)
Cs-137	242	110	52.8	50.6	37.4	30.8	24.2	24.2	22

2.1 D-TANK AND ADJACENT AREAS

Information regarding the general framework for facility radiation surveys was provided in the Field Sampling Plan. This framework is applicable to the former Operational Area of the facility with the exception of the threshold land area concentration criteria.

2.1.1 Land Areas

The release criteria for land areas shown in Table 2-1 are the average activity concentration in soil (pCi/g) that correspond to the dose-based radiological criteria of 10 CFR part 834. The limits are radionuclide specific and the sum of fractions (unity rule) must be applied to show compliance with the acceptance criteria. Table 2-2 presents area factors (based on MARSSIM guidance) to be used for elevated measurement comparisons (EMC) and to determine sampling requirements in situations where the scan instrument's MDC is greater than the appropriate $DCGL_w$. The appropriate $DCGL_{EMC}$ values are calculated by multiplying the appropriate $DCGL_w$ by the area factors in Table 2-2.

2.1.2 Structures

The radionuclide-specific average total contamination acceptance criteria were derived using the D and D code and default parameters. Values calculated using D and D and default parameters are referred to as screening values by the DOE. The DOE allows use of these screening values in lieu of site-specific DCGL values that must be submitted to the DOE for approval. The DOE screening values assume that removable contamination is not more than 10 percent of the total contamination screening value.

The acceptance criteria for structures shown in Table 2-3 are the average total surface contamination and the average removable surface contamination levels that correspond to the dose-based radiological criteria of 10 Part 834. The limits are radionuclide specific and the sum of fractions (unity rule) must be applied to show compliance with the acceptance criteria.

Table 2-3
Radionuclide-Specific Release Criteria –Structures

Radionuclide	Structures Fixed Contamination (dpm/100 cm^2)	Structures Removable Contamination (dpm/100 cm^2)
Cs-137	5000	1000
Sr-90	1000	200
Ra-226	100	20

SECTION 3.0
SURVEY AREA CLASSIFICATION

3.1 INITIAL SURVEY AREA CLASSIFICATION

All Building 811 Underground Storage Tanks and remediated soil areas have undergone either a characterization study or historical site assessment (HSA) that is used as the basis for the initial determination of the area classification established in this section. The assessment included a combination of the following:

- A review of survey data including routine survey data generated during operations 811 building area.
- A review of BNL records, including: licenses, drawings, operations procedures, and other relevant site records.
- Interviews with employees who were familiar with operations at the site.
- Building exteriors were evaluated based on a review of building entrances/exits, ventilation exhausts, and the presence of drains. Additional data gathered as the remediation project proceeds will provide adequate assurance that any residual contamination is contained within the building structure.

The characterization or HSA was performed to determine the current radiological status of site structures and open land areas. Each area was characterized as impacted or non-impacted based on the following MARSSIM definitions:

- **Non-impacted** areas have no reasonable potential for residual contamination and require no further evidence to demonstrate compliance with release criterion.
- **Impacted** areas have a potential for radioactive contamination (based on historical data) or contain known radioactive contamination (based on past or current survey data). For areas of known radioactive contamination, areas adjacent to these locations may also be characterized as impacted based on the potential for inadvertent spread of contamination.

3.1.1 Characterization Survey Results Summary

The land areas have been classified in accordance with MARSSIM based on the existing characterization survey data. In addition, part of the adjacent land was impacted and was partially remediated prior to this clearance effort.

3.1.2 Survey Area Classification Scheme

The survey area classification scheme for planning final status surveys of land areas and structures is outlined in Table 3-1. Each impacted area and structure will be sampled in accordance with MARSSIM sampling density requirements and the area classification shown in Table 3-1.

A survey unit is a physical area consisting of structure or land areas of specified size and shape for which a separate decision will be made as to whether or not that area exceeds the release criterion.

Areas that have no reasonable potential for residual contamination are classified as non-impacted areas. These areas have no radiological impact from site operations and are typically identified early in decommissioning. Areas with reasonable potential for residual contamination are classified as impacted areas.

Impacted areas are further divided into one of three classifications:

- Class 1 Areas: Areas that have, or had prior to remediation, a potential for radioactive contamination (based on site operating history) or known contamination (based on previous radiation surveys) above the DCGLW. Examples of Class 1 areas include site areas previously subjected to remedial actions, locations where leaks or spills are known to have occurred, former burial or disposal sites, waste storage sites, and areas with contaminants in discrete solid pieces of material and high specific activity.

- Class 2 Areas: Areas that have, or had prior to remediation, a potential for radioactive contamination or known contamination, but are not expected to exceed the DCGL. To justify changing the classification from Class 1 to Class 2, measurement data should exist that provides a high degree of confidence that no individual measurement would exceed the DCGL. Other justifications for reclassifying an area as Class 2 may be appropriate based on site-specific considerations. Examples of areas that might be classified as Class 2 for the final status survey include locations where radioactive materials were present in an unsealed form, potentially contaminated transport routes, areas downwind from stack release points, upper walls and ceilings of buildings or rooms subjected to airborne radioactivity, areas handling low concentrations of radioactive materials, and areas on the perimeter of former contamination control areas.

- Class 3 Areas: Any impacted areas that are not expected to contain any residual radioactivity or are expected to contain levels of residual radioactivity at a small fraction of the DCGL based on site operating history and previous radiation surveys. Examples of areas that might be classified as Class 3 include buffer zones around Class 1 or Class 2 areas and areas with very low potential for residual contamination but insufficient information to justify a non-impacted classification.

Survey units should be limited in size based on classification, exposure pathway modeling assumptions, and site-specific conditions. The suggested areas for survey units are in Table 3-1(extracted from MARSSIM, chapter 4).

Table 3-1
Suggested areas for survey units

Classification	Suggested Area
Class 1	
Structures	Up to 100 m^2 floor area
Land areas	Up to 2000 m^2
Class 2	
Structures	100 to 1000 m^2 floor area
Land areas	2000 to 10,000 m^2
Class 3	
Structures	No limit
Land areas	No limit

3.1.3 Initial Survey Area Classifications

The initial (i.e., FSS planning basis) classification of the area is listed in Table 3-2. The site is essentially homogenous. BNL has stated that previous surveys adjacent to and below the D tanks area and the UST vault have identified these areas as Class 1 survey units.

Table 3-2
Final Status Survey Initial Survey Area Classifications

Area	Description	Classification
UST Vault land area	Described in section 1.2	1
UST vault	Six vaults described in section 1.2	1
Adjacent Soil	Described in section 1.3	1

3.1.4 Selection of Survey Units

Each impacted area listed in Table 3-2 will be divided into a number of survey units based on the classification scheme outlined in Table 3-1. Selection of the survey units will be based on areas having similar operational history or similar potential for residual radioactivity to the extent practical. Survey units also will have relatively compact shapes unless an unusual shape is appropriate for the site operational history or site conditions. Appendix A contains Land area units and information. Appendix B contains structure units and information.

3.2 REASSIGNMENT OF SURVEY AREA CLASSIFICATIONS

All areas will not have the same potential for residual contamination and, accordingly, will not need the same level of survey coverage to achieve the established release criteria. The initial area classifications are based on a combination of characterization data and historical information. Additional information obtained during the remediation process (primarily remedial action support survey results) may lead to the determination that the initial classifications established in Table 3-2 should be revised to be consistent with the definitions given in Table 3-1. Each survey area classification change will be recorded as a FSSP deviation and documented in the final status survey report.

3.2.1 Classification Upgrades

Any area classification may be upgraded to a more restrictive final survey protocol (e.g., from Class 2 to Class 1) by the Radiological Engineer or designee based on the receipt of additional survey or measurement information that justifies the need for the higher classification. Classification upgrades are not anticipated at the BNL area since all initial area classifications (Table 3-3) are at the most restrictive Class 1 level.

3.2.2 Classification Downgrades

Any area classification may be downgraded to a less restrictive final survey protocol (e.g., from Class 1 to Class 2) by the Radiological Engineer or designee based on the receipt of additional survey or measurement information that justifies the need for the lower classification. Downgrades are contingent on receipt of documented approvals from BNL prior to completion of the downgraded final survey.

SECTION 4.0
SURVEY DESIGN

4.1 REMEDIAL ACTION SUPPORT SURVEYS

Real-time remedial action support surveys (RASS) will be performed to guide and control the progress of remediation tasks at BNL remediation area. While the performance of a RASS is outside the scope of a FSS, its principal function is to provide radiological data determining that remediation in a survey unit is substantially complete and therefore FSS activities may proceed. The determination of a survey unit's readiness for a final status survey will rely on the on-site knowledge of the area and the results from the survey instrumentation.

Because of the working relationship between the RASS and successful completion of the FSS, it is included in this section of the FSSP. Additionally, an important application of a RASS is to segregate impacted material in accordance with remediation objectives (refer to sections 1.2 and 1.3), as discussed below.

4.1.1 Impacted Soil/Debris Segregation and Disposition

Segregation of impacted soil during remediation may be aided by a germanium detector equipped with ISOCS. Alternatively, HPTs may direct the segregation of impacted soil using portable survey instruments equipped with NaI detectors. Both detection methods have the sensitivity to detect Cs-137 below the most restrictive value of 23 pCi/g. Table 4-1 provides MDC values calculated for a 2-inch-by-2-inch sodium iodide (2×2 NaI) detector using the guidance provided in MARSSIM for increasing background values.

Table 4-1
MARSSIM Calculated Minimum Detectable Concentration Values
For Increasing Background (2-inch-by-2-inch NaI Detector)

Background (cpm)	Minimum Detectable Count Rate (ncpm)	Scan Minimum Detectable Concentration (μR/hr)	Scan Minimum Detectable Concentration (pCi/g Cs-137)
3,000	585	0.91	3.5
5,000	756	1.19	4.6
7,000	894	1.40	5.4
9,000	1,014	1.59	6.1
11,000	1,121	1.76	6.7
13,000	1,219	1.92	7.4
15,000	1,309	2.05	7.9

Background (cpm)	Minimum Detectable Count Rate (ncpm)	Scan Minimum Detectable Concentration (μR/hr)	Scan Minimum Detectable Concentration (pCi/g Cs-137)
16,000	1,352	2.12	8.1
17,000	1,394	2.19	8.4
18,000	1,434	2.25	8.6
19,000	1,473	2.31	8.8
20,000	1,512	2.38	9.1
21,000	1,549	2.43	9.3

The RASS will rely principally on direct radiation measurement using instrumentation equipped with gamma-sensitive detectors. The RASS scan MDC will be specified for remediation survey instrumentation using the same protocol as final status surveys.

During remediation, excavated material will be characterized into one of the following four categories based on physical description and/or radiological survey:

- Contaminated Soil (or soil-like material) – Soil above the $DCGL_W$ or DCCL value.
- Acceptable Backfill Soil (or soil-like material) – Soil containing radioactivity below $DCGL_W$ value.
- Suspect Contaminated Soil (or soil like material) – Soil which requires additional characterization for the determination of whether it is below the $DCGL_W$.
- Debris (Structural Surface Survey Material) – Non-soil material that is oversized (e.g., concrete fragments, bricks, and construction debris). Surveys of debris consist of surveys of structural surfaces for total (fixed) and removable contamination in units of disintegrations per minute per one hundred centimeters squared (dpm/100 cm^2).

Debris will be subdivided into two categories: *Removable* (non-soil material that can be excavated directly) and *Permanent* (non-soil material that cannot be excavated directly).

Removable debris will be segregated from soil to the extent practical by visual inspection. Debris buried within the unit and soil mixture will be evaluated to determine whether it is a potential candidate for clearance surveys considering such factors as volumetric contamination and accessibility of surfaces for survey. Clearance surveys may be performed if large, nonporous, solid debris with only surface contamination are uncovered during residue excavation. In this case, clearance surveys for total and removable contamination will be performed on the debris to ensure that released items are released in accordance with regulations. Otherwise, removable debris will be staged for packaging in accordance with disposal facility waste acceptance criteria.

For permanent debris, an *in-situ* final status (structural surface) survey using germanium detectors with ISOCS (when practical) of accessible external and internal debris surfaces will be performed after segregating the soil and/or soil like material surrounding the permanent debris, as discussed above. The FSS protocol will be the same as the FSS used for structures .

Residues, sediments, and/or liquids (associated material) encountered when removable or permanent debris is exposed will be removed from the excavation to the extent practical and staged for sampling and analysis.

4.1.2 Selection of RASS Instrumentation Threshold Values for Soil

Based on survey instrument DCCL and $DCGL_W$ values, initial survey instrumentation threshold values will be documented for RASS use. The lower bound threshold (LBT) corresponds to the instrumentation value (ncpm) at or below which the surveyed soil is controlled as acceptable backfill soil. The upper bound threshold (UBT) is the instrumentation value (ncpm) at or above which the surveyed soil is controlled as contaminated soil. Instrumentation values bounded between the LBT and UBT will be stockpiled as suspect contaminated soil pending sampling and analysis to determine the proper controls (i.e., acceptable backfill or contaminated).

The LBT and UBT values will be conservatively set based on empirical radiological data for the area. Initially, the LBT value will be the average net counts per minute value corresponding to the $DCGL_W$ less one standard deviation of the average ncpm. For the initial UBT value, it will be the average ncpm value corresponding to the $DCGL_W$ plus one standard deviation of the average ncpm. As surveyor and analytical experience applying threshold values in the field progresses, the threshold values may be adjusted periodically to permit more efficient use of remediation resources.

4.2 FINAL STATUS SURVEYS

The final status survey of each Class 1, Class 2, and Class 3 survey unit will be designed in accordance with MARSSIM principles (MARSSIM chapter 5) and employ a triangular grid system. In the discussion that follows, the number of soil samples in a given survey unit is n.

The mean survey unit 137Cs, 226Ra and 90Sr concentrations will be determined for each survey unit by calculating the weighted average of the n samples from that unit. If $x_i \pm \sigma_i$ is the 137Cs concentration and its uncertainty for the ith sample in a survey unit, then the mean $\overline{x}$ and its uncertainty $\overline{\sigma x}$ for that survey unit are:

$$\overline{x} = \frac{1}{n}\sum_{i=1}^{n} xi \text{ and } \overline{\sigma x} = \frac{1}{n}\sqrt{\sum_{i=1}^{n} \sigma i2}$$

All uncertainties will be at the 95 percent confidence level (two standard deviations).

The mean survey unit 90Sr concentration average $\overline{y}$ and its uncertainty $\overline{\sigma y}$ and the mean survey unit 226Ra concentration average $\overline{z}$ and its uncertainty $\overline{\sigma z}$ will be determined similarly.

The value D for use in applying the unity rule and its uncertainty σD are:

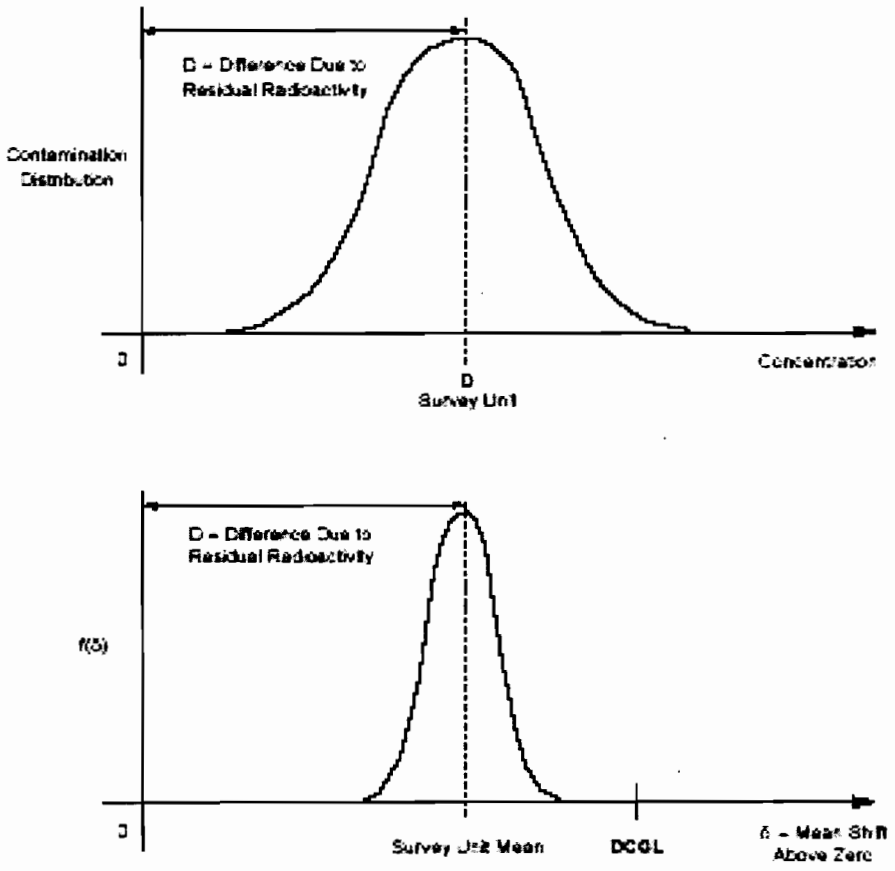
$$D = \frac{\overline{x}}{23 \text{ pCi g}-1} + \frac{\overline{y}}{15 \text{ pCi g}-1} + \frac{\overline{z}}{5 \text{ pCi g}-1}$$

$$\text{and } \sigma D = \sqrt{\left(\frac{\overline{\sigma x}}{23 \text{ pCi g}-1}\right)^2 + \left(\frac{\overline{\sigma y}}{15 \text{ pCi g}-1}\right)^2 + \left(\frac{\overline{\sigma z}}{5 \text{ pCi g}-1}\right)^2})$$

Figure 4-1 (MARSSIM figure D.3) illustrates the decision rule, except that the value 1 substitutes for the DCGL in the figure. The measurement distribution of D, f(δ), is centered at D, the true value of the application of the unity rule. This distribution is shown in the lower graph of

Figure 4-1.

Figure 4-1
Decision Rule



As MARSSIM says in its appendix D, "If f(δ) lies far to the left (or to the right) of [D = 1] [see

Figure 4-1], a decision of whether or not the survey unit demonstrates compliance can be easily made. However, if $f(\delta)$ overlaps [D = 1], statistical decision rules are used to assist the decision maker."

Therefore, application of the results of the above calculations and the alternative actions in leads to the following decision rules:

If $\sigma D \leq 1 - D$ for a survey unit, then that survey unit meets the unity rule criterion at the 95 percent confidence level. No further action will be required.

If $-\sigma D \leq 1 - D \leq +\sigma D$ for a survey unit, then the survey of that survey unit is inconclusive at the 95 percent confidence level. Additional statistical tests in accordance with the Sign test as described in MARSSIM will be performed. If these tests are also inconclusive, BNL personnel, in coordination with stakeholders and regulatory authorities, will decide the next course of action. Suggested further actions include spot remediation with or without periodic monitoring, or periodic monitoring until contamination has decayed and met the unity rule criterion.
If $1 - D \leq -\sigma D$ for a survey unit, then that survey unit does not meet the unity rule criterion at the 95 percent confidence level. BNL personnel, in coordination with stakeholders and regulatory authorities, will decide the next course of action. Either land use restrictions with periodic monitoring until contamination has decayed and met the unity rule criterion or additional remediation followed by a final status survey may be required.

The measured gamma count rates, exposure rates, and BetaScintTM results will be compiled and analyzed similarly to provide additional information for the decision-making process. However, soil sample results will provide the primary data for decision-making.

Final status surveys will be performed to demonstrate that average residual radioactivity levels within each survey unit meet the applicable acceptance criteria identified in Chapter 2.0. The principal features of the FSS land area protocol to be applied at the area are discussed below and include:

Hypothesis Testing
Acceptable Decision Error Rates
- Surrogate Radionuclide Selection
- Sign test
- Establishing Radiological Background

Locating Discrete Soil Samples
Scanning

4.2.1 Hypothesis Testing

To provide statistically robust decisions regarding survey unit acceptability with respect to achieving the unrestricted use acceptance criteria approved for the survey area, the paired

hypothesis testing approach is used. The paired hypotheses are the null, H_O, and alternative, H_A statements. The null hypothesis H_O poses that the measured average residual contamination in a survey unit *exceeds* the remedial objective (e.g., the $DCGL_W$ activity concentration). The complementary alternative hypothesis H_A presumes that the measured average residual contamination in a survey unit is *at or below* the remedial objective. The outcome of hypothesis testing is used to ascribe a statistically based level of confidence or probability (using the decision error rates and hypothesis testing matrix shown in section 4.2.2) to the decision made regarding the "true" as-left condition of a survey unit.

The null hypothesis is that a survey unit does not meet release criteria.

A Type I decision error occurs when the null hypothesis is rejected when it is true and is sometimes referred to as a false positive error. The probability of making a Type I decision error, or the level of significance, is denoted by alpha (α). Alpha reflects the amount of evidence the decision maker would like to see before abandoning the null hypothesis and is also referred to as the size of the test.

A Type II decision error occurs when the null hypothesis is accepted when it is false. This is sometimes referred to as a false negative error. The probability of making a Type II decision error is denoted by beta (β). The term $(1 - \beta)$ is the probability of rejecting the null hypothesis when it is false and is also referred to as the power of the test.

Decisions made from the results of the final status survey will be based primarily on radioanalysis of soil samples for 137Cs, 226Ra and 90Sr concentrations. Experience indicates that uncertainties in the analytical data will be significantly less than the DCGLs. This means that application of the decision rules with uncertainties at the 95 percent confidence level will provide a 5 percent probability for both alpha and beta, neglecting the uncertainty in the DCGLs.

4.2.2 Decision Error Rates

Survey unit radiological measurement data will be used to objectively determine the success or failure of the remediation work, i.e., whether the "true" as-left radiological condition is at or below ("success"), or above ("failure"), the applicable remedial objective. This FSS determination framework for the cleanup area are depicted in the matrix below.

Hypothesis Testing Matrix for Survey Unit FSS Measurement Decisions

	Survey Unit Decision	
Hypothesis	*"Success"* (Reject H_O)	*"Failure"* (Accept H_O)

"True" Condition of the Survey Unit	**H_A** Meets remedial objective (e.g., at or below $DCGL_W$ value)	No decision error (probability = 1 - α)	Incorrectly fail to release survey unit (Type II error with probability = β)
	H_O Exceeds remedial objective (e.g., exceeds $DCGL_W$ value)	Incorrectly release survey unit (Type I error with probability = α)	No decision error (probability = 1 - β)

"Success" means that the null hypothesis H_O can be rejected and, therefore, the alternative hypothesis H_A is to be accepted at a decision error confidence interval of (1 - α). The rejection of H_O also means that there is a very small likelihood (equal to the interval α) that the "success" decision is incorrect. Similarly, "failure" means that H_O is accepted (and H_A rejected) at a decision error confidence interval of (1- β), with again a small likelihood (equal to β) that the failure decision is incorrect.

The error control data quality objective (DQO) confidence intervals selected for the remediation area are α = 0.05 for Type I errors and β = 0.05 for Type II errors. The Type I error control DQO was selected because decisions regarding the success of remediation efforts directly affect the sustained protection of human health and environmental resources. The same DQO is used to cap conservative Type II decision errors because it is also important to limit unwarranted remediation.

4.2.3 Locating Discrete Samples

The number of samples in the table below includes a factor to increase the number of required samples by as recommended by MARSSIM. The number of required samples may be further increased to increase the power level of the statistical tests. Additional sampling locations may also be necessary if characterization data and remedial action surveys and sampling indicate that there is greater than expected spatial variability (□ of sample results within specific survey units. Sigma (□) is expected to be 14 pCi/g for Cesium soil contamination measurements while the DCGL is 23.0 pCi/g and the LBGR is 6.7pCi/g (Scan MDC value) then delta is 15.3. This would give you a Δ/σ and would correspond to a sing p of 0.864334 from table 5.5 of the MARISSM guide.

Using equation 5-2 from MARRISM and error rates of 0.05 for α and β, the number of calculated sample locations per survey unit is 20. As per MARRISSM 20% extra samples should be taken. Therefore, 24 samples should be taken in each Class 1 survey unit to assure reaching the calculated minimum of 20 samples. It is expected that the number of samples calculated will

meet MARISSM requirements. If the standard deviation of the samples or other factors vary more than expected, additional samples may be required in each class 1-survey unit.

4.2.3.1 Soil – Routine Method

The results of discrete soil sampling will be used to verify that the average soil concentration is less than the appropriate remediation criteria. Regardless of the survey unit classification (Class 1, Class 2, or Class 3), a predetermined minimum number of samples will be collected in each survey unit as shown in section 4.2.3. A random-start triangular pattern, or grid (generally the most efficient means of identifying small areas of elevated activity), will be used in Class 1 and Class 2 survey units to locate the soil samples. The triangular grid has approximately a 90 percent chance of detecting a circular hot spot of radius equal to one-half the grid spacing. For Class 3 survey units, the samples will be located at the discretion of the Radiological Engineer.

The perimeters of survey units will be clearly delineated with engineer stakes or flags. The locations of corners of these areas will be determined using a global positioning system (GPS).

A random-start triangular grid pattern for sample locations will be established in each survey unit. The spacing L of the pattern for n sample points in a survey unit of area A is given by MARSSIM equation 5–5:

$$L = \sqrt{\frac{A}{n \sin 60°}}$$

In the above equation, *A* is the survey unit area to be covered by the grid pattern and *N* is the number of samples required for that survey unit. The random start point (X and Y coordinates) will be selected using a readily available random number generator such as the "RAND()" function in the Microsoft computer application *Excel*© (or the *Visual Sample Plan* computer application), or the methodology outlined in Section 5.5.2.5 of MARSSIM. Sample points will be identified in the field by flags or other means using a global positioning system (GPS or equivalent locating tool) to spot each grid node.

After L is determined, a random coordinate location will be identified for a survey pattern starting location as follows. Two random numbers for each survey unit will be randomly generated, one for the x-axis and one for the y-axis. The appropriate survey unit dimensions will be multiplied by each set of random numbers to provide (x, y) coordinates for the starting location relative to the origin of the survey unit grid pattern.

Beginning at the random starting location, a row of points will be identified, parallel to the x-axis, at intervals of L. For a triangular grid, a second row of points then will be developed parallel to the first row at a distance L sin 60° from the first row. Survey points along that second row will be midway (on the x-axis) between the points on the first row. This process will

be repeated above and below the starting row to identify a pattern of survey locations throughout the survey unit. If identified points fall at locations that cannot be surveyed, then additional points will be determined using the same random process described above for determining the starting location until the desired total number of points is identified.

4.2.3.2 Soil – Alternate Method

The routine method described above presumes that the actual scan minimum detectable concentration (MDC) is less than or equal to the required scan MDC (discussed in the following section), i.e., there is sufficient scan sensitivity available to detect small areas of elevated activity. An elevated scan MDC could be experienced due to an increased background signal attributable to meteorological conditions increasing the airborne concentration of natural radioactivity or confounding radiation sources in an adjacent area. For the infrequent situations where the actual scan MDC exceeds the required scan MDC, the alternate method for calculating the required number of samples N may be used. This alternate method is described in Section 5.5.2.4 of MARSSIM and involves the calculation of an area factor corresponding to the actual scan MDC as follows:

$$AreaFactor = \frac{ScanMDC(actual)}{DCGL_W}$$

The size of an area of elevated radioactivity corresponding to this area factor is interpolated from FSSP Table 2-4, and divided into the survey unit area to determine the alternate number of sample locations N_{EA}. If N_{EA} exceeds the value assigned to N in Section 4.2.3, an alternate spacing L_{EA} for the systematic sampling grid is calculated using the equation:

$$L_{EA} = \sqrt{\frac{A}{0.866 N_{EA}}}$$

Otherwise, the equation in Section 4.2.4.1 will be used to specify a routine spacing L.

4.2.3.3 Structure Surfaces

The results of discrete sample point measurements of structure surfaces will be used to verify that the total and removable activity concentrations are less than the appropriate $DCGL_w$ values. Regardless of the survey unit classification (Class 1, Class 2, or Class 3), a predetermined minimum number of sample points will be measured in each survey unit. A random-start triangular grid pattern will be used for equal-distant coverage of Class 1 and 2 areas. Class 3 areas may use the random-start triangular grid for equal-distant coverage or may bias sample locations based on potential for contamination.

The number of structural samples in the table below includes a factor to increase the number of required samples by 20 percent, as recommended by MARSSIM, to allow for lost or unusable

data. The number of required samples may be further increased to increase the power level of the statistical tests. Additional sampling locations may also be necessary if characterization data and remedial action surveys and sampling indicate that there is greater than expected spatial variability of sample results within specific survey units. Because of the unknown variability in uncertainty in measurements in the structural units a conservative grid sampling method of one sample per m^2 of surface area will be taken. The variability in sampling will be determined and data objectives in the below table will be met. If it is determined that after sample analysis is performed that not enough samples have been obtained more samples will be taken to be sure Data Quality Objectives are reached.

Data Quality Objective

Survey Unit Area (m^2)	Structure Classification	Type I Error (α) Control	Type II Error (β) Control
100	1	0.05	0.05
100 - 1,000	2	0.05	0.05
Unlimited	3	0.05	0.05

4.2.4 Obtaining Discrete Samples and scanning methods

4.2.4.1 Soil – Shallow Surface Composite and gamma scans of land areas

Gamma radiation scans will be performed and recorded at each surface soil sampling location with two instruments. A Ludlum model 19A u meter or equivalent and a Ludlum model 44-10 gamma scintillator used with a Ludlum model 2221 scaler/ratemeter single channel analyzer or equivalent. An ISOCS unit may also be used to take measurements of grids.

Special precaution should be taken near the north field area since extensive activated material will increase background count rates. NaI detectors and ISOCS equipment should be shielded in these areas to reduce background due to shine. In trench areas scans will be performed by lowering a NaI 2 x 2 probe into the trench box via a pulley attached to a 2 x 4 spanning the length of the area.

Surface soil samples will be collected from the land surface to 6 inches (15 centimeters) below the surface. The minimum volume per sample will be one liter. Samples will be thoroughly mixed and manually compacted before being containerized. Vegetation, animal matter, and rocks will be excluded from the samples as much as reasonably possible.

Samples will be immediately identified and labeled. The attached label will include the sample identification code, date and time of collection, analyses requested, preservatives used (if any), and type of sample (grab or composite).

The sample identification code will be SS04YYZZ, where "SS" denotes "surface soil sample," "04" refers to the year 2004 (or 05 for year 2005), "YY" is the designator for the survey unit or reference area sampled, and "ZZ" is the sequential number to designate the samples. The location where each sample was collected will be immediately cross-referenced with its sample identification code in project onsite records to assure proper correlation between analytical results and locations when the project report is prepared.

Results will be averaged over a survey unit, samples will be relatively large, and any contribution of cross-contamination to uncertainties will be negligible in comparison with statistical uncertainties in analysis results. Therefore, extensive cleaning of sampling equipment to minimize the transfer of small amounts of debris between samples is of little value. However, normal care will be taken to prevent the transfer of large amounts of material between samples from the same survey unit. These measures will help to reduce investigative derived media (IDM) without impacting data quality.

Sampling equipment will be thoroughly cleaned between uses in different survey units in accordance with normal procedures to prevent cross-contamination.

No sample preparation steps will be performed during the field processing of surface soil samples other than the removal of non-soil material (grass, sticks, rocks, etc.) and decanting free-water if present. If there is reason to believe that non-soil objects are affected by radionuclides of remediation concern, they will be retained for possible further evaluation as a separate sample.

4.2.4.2 Soil – Deep Subsurface Composite

Subsurface sampling is outside MARSSIM's scope. Therefore, the sampling number and locations are based on judgment. The purpose of the subsurface sampling is to determine subsurface concentrations of 90Sr, 226Ra and 137Cs and to see if contamination has migrated to the subsurface. Deep excavations may preclude a gamma-walkover type survey or collection of soil samples for safety reasons. If so, other approved techniques may be used, such as measuring excavated soil or using remote detectors *in-situ*.

Subsurface soil samples shall be collected from two depths at each subsurface sample location. One sample will be collected from one to four feet below land surface and the other will be collected from to four to seven feet below the surface. Subsurface samples will be collected using hydraulic push sampling methods. A dual tube soil sampling system will be used to minimize cross-contamination from surface soils. As the sample is removed from the hole, it will be scanned using direct reading instruments to identify the presence of gross radionuclide contamination that will require special handling and cleanup procedures. Care must be taken when collecting subsurface samples to ensure that soil that may have collapsed into the hole from the surface is not included in the subsurface sample.

The volume per sample will be approximately 0.5 liter. The actual volume will be a function of the recovery achieved in the sampling tube. If adequate volume is not obtained, a second sample will be collected immediately adjacent to the initial sampling location and homogenized. Subsurface soil samples will be managed in an identical manner as the surface soil samples.

The sample identification code will be DP04YYZZ (X1 - Xs), where "DP" denotes "direct push," "04" refers to the year 2004 (or 05 for year 2005), "YY" is the designator for the survey unit or reference area sampled, and "ZZ" is the sequential number to designate the samples. X1 and X2 will denote the upper and lower depth of the sampling interval, respectively. The location where each sample was collected will be immediately cross-referenced with its sample identification code in project onsite records to assure proper correlation between analytical results and locations when the project report is prepared.

Sampling equipment will be thoroughly decontaminated between depth intervals and sample locations.

Biased subsurface sampling may be used at locations where a subsurface sample has been collected and radiation levels are still elevated sufficiently above background as to require further investigation at the location. In this event, a sample of the 15" of soil below the bottom of the previous sample will be collected for analysis. As above, care must be taken and sampling methods selected to ensure that soil from the previously sampled depth does not enter the hole and mix with the sample. Using direct read instruments, monitor the hole to determine the activity level. If elevated readings are still found, additional sampling will be required.

In Appendix G to Volume 2 of NUREG-1757, the NRC recognizes that core sampling may be unnecessary if sufficient data to characterize subsurface residual radioactivity is available from other sources. Weston believes that the data to be provided by the soil segregation system will be sufficient in this regard. Therefore, as an alternative or supplement to core sampling, Weston may implement an *in situ* soil sampling protocol that achieves the required sensitivity for detection of Cs-137 as well as non-uniform radiological conditions. Weston fully anticipates that the radiological data provided by the soil segregation system will be of sufficient quality and quantity to permit its use as FSS soil sample data. Also, the process control of segregated soil will be such that the radiological data produced by the system will remain representative of the soil placed in an excavation.

4.2.4.3 Structure Surfaces

Smears for removable contamination are obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter is used. The smear counter MDC will be calculated in accordance with the static MDC equation in Section 5.1.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey will be analyzed for Cs-137, Ra-226 and/or Sr-90, as required. Additional analyses of smear samples may be required depending on the radionuclide complement of the survey unit. The minimum MDCs required for analytical analyses are a fraction (usually 25 to 75 percent) of the applicable $DCGL_W$ (loose) value for the survey unit. Consequently, the smear analysis minimum detectable activities (MDA) should be between TBD and TBD dpm per 100 cm^2 smeared.

4.2.5 Scanning

Gamma scanning surveys are to be performed to identify isolated areas of elevated radioactivity that may not be revealed by discrete soil sampling (i.e., confirm that radiological conditions in each survey unit are reasonably uniform) and record the direct radiological profile of each survey unit. Surveyor technique, i.e., the pace and pattern of surveyor and detector motion as well as the surveyor's professional judgment, will control the fraction of the survey unit soil surface that is effectively viewed or "covered" by the field instrumentation. The surveyor scanning technique to be employed at the BNL area will limit the detector face-to-soil surface clearance to less than 2 inches, with a half-meter per second serpentine detector motion. To permit the surveyor to focus on maintaining these detector clearance and motion constraints, the surveyor will rely on the audible response signal from the survey instrument.

The fraction of each survey unit's land area to be covered by gamma scans will be based upon the survey unit classification as shown below.

Land Area Scan Coverage Requirements

Survey Unit Classification	Scan Coverage
Class 1	100 percent
Class 2	10 to 100 percent Systematic and Judgmental
Class 3	Judgmental

The scanning coverage for Class 1 areas will always be total, i.e., 100 percent. The scanning coverage for Class 2 areas (should any Class 1 areas be downgraded to Class 2 area) will be adjusted based on the level of confidence supplied by existing data. Whenever partial scanning of a survey unit is required, the Data Manager will determine the degree of scan coverage and which areas are to be scanned based on the information available at the time of survey. For example, if the potential for contamination in a section of the survey unit is higher than the rest (e.g., the section that borders a Class 1 survey unit), this section may receive 100 percent coverage, while the remaining section may receive less (e.g., 50 percent) systematic coverage. If the survey unit has an equally unlikely potential for contamination (e.g., isolated with no

previous history of contamination), a systematic 25 percent coverage protocol may be most appropriate and therefore chosen. Generally, a larger proportion of a Class 2 survey unit will be scanned if the residual radioactivity is close to the $DCGL_w$.

Class 3 areas have the lowest potential for non-uniform radiological conditions. For this reason, professional judgment-based scanning surveys are recommended for areas within each Class 3 survey unit having the highest relative potential for contamination. This approach provides qualitative levels of confidence that discrete soil sampling will not miss areas of elevated activity or that the area classification is correct.

4.2.5.1 Post-Remediation Surveys for Returned Overburden Material

When remediation activities in a survey unit that required the excavation of a substantial volume of overburden soil are completed, the following survey tasks will be performed for each lift of ABM returned to the excavation:

- The excavation floor and walls to be covered by the ABM lift will be surveyed by gamma scan to confirm acceptable radiological conditions.
- A maximum two-foot layer of ABM containing less than 23 pCi/g (maximum) Cs-137 will be placed on the excavation floor.
- The ABM floor surface and (if necessary) remaining exposed walls will be surveyed by gamma scan.

No surveys of areas backfilled with offsite material are required. Once the excavation is filled with the desired amount of below-criteria material:

- The sample grid and locations will be identified in the field.
- The core sampling and analysis event will proceed as described in Section 4.2.7.2.
- Sample data will be reviewed as described in Section 7.0.

SECTION 5.0
SURVEY INSTRUMENTATION AND MEASUREMENT TECHNIQUES

This chapter presents a description of radiological field instrumentation and laboratory measurements that will be used during implementation of the FSSP.

5.1 LAND AREAS SURVEY INSTRUMENTATION

The gamma-emitting photons of Cs-137 are easily detected using survey instruments equipped with NaI scintillation crystal detectors. Scanning for gross gamma activity will be used during RASS and FSS activities. The following field and process control instruments (or other instruments providing equivalent detection sensitivity) will be used to survey soil to achieve RASS and FSS objectives:

Meter Manufacturer and Model	Detector Manufacturer and Model	Detector Type	Use
Ludlum 2221	Ludlum 44-10 2″ × 2″ NaI scintillator	Sodium Iodide (unshielded)	RASS/FSS Scans or Static Measurements for Gamma-Emitting Radionuclides
Canberra Industries	Canberra ISOCS detection system	Hyper-Pure Germanium Array (HPGe)	RASS/FSS Scans, sample analysis for Processing Soil by Segregation

5.1.1 Detection Sensitivity Requirements

Field instrument use will be evaluated and controlled to verify that MDCs of less than 75 percent of the $DCGL_W$ for direct measurements and/or scanning measurements are routinely achieved. This field instrument MDC specification also assures ample detection sensitivity for activity concentrations at the $DCGL_W$. Process equipment use will be evaluated and controlled to verify that MDCs of less than 75 percent of the DCGL are routinely achieved. Implementation of these MDC requirements is discussed in the subsections that follow.

5.1.1.1 Field Instrument Scanning

The MARSSIM framework for determining the MDC for field instrument scanning activities is based on the premise that there are two stages of scanning. That is, surveyors do not make decisions of the basis of a single indication; rather, upon noting an increased number of counts, they pause briefly and then decide whether to move on or take further measurements. Thus, scanning consists of two components: continuous monitoring and stationary sampling.

Accordingly, field instrument surveyor scan MDCs, $MDCR_S$, are calculated to control the occurrence of Type I (false negative) and Type II (false positive) errors using the following MARSSIM equation:

$$MDCR_S = \frac{MDCR}{\sqrt{p}\varepsilon}$$

where $MDCR$ is the minimum detectable count rate (cpm), p is the surveyor efficiency (estimated in MARSSIM to be between 0.5 and 0.75; the value of 0.5 results in a more conservative $MDCR_S$ calculation and therefore will be used), and ε is the instrument efficiency (cpm per μR/hr; Table 6.4 of NUREG-1507).

In addition:

$$MDCR = s_i\left(\frac{60}{i}\right)$$

$$s_i = d'\sqrt{b_i}$$

where s_i (counts) is the minimal number of net source counts required for a specified level of performance for the counting interval i (seconds); d' is the index of sensitivity; and b_i is the number of background counts in the interval.

Index of sensitivity d' values are listed MARSSIM Table 6.5 based on the proportions for required true positive and tolerable false positive occurrence rates. The index of sensitivity value selected for initial use at the BNL area is 1.38, corresponding to a true positive proportion of 0.95 and a false positive proportion of 0.60. While this index of sensitivity value will result in at least 95% "correct" scanning detections as required by the area DQO for Type I error control, up to 60% "incorrect" (false positive) scanning detections may occur. Should this become an intolerable compromise, a larger index of sensitivity value corresponding to the 0.95 true positive proportion may instead be used provided the required scan MDC is achieved.

Typical calculated Cs-137 scan MDCs for a survey instrument equipped with 2-inch-by-2-inch NaI detector using this MARSSIM two stage scanning framework are summarized in the table below for increasing background count rates.

Bkg cpm	*i* sec	*p*	*ε* cpm per μR/hr	*d'*	b_i counts	*MDCR* ncpm	*MDCR s* ncpm	*Scan MDC*[c]	
								μR/hr	pCi/g
11,000	1	0.5	900	1.38	183	1120	1584	1.76	6.7
8,000					133	955	1350	1.50	5.75
5,000					83	754	1,067	1.19	4.56

Detection of Small Areas of Non-uniform Radioactivity

By design, the MARSSIM-based FSS scan protocol presumes a uniform distribution of residual radioactivity in a survey unit. While this presumption is expected to be valid throughout remediated land areas, a likelihood that small areas containing elevated residual radioactivity may nonetheless exist. The ability to detect these small areas by scanning is an important complement to soil sampling and analysis for demonstrating compliance with the release criteria. Consequently, the detection sensitivity of the FSS land area scan protocol for the special case of a small area containing non-uniform residual radioactivity being present in a survey unit has been established by calculation. The design non-uniform, or "hot spot", geometry selected was a 60-centimeter (2-foot) thick, 28-cm (11-inch) radius cylindrical soil source with 0.25 m^2 end surface area. This soil source was modeled in *MicroShield* as containing uniformly distributed activity concentrations of Cs-137 at the DCGLw and 3.5 times $DCGL_W$, respectively.

The results of this model were interpreted with section 5.1.1.1 equations to show that the scan MDC over this small area ranges from 5.75 to 9.1 pCi/g for backgrounds ranging from 8,000 to 20,000 cpm, respectively.

5.2 STRUCTURE SURVEY INSTRUMENTATION

For surface contamination scanning and static measurements, the radionuclides of concern and/or their progeny emit alpha and/or beta particles that are easily detected using survey instruments equipped with gas proportional detectors and scalers. Scanning for gross beta activity will be used as part of status surveys of structural surface survey units to ensure elevated Sr-90 areas of activity are not missed. In addition, static counts of structural surfaces at predetermined sample points are used to assess total contamination of structural surfaces. The following instruments (or other instruments providing equivalent detection sensitivity) will be used to survey structural surfaces to achieve RASS and FSS objectives:

Meter Manufacturer and Model	Detector Manufacturer and Model	Detector Type	Use
Ludlum 2221	Ludlum 43-68 Gas Proportional	Gas Proportional	RASS/FSS scans and static counts for beta-emitting radionuclides

5.2.1 Detection Sensitivity Requirements

Structure survey instrument use will be evaluated and controlled to verify that MDCs of less than the $DCGL_w$ for direct measurements and/or scanning measurements are routinely achieved. Field instrument scan MDCs are calculated to control the occurrence of Type I (false negative) and Type II (false positive) as discussed in the subsections that follow.

Static and scan MDCs are presented in Appendix B of the Field Sampling Plan.

5.2.1.1 Scan

There are two equations based on the MARSSIM two-stage scan methodology used to determine the scanning MDC depending on the background level. The minimum detectable concentration of a scan survey (scan MDC) depends on the intrinsic characteristics of the detector (such as efficiency and physical probe area), the nature (type and energy) of emissions, the relative distribution of the potential contamination (point versus distributed source and depth of contamination), scan rate, and other characteristics of the surveyor. MARSSIM section 6.7.2.1 discusses the basis for estimating scanning MDCs and arrives at the following equation for scan MDC:

$$\text{Scan MDC} = \frac{\text{MDCR}}{\sqrt{\text{p}}\ \text{A}\ \epsilon\text{i}\ \epsilon\text{s}} \times \frac{100\ \text{cm2}}{100\ \text{cm2}}$$

where MDCR is the minimum detectable count rate (interpolated from MARSSIM table 6.6), p is surveyor efficiency (assumed to be 0.5), and other parameters are shown above. The final factor, which equals 1, helps put the units of scan MDC into dpm/100 cm2.

Table B-2 lists scan MDCs for instruments used for clearance measurements. Scan MDCs were rounded up to one or two significant digits so that implied accuracy is not overstated.

Table B-2
Scan MDCs

Detector	MDCR (cpm)	Scan MDC (dpm/100 cm^2)
Ludlum Model 43-89 Alpha/Beta Scintillator	92	2000
Ludlum Model 44-9 Pancake GM Detector	55	6000

5.2.1.2 Static Counts

Minimum counting times for static counts of total and removable contamination will be chosen to provide a MDC that is a fraction (25 – 75 percent) of the survey unit-specific acceptance criteria. According to MARSSIM, the critical level (LC) is the level, in counts, at which there is a 5 percent statistical probability of incorrectly identifying a measurement system background value as greater than background. Any response above this level is considered to be greater than background. The detection limit (LD) is an a priori estimate of the detection capability of a measurement system and is also reported in units of counts. The MDC is the detection limit (counts) multiplied by an appropriate conversion factor to give units consistent with a site guideline, such as picocuries per gram (pCi g-1) or dpm per 100 cm2. In other words, the MDC is the a priori net activity level above the critical level that an instrument can be expected to detect 95 percent of the time.

MARSSIM explains how to calculate LC, LD, and MDC and arrives at the following result (MARSSIM equation 6-7) for the static MDC:

$$\text{Static MDC} = C\left(3 + 4.65\sqrt{B}\right)$$

where C represents total detection efficiency and other constants or factors needed to put the static MDC into appropriate units and B is the number of background counts that are expected to occur while performing an actual measurement. All static counts were taken in one minute.

For the present purposes:

$$C = \frac{1}{A\epsilon_i\varepsilon_s} \times \frac{100\ \text{cm}^2}{100\ \text{cm}^2}$$

where A is the effective area of the probe, ϵi is the instrument or detector efficiency, $\varepsilon s = 0.5$ is the efficiency of the contamination source, and the final factor, which equals 1, helps put the units of scan MDC into dpm/100 cm2.

Table C–1 lists static MDCs for instruments used for clearance measurements. Efficiencies were taken from manufacturer's literature. Static background measurements are estimated and will be updated during the survey. Static MDCs were rounded to one or two significant digits so that implied accuracy is not overstated.

Instrument Efficiencies and Static MDCs.

Detector	Effective Probe Area (cm^2)	Instrument Efficiency (cpm/dpm)	Background (cpm)	Static MDC (dpm/100 cm^2)
Ludlum model 43-89 alpha/beta scintillator	100	0.12 (α) 0.15 (β)	3 (α) 268 (β)	200 (α) 1100 (β)
Ludlum model 44-9 pancake GM detector	12	0.18 (β)	60 (β)	3600 (β)

5.2.2 Static Sample Point Measurements

Static sample point measurements are taken at each sample point location to determine the total contamination. Static measurements for gross beta are performed by placing the detector on the surface to be measured. Care should be taken if removable contamination is suspected. Notes about the surface condition (e.g., smooth or porous) should be taken. Static sample point measurements will be taken on building surfaces in impacted areas utilizing instrumentation capable of measuring each radionuclide used in that area and of the best geometry based on the surface at the survey location. Additionally, locations of elevated activity identified and marked during the scan survey will require direct survey measurements.

Direct surveys will be performed using hand-held 125 cm^2 scintillation detectors, 126 cm^2 gas proportional detectors, or 15 cm^2 detectors for small geometry surveys (less than 100 cm^2). Total surface activity measurements are taken at each identified sample point. Scaled count times will be determined based on the MDC_{static} of the applicable survey instrument.

Scan MDCs.

Detector	MDCR (cpm)	Scan MDC (dpm/100 cm^2)
Ludlum Model 43-89 Alpha/Beta Scintillator	92	2000
Ludlum Model 44-9 Pancake GM Detector	55	6000

5.3 LABORATORY ANALYSIS

A Canberra In Situ Object Counting System (ISOCS)® will be used to measure 137Cs concentration in all of the soil samples. A full 500-mL Marinelli beaker will hold a portion of each sample to maximize counting efficiency. Samples will not be dried or processed, though any rocks, animal matter, or vegetation will be removed from the sample prior to weighing and counting. The samples will be weighed on a laboratory balance with 0.5-g precision. Counting time will be sufficient to assure that the minimum detectable concentration (MDC) is less than 25 percent of the DCGL for that isotope, if possible.

As discussed, cross-contamination between samples from the same survey unit or reference area is not a great concern. Therefore, extensive cleaning of the Marinelli beakers to minimize the transfer of small amounts of debris between samples is of little value. However, normal care will be taken to prevent the transfer of large amounts of material between samples. Marinelli beakers will be thoroughly cleaned between use for samples from different survey units and the reference area.

To exclude the bias introduced when grouping analytical results containing "less than" values, the laboratory will be instructed to report observed counting data when reporting results that are below the critical level L_C (and thus "not detected") established for each analysis.

SECTION 6.0
QUALITY ASSURANCE PROGRAM

The objective of the FSS quality assurance program (QAP) is to identify and implement sampling and analytical methodologies that limit the introduction of error into analytical data. This chapter establishes the program necessary to ensure that FSS activities produce results that are of the type and quality needed and expected for their intended use. The QAP includes quality control (QC) functions that cover all aspects of data collection, including both field radiation instrument surveys, and soil sampling for laboratory analysis, through the preparation of the documentation of the results. The evaluation of the results is covered in Chapter 8.0.

6.1 FSSP PERFORMANCE ASSESSMENT

Periodic audits and surveillances of FSSP implementation will be conducted in accordance with project QAP requirements. To the extent permitted by FSSP requirements, the formal audits will be performance-based and focus on the technical efficacy of the results produced. Corrective actions resulting from audits shall be promptly implemented. Surveillances (work practice observations) will be informal routine occurrences at the remediation area, particularly for RASS activities. The surveillance objective is twofold: (1) verify FSSP requirements are being anticipated and implemented correctly, and (2) identify improvements in work practices improving project efficiency. Supervisory project personnel will be responsible for the effectiveness of the surveillance portion of FSSP performance assessment.

6.2 INSTRUMENTATION

For all counting systems and instruments used as part of analytical analyses, at a minimum, the following QC principles will be applied.

6.2.1 Procedures

Counting systems and instruments will be used in accordance with approved procedures.

6.2.2 Source and Instrument Checks

Each day that a counting system and instrument are used, the system's response will be checked using an appropriate source before use. Additional response checks may be necessary depending on the counting system used. In addition:

- For laboratory and ISOCS counting systems, source check acceptance criteria (e.g., $\pm 2\ \sigma$ of the average response determined after the most recent calibration, or otherwise linking the response to the current calibration) will be established prior to using the counting system. Control charts will be used to evaluate the data.

- Each Field instrument shall be checked at the beginning, middle, and end of each shift with check sources to verify that its response is within ± 20 percent of the value established by the calibration laboratory for that instrument/check source/geometry combination. If the instrument fails the post-survey source check, all data collected during that time period with the instrument must be reviewed and adjusted or discarded as appropriate. The affected data shall be flagged and later studied to determine if they are useable. All source check results will be documented.

- Failed source checks will be repeated. Consecutive failure will result in additional testing of the counting system, in accordance with the applicable procedure, and ultimately removing the counting system from service.

- Survey data acquired prior to an instrument failing a source check will be reviewed and documented by the Data Manager to determine the validity of the data.

- All instrument failures in the field will be followed by a documented investigation by the Radiological Engineer of suspect data.

- For field instruments of increased complexity, (e.g., single-channel analyzer, soil segregation system), additional checks such as energy calibration and efficiency checks will be performed and documented.

6.2.3 Background Determination

When FSS activities are conducted, the ambient background will be determined and documented at least once daily, depending on the counting system and instrument used and the variability in the background.

6.2.4 Calibration

All instruments shall be calibrated by a qualified calibration/repair facility at least annually in accordance with manufacturers' instructions. Sources used in calibration will be National Institute of Standards and Technology-traceable. A calibration certificate will be maintained onsite for each instrument and included in the project final report.

6.3 SAMPLE COLLECTION

6.3.1 Procedure

Soil samples will be collected in accordance with written procedures. Sampling tools will be cleaned and monitored, as appropriate, after each use. Samples will be collected in clean/unused sealable containers. Smear samples will be collected and stored in clean containers in accordance with written procedures.

The following Standard Operating Procedures (SOPs) are incorporated in this document by reference:

1.0 Soils will be sampled in accordance with EM-SOP-601 *Collection of Soil Samples (Rev. 1)*. Soil Sample Data will be recorded on BNL's Form (included in Appendix C.2) or equivalent equal.

2.0 Sediments will be sampled in accordance with EM-SOP-600 *Sediment Sampling (Rev. 1)*. Sediment Sample Data will also be recorded on BNL's Form (included in Appendix C.2) or equivalent WESTON form.

3.0 Waters collected from the site as runoff will be sampled in accordance with EM-SOP-100 *Sample Collection Methods for Radiological and Non-Radiological Parameters in Environmental and Facility Effluent Water Samples (Rev. 1)*. Water quality sampling data will be recorded on BNL's Water Quality Sample Collection Log included as Appendix C.3, or equivalent form.

4.0 Materials to be sampled from drums will follow EM-SOP 803 *Drum Sampling (Rev. 1)*. Samples taken from drums may use BNL's Drum Sample Collection Form, included as Appendix C.4.

5.0 Porous Surfaces, such as concrete, will be sampled in accordance with EM-SOP-901 *Sampling of Porous Surfaces (Rev. 0)*. A BNL Porous Sample Form (included as Appendix C.5) or equal will be completed for these samples.

6.0 Quality Control (QC) Sampling will follow EM-SOP-200 *Collection and Frequency of Field Quality Control Samples (Rev. 2)*. QC Samples will be recorded with their associated materials, and appropriately designated.

Field radiological screening will be performed and records kept in accordance with the BNL Radiological Control Manual.

6.3.2 Sample Identification

Sample containers will be permanently labeled/marked in the field at the time of collection by the individual collecting the sample. At a minimum, the following information will be recorded on the sample container: sample date/time, sample identification number, sample location, and initials of person collecting the sample. The Radiological Engineer will assure proper coding of appropriate information on the sample container (e.g., sample type, location, and sample depth) by an established sample identification scheme.

6.3.3 Sample Control

An approved chain of custody (CoC) procedure will be implemented ensuring complete sample integrity control from the time the sample is obtained through final disposition (disposed or maintained in the sample archive). The CoC procedure will feature both administrative sample custody transfer and physical controls. Chains of Custody for all off-site samples will be prepared in accordance with EM-SOP-109 *Chain-of-Custody Procedure (Rev. 2)*. A sample

BNL Chain of Custody Form is included in Appendix C.1 to the Field Sampling Plan. This form or an equivalent will be used to document samples.

6.4 ANALYTICAL LABORATORY SERVICES

Radiological analytical services provided by each laboratory will be provided in accordance with a formal approved QAP implemented by documented policies and procedures. The Data Manager shall confirm that the management objectives of the QAP, policies, and procedures are to produce data that are scientifically valid, defensible, and of known an documented quality. The Data Manager shall be cognizant of the nature and extent of each laboratory's QAP and establish a notification protocol with the laboratory should the laboratory QC officer identify QAP deviations adversely affecting results for the remediation effort.

6.4.1 Laboratory Analysis Specifications

For each laboratory analysis requested, the following minimum specifications will be provided to the laboratory on the appropriate CoC record:

- Required analyses and/or analytical methodology.
- The required MDC value for each radionuclide.
- Non-standard results presentation requirements.
- Sample disposition (disposed or archived).
- Turnaround time required.

6.4.2 Laboratory Measurements Verification

The accuracy and precision of measurement results provided by the analytical laboratory will be routinely checked using performance evaluation (PE) samples for measurement. The dual PE sample measurement categories, internal and external, to be implemented are discussed below.

6.4.2.1 Internal Performance Evaluation

All measuring and test equipment affecting the accuracy and precision of measurements will be calibrated and/or verified initially and on a continuing basis using NIST traceable source materials and standard reference materials. The internal PE (IPE) samples should include laboratory controls, duplicates, matrix spikes, and method blanks. Where possible, the matrix matched IPE samples should be analyzed singly along side each group of samples to ensure the sample preparation and/or measurement processes will be 'in control'.

6.4.2.2 External Performance Evaluation

External PE (EPE) samples will be sent to the analytical laboratory at a frequency no less than five percent of the total FSS sample load for the respective measurement protocol. The EPE sample load will be an even distribution of the following sample categories:

- Field Blanks, also known as rinsate blanks or equipment blanks - will be used to assess the effectiveness of equipment decontamination. The frequency for rinsate blanks will be one per every 20 samples collected for each equipment type and for each sample matrix. Field blanks will be analyzed for the same constituents as the environmental samples and will be generated by pouring demonstrated analyte-free water over the decontaminated sampling tool.

- Field Duplicates – will be collected and analyzed to assess the overall precision of the field sampling technique. Field duplicates samples will be collected at a rate of five percent, or one per 20 environmental samples collected.

All EPE samples will be submitted "blind" to the laboratory with the CoC and sample identification convention used for FSS samples being followed. The Radiological Engineer will maintain the five percent EPE sample load. The performance of the laboratory measurement system will be considered in-control when the range of the EPE sample activity concentration result (defined by the reported $\pm 2\sigma$ uncertainty interval) bounds all or part of the known result and its $\pm 2\sigma$ uncertainty interval. In the event that an EPE sample measurement results in no activity being identified above the critical level for the analysis, the acceptance criterion becomes the value of the required MDC.

Field duplicate EPE sample results that fail the acceptance criterion do not necessarily imply an out of control laboratory measurement system, but rather may be symptomatic of the difficulty in preparing a homogenous master composite sample. If a sufficient adverse trend in this category of EPE samples is experienced, the Data Manager may specify changes to improve the FSS sampling protocol including the preparation of multiple field sample splits. These split samples may then be screened onsite for radioactivity and the split having the greatest radioactivity chosen for laboratory submittal as the FSS sample.

6.5 DETERMINATION OF THE AS-COLLECTED SAMPLE ANALYSIS BIAS

The laboratory processes FSS and RASS samples for gamma spectrometry on an "as-collected" basis, thus systematically biasing the measurement result due to each sample's moisture content. This protocol, which ignores any moisture dilution effect, is in accordance with the DP, DPA, and MARSSIM, Section 7.7.1 that states:

"There is no special sample preparation required for counting samples using a germanium detector or sodium iodide detector beyond placing the sample in a known geometry for which the detector has been calibrated. The samples can be measured as they arrive at the laboratory, or the sample can be dried, ground to a uniform particle size, and mixed to provide a more homogenous sample if required by the SOPs."

Notwithstanding the above, Weston may adopt a QC practice that quantifies this potential measurement bias and permits corrections to be applied normalizing the as-collected results to dry conditions. This QC practice will identify a sufficient number of FSS/RASS samples for co-measurement (wet and dry) by both gamma spectrometry and gravimetry. The results of these measurements will be used to calculate a representative moisture dilution correction factor to apply to affected FSS measurements.

SECTION 7.0
DATA ASSESSMENT

Data will be reviewed by the Radiological Engineer to ensure that the requirements are implemented as prescribed and that the results of the data collection activities support the objectives of the survey, or permit a determination that these objectives should be modified. The Radiological Engineer will determine if the data are of the right type, quality, and quantity to demonstrate compliance with the FSSP objective. The review will check that the appropriate number of samples was taken in the correct locations and that they were analyzed with measurement systems with appropriate sensitivity. After the data are analyzed, an estimate of data variability (sample standard deviation, σ) and the actual number of valid measurements will be used to determine that the sampling design provides adequate power to determine that the objectives of the survey design are met.

7.1 PRELIMINARY DATA REVIEW

The Radiological Engineer will review field and laboratory data records as they are provided, prepare data graphs as necessary to permit proper interpretation, and calculate statistical quantities to analyze the structure of the data and identify patterns, relationships, or potential anomalies. All data generated in the final status survey including scans, ISOCS and lab sample results will be used to fully assess the completeness and effectiveness of the MARISSM survey. The preliminary data examination includes the following:

- Evaluation of data completeness.
- Verification of instrument calibration.
- Verification of sample identification and traceability back to sampling location.
- Measurement of precision using duplicates, replicates, or split samples.
- Measurement of bias using reference materials or spikes examination of blanks for contamination.
- Assessment of adherence to method specifications and QC limits.
- Evaluation of method performance in the sample matrix.
- Applicability and validation of analytical procedures for site-specific measurements.
- Assessment of external QC measurement results and QA assessments, including the results of analytical laboratory QA/QC reports related to the analysis of final status survey samples.

7.1.1 Data Evaluation and Conversion

For comparison of survey data to $DCGL_W$s, the survey data from field and laboratory measurements will be converted to $DCGL_W$ units. The Radiological Engineer will ensure data measurements retain traceability to NIST and conversion factors are appropriate for the radiation quantity. The preliminary data reports will be reviewed to ensure adequate measurement sensitivity is being achieved and to resolve any detector sensitivity problems. Analytical reports will be reviewed for proper MDC and MDA values. The results of analytical results will be reported whether the result is above or below the reported MDC value so that the MDC value is not used in the data assessment. Preliminary scan data will also be reviewed against the percent coverage requirement of the survey unit.

An evaluation will be made to determine that the data are consistent with the underlying assumptions made for survey plan statistical procedures. The basic statistical quantities that will be calculated for the survey unit include:

- Mean
- Standard deviation
- Median
- Minimum
- Maximum

The value of the sample standard deviation will be used to determine if a sufficient number of samples were collected to achieve the desired power of the statistical test. A verification that the sample sizes determined for the tests are sufficient to achieve the DQOs set for the Type I (α) and Type II (β) error rates will be completed. Additionally, verification of the power of the tests ($1-\beta$) to detect adequate remediation may be performed. If an insufficient number of samples were taken, a resurvey will be performed. A resurvey will be performed only if the sample size must be increased by more than 20 percent, since MARSIMM Tables 5.3 and 5.5 include a correction factor of 20 percent to allow for loss or unusable data.

Certain departures from the survey plan assumptions may be determined to be acceptable when given the actual data and other information. More sophisticated tools for determining the extent of the validity of the survey data may be used (e.g., U.S. Environmental Protection Agency [USEPA] QA/G-9) by the Radiological Engineer. These evaluations will be documented.

If it is not possible to show that the DQOs were met with reasonable assurance, a resurvey may be performed.

The parameter of interest to demonstrate achievement of the FSSP objective is the mean concentration in the survey unit.

Summary of Statistical Tests

Typical Level of Contamination	Possible Action
Less than DCGLs.	No further action.
On the order of DCGLs.	Spot remediation and/or periodic monitoring
Greater than DCGLs	Land use restrictions and periodic monitoring or remediation and final status survey.

Both the measurements at discrete locations and the scans will be used to identify elevated areas within a survey unit. Analytical results of soil samples will be used to complete the elevated measurement comparison. If residual radioactivity is found in a localized area of elevated activity - in addition to the residual radioactivity distributed relatively uniformly across the survey unit - the unity rule discussed above will be used to ensure that the release criterion has been met as follows:

$$\frac{\delta}{DCGL} + \sum_{x+1}^{n} \frac{(\delta_{EMC} - \delta)}{DCGL_{EMC}} \leq 1$$

where:

δ = is the average concentration of contaminant over the entire survey unit

δ_{EMC} = the average concentration of contaminant over the elevated area x within the survey unit

DCGL = the $DCGL_w$ for contaminant

$DCGL_{EMC}$ = (area factor for elevated area x) X (DCGL)

x = refers to one of the elevated areas within the survey unit

n = the total number of elevated areas within the survey unit

If there is more than one elevated area, a separate term will be included for each area. The result of the EMC will be used as a trigger for further investigation. The investigation may involve taking further measurements to determine that the area and level of the elevated residual radioactivity are such that the resulting dose or risk meets the release criterion. The investigation will provide adequate assurance, using the DQO process, that there are no other undiscovered areas of elevated residual radioactivity in the survey unit that might otherwise result in a dose or risk exceeding the release criterion. In some cases, this may lead to reclassifying a survey unit--unless the results of the investigation indicate that reclassification is not necessary.

7.1.2 Investigation Levels

The Radiological Engineer will apply radionuclide-specific investigation levels when reviewing preliminary FSS data to determine if additional investigations may be necessary. These investigation levels (listed below) will also serve as a QC check to determine when a measurement process appears out of control.

Post-Remediation Preliminary FSS Investigation Levels

Survey Unit Classification	Flag Direct Measurement or Sample Result When:	Flag Scanning Measurement Result When:
Class 1	>$DCGL_{EMC}$ or > $DCGL_W$ and the mean of the survey unit is greater than 0.75$DCGL_W$	>$DCGL_{EMC}$
Class 2	> $DCGL_W$	> $DCGL_W$ or >MDC
Class 3	> 0.5$DCGL_W$ + background	> $DCGL_W$ or >MDC

A measurement that exceeds the investigation level may indicate that the survey unit has been improperly classified or it may indicate a failing instrument. When an investigation level is exceeded, the first step will be to confirm that the initial measurement/sample actually exceeds the particular investigation level. This may involve taking further measurements to determine that the area and level of the elevated residual radioactivity are such that the resulting dose or risk meets the release criterion. Depending on the results of the investigation actions, the survey unit may (1) be reclassified, (2) remediated further, and/or (3) be resurveyed. If the FSS data suggest that the survey unit is misclassified, the original DQOs will be redeveloped for the correct classification. The sampling design and data collection documentation will be reviewed for consistency with the DQOs.

7.2 FINAL STATUS SURVEY REPORT

A final status survey report (FSSR) will be prepared documenting the final radiological conditions of remediation area, to include at a minimum:

- An overview of the results of FSS and RASS activities (as necessary to support FSS results interpretation).
- A discussion or tabulation of any changes (deviations) that were made in FSS implementation from what was described in the FSSP.
- A description of the method by which the number of samples was determined for each survey unit.
- A summary of the values used to determine the number of samples and justification for these values.
- A summary of QAP implementation results.

The survey results for each survey unit including the following:

- The number of samples taken for the survey unit.
- A map or drawing of the survey unit showing the reference system and random-start systematic sample locations.
- The measured sample concentrations.
- The statistical evaluation of measured concentrations.
- Judgmental and miscellaneous sample data sets reported separately from those samples collected for performing the statistical evaluation.
- A discussion of anomalous data including any areas of elevated direct radiation detected during scanning that exceeded the investigation level or measurement locations in excess of the $DCGL_W$.
- A statement that a given survey unit satisfied the $DCGL_W$ unity rule measurement comparison, if any sample points exceeded the $DCGL_W$.
- A description of any changes in initial survey unit assumptions relative to the extent of residual radioactivity.
- A discussion of a survey unit reclassification including applicable data.

Appendix A

Land Survey Units and Information

A.1 UST Vault land area

Description: The UST vault area is bounded on the south by the 811 area fence line, on the east by the adjacent soil/asphalt area, the southeast by building on the north by the 811 fence line, on the west by 811 fence line. The area is described in section 1.2 and includes all land area excluding the UST vault structures.

Area: The area is approximately 370m^2

Minimum number of MARRISSM samples needed: 24

Number of samples will be adjusted if lab results indicate a standard deviation greater than anticipated.

% of Survey unit Scanned: 100%

A.2 Adjacent land area

Description: D tank adjacent soil area. The area is described in section 1.3.

Area: The area is approximately 474m^2

Minimum number of MARRISSM samples needed: 24

Number of samples will be adjusted if lab results indicate a standard deviation greater than anticipated.

% of Survey unit Scanned: 100%

Appendix B

Structural Survey Units and information

B.1 UST Vault area 1

Description: Northwest corner UST Vault bordered on the north and west by the UST vault land area survey unit. Bordered on the east by UST vault area 2 and the south by UST vault area 6. The area is described in section 1.2. The vault is made of concrete and is approximately 11' x 11' and 15' deep. .

Area: The area is approximately 11.2m^2

B.2 UST Vault area 2

Description: Middle north UST Vault bordered on the north by the UST vault land area survey unit. Bordered on the west by UST vault area 1, on the east by UST vault area 3 and the south by UST vault area 5. The area is described in section 1.2. The vault is made of concrete and is approximately 11' x 11' and 15' deep. .

Area: The area is approximately 11.2m^2

B.3 UST Vault area 3

Description: Northeast corner UST Vault bordered on the north and east by the UST vault land area survey unit. Bordered on the west by UST vault area 2, and the south by UST vault area 4. The area is described in section 1.2. The vault is made of concrete and is approximately 11' x 11' and 15' deep. .

Area: The area is approximately 11.2m^2

B.4 UST Vault area 4

Description: Southeast corner UST Vault bordered on the South and east by the UST vault land area survey unit. Bordered on the west by UST vault area 5 and the north by UST vault area 3. The area is described in section 1.2. The vault is made of concrete and is approximately 11' x 11' and 15' deep. .

Area: The area is approximately 11.2m^2

B.5 UST Vault area 5

Description: Middle south UST Vault bordered on the south by the UST vault land area survey unit. Bordered on the west by UST vault area 6, on the east by UST vault area 4 and the north by UST vault area 2. The area is described in section 1.2. The vault is made of concrete and is approximately 11' x 11' and 15' deep. .

Area: The area is approximately 11.2m^2

B.6 UST Vault area 6

Description: Southwest corner UST Vault bordered on the South and west by the UST vault land area survey unit. Bordered on the east by UST vault area 5 and the north by UST vault

area 1. The area is described in section 1.2. The vault is made of concrete and is approximately 11' x 11' and 15' deep. .

Area: The area is approximately 11.2m^2

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Attachment 2
Final Status Survey Report
(including Post-Remedial Dose Assessment and RESRAD)

FINAL STATUS SURVEY REPORT
FOR BUILDING 811
UNDERGROUND STORAGE TANK REMOVAL
AND SOILS REMEDIATION

July 2005

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1.0 INTRODUCTION

The *Final Status Survey Report (FSSR)* was developed to illustrate the collection and analysis of samples supporting the release of formerly radiologically contaminated soil at the Brookhaven National Laboratory (BNL). The remedial activities consisted of the excavation and disposal of radiologically contaminated soils to meet prescribed cleanup goals and the removal, demolition, segmentation, and disposal of six underground storage tanks and associated piping from Area of Concern (AOC) 10 Building 811 Waste Concentration Facility (WCF), as defined in the Operable Unit (OU) I *Record of Decision (ROD)*. The scope of remedial work and the historical background of the WCF were outlined in detail in the *Remedial Action Work Plan for AOC 10 Building 811 Waste Concentration Facility*.

Sampling activities were performed under the direct supervision of BNL's Environmental Management Directorate (EMD) and in full compliance with the OU I *ROD*, and U.S. Environmental Protection Agency (EPA) requirements. Sampling activities fulfilled the obligations of the U.S. Department of Energy (DOE) for the BNL site, as established in the Interagency Agreement (IAG) between the DOE, EPA and the New York State Department of Environmental Conservation (NYSDEC).

To demonstrate the transition from the remedial action support survey (RASS) phase of remediation to the FSS phase, RASS approach, methods, and techniques are also included in this *FSSR*.

The DP addressed the remediation of the affected portions of the Brookhaven 811, Underground Storage Tank and Soils remediation area. These areas are introduced further in Sections 1.2 and 1.3. The area was divided into two parts: the D tank area and A/B vault yard. The known affected area covered approximately 1000m^2

Brookhaven National Laboratory (BNL) retained Weston Solutions, Inc. (Weston®) to provide a *Final Status Survey Plan (FSSP)* and *Final Status Survey Report* in support of the final decommissioning of Building 811 and underground storage tank removal and soils remediation. BNL initiated facility decommissioning in June 2004 to achieve unrestricted release of Brookhaven 811 area. The FSS plan was developed to supplement previous radiological surveys of land and structural facilities and implement the protocols and guidance provided in NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).

The FSS activities were designed to demonstrate compliance with the release criteria of fifteen mrem, annual, peak total effective dose equivalent (TEDE) and as low as reasonably achievable (ALARA) for residual radionuclides in soil under a residential scenario after fifty years of institutional control. The release criteria for residual radionuclides associated with structural surfaces is adopted directly from Regulatory Guide 1.86.

1.1 FACILITY BACKGROUND

BNL is located in Upton, Suffolk County, New York, near the geographic center of Long Island. The U.S. Army formerly occupied the BNL site as Camp Upton during World Wars I and II. The Civilian Conservation Corps operated it between the wars. The site was transferred to the Atomic Energy Commission, which later became the Energy Research and Development Administration and is now DOE, in 1947.

BNL carries out basic and applied research in the following fields: high-energy nuclear physics and solid-state physics; fundamental material and structure properties and the interaction of matter; nuclear medicine; biomedical and environmental sciences; and, selected energy technologies. Major operating facilities include the High Flux Beam Reactor, the Brookhaven Medical Research Reactor, the National Synchrotron Light Source, and the Alternating Gradient Synchrotron.

The BNL site was included on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priority List on December 21, 1989. In May 1992, DOE entered into an IAG with EPA and NYSDEC under CERCLA, section 120. The IAG established the framework and schedule for characterizing, assessing, and remediating the site in accordance with requirements of CERCLA and the Resource Conservation and Recovery Act (RCRA). BNL's Response Strategy Document grouped the identified AOCs into seven OUs. Several OUs have subsequently been combined, and so now five OUs are currently under investigation.

1.2 FACILITY SITE DESCRIPTION

Liquid radioactive waste received from the Brookhaven Graphite Research Reactor, the Hot Laboratory Complex-Building 801, and the High Flux Beam Reactor was temporarily stored at the WCF, Building 811 and eventually distilled to remove particulates and suspended and dissolved solids. The D-waste tanks (Tanks D-l, D-2, and D-3) were three 100,000-gallon aboveground storage tanks that were part of

the original WCF configuration. BNL defines D waste as liquid waste with a gross beta concentration greater than 90 picocuries per milliliter (pCi mL–1). BNL used the tanks from 1949 to 1987.

The Building 811 Waste Concentration Facility was used to store and distill liquid radioactive waste received from the Brookhaven Graphite Research Reactor (BGRR), the Hot Laboratory Complex (Building 801), and the High Flux Beam Reactor (HFBR).

1.3 PAST OPERATIONS INVOLVING RADIOACTIVE MATERIAL

There were six (6) existing out-of-service 8,000-gallon, underground storage tanks (USTs) known as the A & B USTs. The USTs (A-I, A-2, A-3, B-1, B-2, B-3) are located approximately 50 feet north of Building 811 in a below grade, celled, concrete vault. Each UST has a diameter of approximately ten (10) feet. The total height of each UST is approximately 14 feet-10 7/8 inches. The walls of the USTs are approximately 5/8-inch thick stainless steel. Based upon the best available information, the stainless steel USTs weigh between 15,080 pounds to 15,620 pounds each. The cover of the concrete vault is approximately six (6) feet below grade, with piping penetrations and ancillary concrete structures that rise up to six (6) inches above grade. There are connected process piping underground, such as fill lines, overflow lines, and vent lines. The piping is known as the A & B waste transfer lines and the off-gas pipe. Including overburden cover/burial depth, the bottom of the six USTs are approximately 21 to 22 feet below existing site grades.

Three documented leaks from the D-tanks have occurred. A leak was discovered in 1982 around a nipple in a valve at the bottom of Tank D-1. Tank D-1 was subsequently removed from service and emptied. However, some leakage continued from remaining sludge in the bottom of the tank. A pinhole leak was discovered in 1985 in the side plate on the northwest side of Tank D-3. The wall plate was tested for soundness and a small patch was welded on for repair. The third documented leak occurred in 1987 when Tank D-3 was found to be leaking from the bottom seam between the tank bottom plate and a side wall plate. No leakage from Tank D-2 is documented.

All three tanks were dismantled and removed in 1995 as a removal action under the DOE/EPA/ NYSDEC IAG. The contaminated concrete pads were given an additional temporary cover in 1998 to prevent the collection of rainwater that could become contaminated through leaching.

In addition to the three D-tanks, six 8,000-gallon stainless steel underground storage tanks (USTs) are located 50 feet north of Building 811. The six USTs (AOC 10C) were used to store radioactive wastes.

1.4 SITE GEOLOGIC SETTING

The first three feet of material consists of a brown loamy soil (a fine silt to course mixture) with a trace of fine gravel that increases in percent composition with depth. This 3 to 4 foot interval generally brackets a change from the brown loamy soil to a light brown poorly to moderately sorted sand to gravelly sand. The transition varied from gradational to a sharp contrast. The 4 to 12 foot interval contains a mixture of light brown poorly sorted sands, gradationally changed to a well rounded very light brown sand, moderately to well sorted course and gravelly sand. When and where gravel occurs the sizes range from granule to course pebbles. The origin of the soil/sediment is interpreted as glacial outwash from the upper part of the Upper Glacial Aquifer. The soil moisture conditions are dry to slightly moist. Approximately 1600 feet of unconsolidated sediments underlie BNL and the surrounding area and overlie relatively impermeable crystalline bedrock of Precambrian age. The sediments form a clastic wedge that thickens in a southeastward direction.

The stratigraphy in the BNL vicinity is subdivided, from oldest to youngest, into Precambrian crystalline bedrock, Raritan Formation, Magothy Formation, Gardiners Clay, and Upper Pleistocene glacial deposits. The sequence dips to the southeast below eastern Long Island. The Upper Glacial deposits at BNL range from about 130 to 150 feet in thickness and so is the only unit of concern for this project. The majority of these deposits consist of fluvial outwash sediments composed mainly of fine to coarse quartzose sands with gravel. Discontinuous lenses of shallow, finer-grained silts and clays occur within the Upper Glacial sands, especially along the lowlands of the Peconic River. While the extent of these clays has not been mapped, their presence is inferred beneath marshes and areas of ponded water that are widespread in the eastern portion of BNL. Lenses of near surface silts and clays are present beneath the Current Landfill, the Wooded Wetland, and the Former Hazardous Waste Management Facility Wetland.

1.5 SITE HYDROGEOLOGIC SETTING

No surface bodies of water are located in the immediate vicinity of the remediation area. The area is not located in a wetland or floodplain on the BNL property. The bedrock surface is considered to be the bottom hydraulic boundary of the groundwater flow system within the project area, as well as the rest of Long Island. The major aquifer system is composed of the unconsolidated Lloyd, Magothy, and Upper

Glacial aquifers. Most monitoring wells at BNL penetrate only the Upper Pleistocene glacial deposits. Only a few wells penetrate the Magothy Formation.

The sole-source aquifer beneath BNL encompasses three water-bearing units: the glacial moraine and outwash deposits, the Magothy Formation, and the Lloyd Sand Member of the Raritan Formation. These units are hydraulically connected and make up a single zone of saturation with varying physical properties extending from a depth of 45 feet to 1500 feet below the land surface. The EPA has designated these three water-bearing units as a "sole-source aquifer," and they serve as the primary source of drinking water for Nassau and Suffolk Counties.

The soils of concern for this project occur in the unsaturated zone.

1.6 SUMMARY OF DECOMMISSIONING ACTIVITIES

Areas with a Cesium-137 activity concentration greater than the established $DCGL_w$ of 23.0 picocuries per gram (pCi/g), based on a dose limit criterion of 15 mrem/y were remediated. Material with Cesium 137 activity concentrations greater than 23.0 pCi/g was segregated and disposed off site as either exempt or nonexempt material at a permitted facility. Material with activity concentrations less than 23.0 pCi/g Cesium-137 that also met the Unity rule were left in place. A layer of clean soil obtained from an off-site source was placed over the below-criteria fill and graded in a manner to direct drainage away from the site, after which the site will be revegetated.

During remediation, the site was excavated to depths up to 20-25 feet and to an average depth estimated at 8 feet across most of the Area. The site was graded and vegetated to minimize soil erosion and promote positive drainage.

The overburden soils above the vault and trench were removed prior to excavation. Soil samples of the overburden material above the vault cover were collected and pre-characterization radioactive soil contamination analysis was performed. The soil samples were analyzed using alpha spectroscopy, ISOCS and beta scintillation (for Sr-90).

The soil was removed with a trackhoe in six-inch lifts and screened for radiological contamination. The initial remediation efforts were to remove all concrete cover, asphalt cover, stone blend or the top six inches (15 centimeters) of soil in all survey units. K2 Environmental performed a 100 percent gamma-

walkover survey with NaI 2 x 2 to determine whether the 137Cs DCGL had been met after completion of remediation. Additional six-inch cuts were removed in those sections that do not meet the 137Cs DCGL until the 137Cs DCGL was met. Soil beneath the underground storage tanks and in trenches was characterized using excavation as necessary. Remediation and sample measurements proceed as above until the unity rule criterion was met. Clean structural surfaces remaining (six separate vaults) for release. Soil remaining beneath the vaults was surveyed and removed as necessary.

The six vaults were surveyed to determine if they met structural release criteria set for the in the FSSP. Initial attempts involved decontaminating the surfaces and surveying to see if clean. A scabbler was utilized to aggressively remove contaminated layers of concrete.

2.0 ACCEPTANCE CRITERIA

This Section provides the radionuclide-specific acceptance criteria for unrestricted release of both structural surfaces and land areas at the 811 area of BNL. The following references were used to develop the FSSP, acceptance criteria and ALARA analysis:

- MARSSIM, NUREG-1575, Rev.1, August 2000.
- NUREG-1549, July 1998, Decision Methods for Dose Assessment to Comply With Radiological Criteria for License Termination, NRC.
- NUREG/CR-5512, October 1999, Vol. 3, Residual Radioactive Contamination From Decommissioning. Parameter Analysis. Draft Report for Comment, NRC.
- RG DG-4006, August 31, 1999, Demonstrating Compliance With The Radiological Criteria For License Termination.
- NUREG-1727, September 15, 2000, NMSS Decommissioning Standard Review Plan.
- NUREG-1757, September 2002, Consolidated NMSS Decommissioning Guidance. Decommissioning Process for Materials Licensees.
- Argonne National Laboratory (ANL), July 2001, User's Manual For RESRAD Version 6.0, ANL/EAD-4, Argonne, IL.
- ANL, 1993, Data Collection Handbook to Support Modeling the Impacts of Radioactive Material in Soil, ANL/EAIS-8, Argonne, IL.

2.1 RADIONUCLIDES OF CONCERN

A review of the Field Sampling Plan, RESRAD models previously performed for the site, 811 operational monitoring and other historical documents and procedures was performed to identify all of the radionuclides potentially used at the site. The primary nuclides based on exposure potential were Stronium-90, Cesium-137 and Ra-226. Other nuclides of concern that were monitored for were Am-241, Co-60, Cm-244, Eu-152, Eu-154, Na-22, Np-237, Pu-238, Pu-239/240, Ra-228, Tc-99, Th-228, Th-230, Th-232, Th-234, U-234, U-235 and U-38.

2.2 DERIVED CONCENTRATION GUIDELINE LEVEL (DCGL) FOR SOIL

The cleanup goal for radionuclides in soil was based on a total effective dose equivalent limit of 15 millirems per year above background as suggested in "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (EPA Office of Solid Waste and Emergency Response Directive

9200.4-18, August 1997). Cleanup levels were calculated using the RESRAD* computer code, 15 millirems per year, the assumed future land use, and 50 years of continued DOE control. The NYSDEC guidance of 10 millirems per year above background has been adopted as an as-low-as-reasonably-achievable (ALARA) goal that was considered during the design and construction phase.

Calculations using the RESRAD computer code led to DCGLs for ^{90}Sr of 15 pCi g^{-1}, ^{226}Ra of 5 pCi g^{-1} and for ^{137}Cs of 23 pCi g^{-1}. Table 2-1 presents the DCGLs for all nuclides.

Table 2-1
OU II/VII Residential Use soil remediation goals(pCi/g) for radionuclides

Radionuclide	DCGL
Cesium-137	23
Stronium-90	15
Cobalt-60	1300
Americum-241	40
Plutonium-238	66
Plutonium-239	40
Plutonium-240	40
Uranium-235	9
Uranium-238	9
Radium-226	5

MARSSIM provides release criteria adjustments for elevated localized total contamination based on dose modeling of smaller areas. Such adjustments are made by applying "area factors" in an elevated measurement comparison (EMC) test. Table 2-2 presents area factors (based upon MARSSIM guidance) to be used for elevated measurement comparisons and to determine sampling requirements in situations where the scan instrument's minimum detectable concentration is greater than the appropriate $DCGL_W$. The appropriate $DCLG_{EMC}$ values are calculated by multiplying the appropriate $DCGL_W$ and the area factors presented in Table 2-2. Those for the tank and land areas (area where material will be separated into above- and below-criteria material) were estimated based on the $DCGL_W$ and are presented in Table 2-3.

$$DCGL_{EMC} = \text{Area Factor} * DCGL_W$$

---

* RESRAD is a computer model designed to estimate radiation doses and risks from RESidual RADioactive materials. Work on the RESRAD family of codes is sponsored jointly by the Office of Environmental Policy and Assistance in DOE's Office of Environment, Safety and Health and the Office of Site Closure in DOE's Office of Environmental Management. There is also independent support for the RESRAD code from the U.S. Nuclear Regulatory Commission.

The elevated measurement criterion is only applicable to Class 1 areas since elevated activity exceeding the $DCGL_W$ is not expected in Class 2 or 3 areas. For Class 1 soil survey units, total activity measurements above the $DCGL_w$ may be allowed provided that:

- The average contamination level within the survey unit is less than the applicable $DCGL_w$ and the determined $DCGL_{EMC}$ is not exceeded.
- Application of the elevated measurement comparison "sigma" test results in a value less than 1. The formula below will be used for this comparison:

$$\frac{\delta}{DCGL} + \frac{(\text{average concentration in elevated area} - \delta)}{(\text{area factor for elevated area})(\text{DCGL})} + \ < 1$$

The value of δ is the average of the measurements outside of any elevated areas. A separate term is included for each elevated reading exceeding the $DCGL_W$.

Table 2-2
Area Factors

Area Factors									
Radio-nuclide	1 m^2 (11 ft^2)	3 m^2 (32 ft^2)	10 m^2 (108 ft^2)	30 m^2 (323 ft^2)	100 m^2 (1,076 ft^2)	300 m^2 (3,229 ft^2)	1,000 m^2 (10,764 ft^2)	3,000 m^2 (32,292 ft^2)	10,000 m^2 (107,639 ft^2)
Cs-137	11	5	2.4	2.3	1.7	1.4	1.1	1.1	1.0

Table 2-3
$DCGL_{EMC}$ Values

$DCGL_{EMC}$ (pCi/g)									
Radio-nuclide	1 m^2 (11 ft^2)	3 m^2 (32 ft^2)	10 m^2 (108 ft^2)	30 m^2 (323 ft^2)	100 m^2 (1,076 ft^2)	300 m^2 (3,229 ft^2)	1,000 m^2 (10,764 ft^2)	3,000 m^2 (32,292 ft^2)	10,000 m^2 (107,639 ft^2)
Cs-137	242	110	52.8	50.6	37.4	30.8	24.2	24.2	22

2.3 SUMMARY OF ACCEPTANCE CRITERIA

The release criteria for land areas shown in Table 2-1 are the average activity concentration in soil (pCi/g) that correspond to the dose-based radiological criteria of 10 CFR part 834. The limits are radionuclide specific and the sum of fractions (unity rule) must be applied to show compliance with the acceptance criteria. Table 2-2 presents area factors (based on MARSSIM guidance) to be used for elevated measurement comparisons (EMC) and to determine sampling requirements in situations where the scan

instrument's MDC is greater than the appropriate $DCGL_w$. The appropriate $DCGL_{EMC}$ values are calculated by multiplying the appropriate $DCGL_w$ by the area factors in Table 2-2.

2.3.1 Structures

The radionuclide-specific average total contamination acceptance criteria were derived using the DandD code and default parameters. Values calculated using DandD and default parameters are referred to as screening values by the DOE. The DOE allows use of these screening values in lieu of site-specific DCGL values that must be submitted to the DOE for approval. The DOE screening values assume that removable contamination is not more than 10 percent of the total contamination screening value.

The acceptance criteria for structures shown in Table 2-4 are the average total surface contamination and the average removable surface contamination levels that correspond to the dose-based radiological criteria of 10 Part 834. Any hot spot greater than 3 times the Fixed contamination level was modeled as soil since the structures were below grade and were to be back filled after remedial activities were complete.

Table 2-4
Radionuclide-Specific Release Criteria –Structures

Radionuclide	Structures Fixed Contamination (dpm/100 cm^2)	Structures Removable Contamination (dpm/100 cm^2)
Beta/Gamma	5000	1000
Alpha	100	20

3.0 HISTORICAL SITE ASSESSMENT

All Building 811 underground storage tanks and remediated soil areas have undergone either a characterization study or historical site assessment (HSA) that is used as the basis for the initial determination of the area classification established in this section. The assessment included a combination of the following:

- A review of survey data including routine survey data generated during operations 811 building area.
- A review of BNL records including licenses, drawings, operations procedures, and other relevant site records.
- Interviews with employees who were familiar with operations at the site.
- Building exteriors were evaluated based on a review of building entrances/exits, ventilation exhausts, and the presence of drains. Additional data gathered as the remediation project proceeds will provide adequate assurance that any residual contamination is contained within the building structure.

The characterization or HSA was performed to determine the current radiological status of site structures and open land areas. Each area was characterized as impacted or nonimpacted based on the following MARSSIM definitions:

- **Nonimpacted** areas have no reasonable potential for residual contamination and require no further evidence to demonstrate compliance with release criterion.
- **Impacted** areas have a potential for radioactive contamination (based on historical data) or contain known radioactive contamination (based on past or current survey data). For areas of known radioactive contamination, areas adjacent to these locations may also be characterized as impacted based on the potential for inadvertent spread of contamination.

3.1 SUMMARY OF BNL FACILITIES

Section 1.3 provides a summary of the Brookhaven 811 site facilities. The land areas had been classified in accordance with MARSSIM based on the existing characterization survey data. In addition, part of the adjacent land was impacted and was partially remediated prior to this clearance effort.

3.2 INITIAL CLASSIFICATION OF THE SURVEY AREAS

The initial (i.e., FSS planning basis) classification of the area is listed in Table 3-2. The site is essentially homogenous. BNL has stated that previous surveys adjacent to and below the D tanks area and the UST vault have identified these areas as Class 1 survey units.

Table 3-2
Final Status Survey Initial Survey Area Classifications

Area	Description	Classification
UST Vault land Area	Described in section 1.2	1
UST vault	Six structural vaults described in section 1.2	1
Adjacent Soil	Described in section 1.3	1

4.0 SURVEY UNIT CLASSIFICATION

4.1 SOIL AREAS

Each impacted area was sampled in accordance with MARSSIM sampling density requirements and area classification defined below. The selection of the survey units was based on areas having similar operational history or similar potential for residual radioactivity to the extent practical.

4.1.1 Definitions

Suggested areas for survey units

Classification	*Suggested Area*
Class 1	
Structures	Up to 100 m^2 floor area
Land areas	Up to 2000 m^2
Class 2	
Structures	100 to 1000 m^2 floor area
Land areas	2000 to 10,000 m^2
Class 3	
Structures	No limit
Land areas	No limit

4.1.2 Initial Open Land Area Classifications

The initial (i.e., FSS planning basis) classification of the area is listed in Table 3-2. The site is essentially homogenous. BNL has stated that previous surveys adjacent to and below the D tanks area and the UST vault have identified these areas as Class 1 survey units.

Final Status Survey Initial Survey Area Classifications for soil surfaces

Area	Description	Classification
UST Vault land Area	Described in section 1.2	1
D Tank Area	Described in section 1.3 as adjacent soil area	1

4.2 STRUCTURAL SURFACES

4.2.1 Definitions

Class	Definition	Survey Unit Size
1 Structure	Areas known or expected to have radionuclide concentrations above the DCGL	Up to 100 m^2 Floor Area
2 Structure	Areas known or expected to have radionuclide concentrations above normal background concentrations but that are not expected to be above the DCGL	100 m^2 to 1,000 m^2 Floor Area
3 Structure	Areas that are not expected to have radionuclide concentrations detectable above normal background concentrations	No Limit

4.2.2 Initial Structural Surface Area Classifications

The classification of impacted Structures at the Brookhaven 811 area is summarized in Tables 4-1 below. The table provides an area description and classification.

Table 4-1
Classification of Impacted Structures

Building	Description Room/Area	Classification
A1 Vault	Structure containing formerly utilized storage tank. Tank removed as part of remediation	Class 1
A2 Vault	Structure containing formerly utilized storage tank. Tank removed as part of remediation	Class 1
A3 Vault	Structure containing formerly utilized storage tank. Tank removed as part of remediation	Class 1
B1 Vault	Structure containing formerly utilized storage tank. Tank removed as part of remediation	Class 1
B2 Vault	Structure containing formerly utilized storage tank. Tank removed as part of remediation	Class 1
B3 Vault	Structure containing formerly utilized storage tank. Tank removed as part of remediation	Class 1

5.0 SURVEY DESIGN

5.1 SURVEY OBJECTIVE

The final status survey of each Class 1, Class 2, and Class 3 survey unit was designed in accordance with MARSSIM principles (MARSSIM chapter 5) and employed a triangular grid system. In the discussion that follows, the number of soil samples in a given survey unit is n.

The mean survey unit 137Cs, 226Ra and 90Sr concentrations were determined for each survey unit by calculating the weighted average of the n samples from that unit. If $x_i \pm \sigma_i$ is the 137Cs concentration and its uncertainty for the ith sample in a survey unit, then the mean $\overline{x}$ and its uncertainty $\overline{\sigma x}$ for that survey unit are

$$\overline{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \text{ and } \overline{\sigma x} = \frac{1}{n}\sqrt{\sum_{i=1}^{n} \sigma i2}$$

All uncertainties will be at the 95 percent confidence level (two standard deviations).

The mean survey unit 90Sr concentration average $\overline{y}$ and its uncertainty $\overline{\sigma y}$ and the mean survey unit 226Ra concentration average $\overline{z}$ and its uncertainty $\overline{\sigma z}$ were determined similarly.

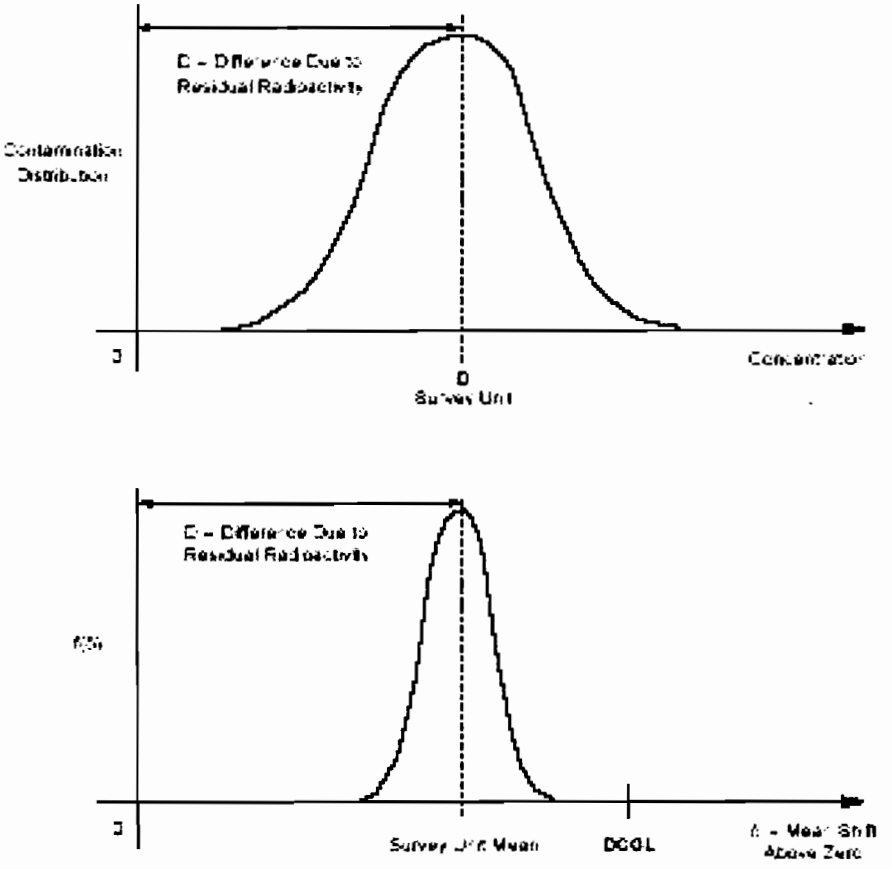
The value D for use in applying the unity rule and its uncertainty σD are:

$$D = \frac{\overline{x}}{23\ \text{pCi g}^{-1}} + \frac{\overline{y}}{15\ \text{pCi g}^{-1}} + \frac{\overline{z}}{5\ \text{pCi g}^{-1}}$$

$$\text{and } \sigma D = \sqrt{\left(\frac{\overline{\sigma x}}{23\ \text{pCi g}^{-1}}\right)^2 + \left(\frac{\overline{\sigma y}}{15\ \text{pCi g}^{-1}}\right)^2 + \left(\frac{\overline{\sigma z}}{5\ \text{pCi g}^{-1}}\right)^2}$$

Figure 5-1 (MARSSIM figure D.3) illustrates the decision rule, except that the value 1 substitutes for the DCGL in the figure. The measurement distribution of D, f(δ), is centered at D, the true value of the application of the unity rule. This distribution is shown in the lower graph of Figure 5-1.

Figure 5-1
Decision Rule



As MARSSIM says in its appendix D, "If f(δ) lies far to the left (or to the right) of [D = 1] [see Figure 5-1], a decision of whether or not the survey unit demonstrates compliance can be easily made. However, if f(δ) overlaps [D = 1], statistical decision rules are used to assist the decision maker."

Therefore, application of the results of the above calculations and the alternative actions leads to the following decision rules:

- If $\sigma D \leq 1 - D$ for a survey unit, then that survey unit meets the unity rule criterion at the 95 percent confidence level. No further action will be required.

- If $-\sigma D \leq 1 - D \leq +\sigma D$ for a survey unit, then the survey of that survey unit is inconclusive at the 95 percent confidence level. Additional statistical tests in accordance with the Sign test as described in MARSSIM will be performed. If these tests are also inconclusive, BNL personnel, in coordination with stakeholders and regulatory authorities, will decide the next course of action. Suggested further actions include spot remediation with or without periodic monitoring, or periodic monitoring until contamination has decayed and met the unity rule criterion.

- If $1 - D \leq -\sigma D$ for a survey unit, then that survey unit does not meet the unity rule criterion at the 95 percent confidence level. BNL personnel, in coordination with stakeholders and regulatory authorities, will decide the next course of action. Either land use restrictions with periodic monitoring until contamination has decayed and met the unity rule criterion or additional remediation followed by a final status survey may be required.

The measured gamma count rates, exposure rates, and BetaScintTM results were compiled and analyzed similarly to provide additional information for the decision-making process. However, soil sample analytical results provided the primary data for decision-making.

Final status surveys were performed to demonstrate that average residual radioactivity levels within each survey unit meet the applicable acceptance criteria identified in Chapter 2.0 of the Final Status Survey Plan. The principal features of the FSS land area protocol applied at the area are discussed below and include:

Hypothesis Testing
Acceptable Decision Error Rates

- Surrogate Radionuclide Selection
- Sign test
- Establishing Radiological Background

Locating Discrete Soil Samples
Scanning

5.1.1 Hypothesis Testing

To provide statistically robust decisions regarding survey unit acceptability with respect to achieving the unrestricted use acceptance criteria approved for the survey area, the paired hypothesis testing approach was used. The paired hypotheses are the null, H_O, and alternative, H_A statements. The null hypothesis H_O poses that the measured average residual contamination in a survey unit *exceeds* the remedial objective (e.g., the $DCGL_W$ activity concentration). The complementary alternative hypothesis H_A presumes that the measured average residual contamination in a survey unit is *at or below* the remedial objective. The outcome of hypothesis testing was used to ascribe a statistically based level of confidence or probability (using the decision error rates and hypothesis testing matrix shown in section 4.2.2 of the Final Status Survey Plan) to the decision made regarding the "true" as-left condition of a survey unit. The null hypothesis is that a survey unit does not meet release criteria.

A Type I decision error occurs when the null hypothesis is rejected when it is true and is sometimes referred to as a false positive error. The probability of making a Type I decision error, or the level of significance, is denoted by alpha (α). Alpha reflects the amount of evidence the decision maker would like to see before abandoning the null hypothesis and is also referred to as the size of the test.

A Type II decision error occurs when the null hypothesis is accepted when it is false. This is sometimes referred to as a false negative error. The probability of making a Type II decision error is denoted by beta (β). The term $(1 - \beta)$ is the probability of rejecting the null hypothesis when it is false and is also referred to as the power of the test.

Decisions made from the results of the final status survey were based primarily on radioanalysis of soil samples for 137Cs, 226Ra and 90Sr concentrations. Experience indicates that uncertainties in the analytical data are significantly less than the DCGLs. This means that application of the decision rules with uncertainties at the 95 percent confidence level provides a 5 percent probability for both alpha and beta, neglecting the uncertainty in the DCGLs.

5.1.2 Decision Error Rates

Survey unit radiological measurement data were used to objectively determine the success or failure of the remediation work, i.e., whether the "true" as-left radiological condition is at or below ("success"), or

above ("failure"), the applicable remedial objective. This FSS determination framework for the cleanup area are depicted in the matrix below.

Hypothesis Testing Matrix for Survey Unit FSS Measurement Decisions

		Survey Unit Decision	
	Hypothesis	*"Success"* (Reject H_O)	*"Failure"* (Accept H_O)
"True" Condition of the Survey Unit	**H_A** Meets remedial objective (e.g., at or below $DCGL_W$ value)	No decision error (probability = 1 - α)	Incorrectly fail to release survey unit (Type II error with probability = β)
	H_O Exceeds remedial objective (e.g., exceeds $DCGL_W$ value)	Incorrectly release survey unit (Type I error with probability = α)	No decision error (probability = 1 - β)

"*Success*" means that the null hypothesis H_O can be rejected and, therefore, the alternative hypothesis H_A is to be accepted at a decision error confidence interval of (1 - α). The rejection of H_O also means that there is a very small likelihood (equal to the interval α) that the "success" decision is incorrect. Similarly, "*failure*" means that H_O is accepted (and H_A rejected) at a decision error confidence interval of (1- β), with again a small likelihood (equal to β) that the failure decision is incorrect.

The error control data quality objective (DQO) confidence intervals selected for the remediation area are $\alpha = 0.05$ for Type I errors and $\beta = 0.05$ for Type II errors. The Type I error control DQO was selected because decisions regarding the success of remediation efforts directly affect the sustained protection of human health and environmental resources. The same DQO is used to cap conservative Type II decision errors because it is also important to limit unwarranted remediation.

5.1.3 Locating Discrete Samples

The number of samples in the table below includes a factor to increase the number of required samples by as recommended by MARSSIM. The number of required samples may be further increased to increase the power level of the statistical tests. Additional sampling locations may also be necessary if

characterization data and remedial action surveys and sampling indicate that there is greater than expected spatial variability ( ) of sample results within specific survey units. Sigma ( ) was expected to be 14 pCi/g for Cesium soil contamination measurements while the DCGL is 23.0 pCi/g and the LBGR is 6.7pCi/g (Scan MDC value) then delta is 15.3. This a Δ/σ and corresponded to a sing p of 0.864334 from table 5.5 of the MARISSM guide.

Using equation 5-2 from MARRISM and error rates of 0.05 for α and β, the number of calculated sample locations per survey unit was calculated at 20. As per MARRISSM 20% extra samples were taken. Therefore 24 samples were expected to be taken in each Class 1 survey unit to assure reaching the calculated minimum of 20 samples. It was expected that the number of samples calculated would meet MARISSM requirements. After initial sampling of each unit, a specific number of samples based on the observed uncertainty were calculated for each survey unit.

5.1.3.1 Soil – Routine Method

The results of discrete soil sampling was used to verify that the average soil concentration was less than the appropriate remediation criteria Regardless of the survey unit classification (Class 1, Class 2, or Class 3), a predetermined minimum number of samples was collected in each survey unit as shown in section 4.2.3. A random-start triangular pattern, or grid (generally the most efficient means of identifying small areas of elevated activity), was used in Class 1 survey units to locate the soil samples. The triangular grid has approximately a 90 percent chance of detecting a circular hot spot of radius equal to one-half the grid spacing.

The perimeters of survey units were clearly delineated with engineer stakes or flags. The locations of corners of these areas were determined using a global positioning system (GPS). A random-start triangular grid pattern for sample locations was established in each survey unit. The spacing (L) of the pattern for n sample points in a survey unit of area A is given by MARSSIM equation 5–5:

$$L = \sqrt{\frac{A}{n \sin 60^\circ}}$$

In the above equation, *A* is the survey unit area to be covered by the grid pattern and *N* is the number of samples required for that survey unit. The random start point (X and Y coordinates) was selected using

the *Visual Sample Plan* computer application. Sample points were identified in the field by flags or other means using a global positioning system (GPS or equivalent locating tool) to spot each grid node.

After L is determined, a random coordinate location was identified for a survey pattern starting location as follows. Two random numbers for each survey unit were randomly generated, one for the x-axis and one for the y-axis. The appropriate survey unit dimensions were multiplied by each set of random numbers to provide (x, y) coordinates for the starting location relative to the origin of the survey unit grid pattern.

Beginning at the random starting location, a row of points was identified, parallel to the x-axis, at intervals of L. For a triangular grid, a second row of points then was developed parallel to the first row at a distance L sin 60° from the first row. Survey points along that second row were midway (on the x-axis) between the points on the first row. This process was repeated above and below the starting row to identify a pattern of survey locations throughout the survey unit. If identified points fell at locations that cannot be surveyed, then additional points were determined using the same random process described above for determining the starting location until the desired total number of points was identified.

5.1.3.2 Soil – Alternate Method

The routine method described above presumes that the actual scan minimum detectable concentration (MDC) is less than or equal to the required scan MDC (discussed in the following section), i.e., there is sufficient scan sensitivity available to detect small areas of elevated activity. An elevated scan MDC could be experienced due to an increased background signal attributable to meteorological conditions increasing the airborne concentration of natural radioactivity or confounding radiation sources in an adjacent area. For the infrequent situations where the actual scan MDC exceeds the required scan MDC, the alternate method for calculating the required number of samples N may be used. This alternate method is described in Section 5.5.2.4 of MARSSIM and involves the calculation of an area factor corresponding to the actual scan MDC as follows:

$$AreaFactor = \frac{ScanMDC(actual)}{DCGL_W}$$

The size of an area of elevated radioactivity corresponding to this area factor is interpolated from the FSSP Table 2-4, and divided into the survey unit area to determine the alternate number of sample locations N_{EA}. If N_{EA} exceeds the value assigned to N in Section 4.2.3, an alternate spacing L_{EA} for the systematic sampling grid is calculated using the equation:

$$L_{EA} = \sqrt{\frac{A}{0.866 N_{EA}}}$$

Otherwise, the equation in Section 4.2.4.1 will be used to specify a routine spacing L.

5.1.3.3 Structure Surfaces

The results of discrete sample point measurements of structure surfaces were used to verify that the total and removable activity concentrations are less than the appropriate $DCGL_w$ values. Regardless of the survey unit classification (Class 1, Class 2, or Class 3), a predetermined minimum number of sample points were measured in each survey unit.

The number of structural samples in the table below includes a factor to increase the number of required samples by 20 percent, as recommended by MARSSIM, to allow for lost or unusable data. The number of required samples may be further increased to increase the power level of the statistical tests. Additional sampling locations may also be necessary if characterization data and remedial action surveys and sampling indicate that there is greater than expected spatial variability of sample results within specific survey units. Because of the unknown variability in uncertainty in measurements in the structural units a conservative grid sampling method of one sample per m^2 of surface area will be taken. The variability in sampling will be determined and data objectives in the below table will be met. If it is determined that after sample analysis is performed that not enough samples have been obtained more samples will be taken to be sure Data Quality Objectives are reached.

		Data Quality Objective	
Survey Unit Area (m^2)	**Structure Classification**	**Type I Error (α) Control**	**Type II Error (β) Control**
100	**1**	**0.05**	**0.05**
100 - 1,000	**2**	**0.05**	**0.05**
Unlimited	**3**	**0.05**	**0.05**

5.1.4 Obtaining Discrete Samples and Scanning Methods

5.1.4.1 Soil – Shallow Surface Composite and gamma scans of land areas

Gamma radiation scans were performed and recorded at each surface soil sampling location with two instruments. A Ludlum model 19A u meter or equivalent and a Ludlum model 44-10 gamma scintillator used with a Ludlum model 2221 scaler/ratemeter single channel analyzer or equivalent. An ISOCS unit may also have been used to take measurements of grids.

Special precaution was taken near the north field area since extensive activated material increased background count rates. NaI detectors and ISOCS equipment were shielded in these areas to reduce background due to shine. In trench areas scans were performed by lowering a NaI 2 x 2 probe into the trench box via a pulley attached to a 2 x 4 spanning the length of the area.

Surface soil samples were collected from the land surface to 6 inches (15 centimeters) below the surface. The minimum volume per sample was one liter. Samples were thoroughly mixed and manually compacted before being containerized. Vegetation, animal matter, and rocks were excluded from the samples as much as reasonably possible.

Samples were immediately identified and labeled. The attached label included the sample identification code, date and time of collection, analyses requested, preservatives used (if any), and type of sample (grab or composite). The sample identification code was SS04YYZZ or SS05YYZZ, where "SS" denoted "surface soil sample," "04" and 05 refer to the year 2004 and 2005, "YY" is the designator for the survey unit or reference area sampled, and "ZZ" is the sequential number to designate the samples. The location where each sample was collected was immediately cross-referenced with its sample identification code in project onsite records to assure proper correlation between analytical results and locations when the project report was prepared.

Results were averaged over a survey unit, samples were relatively large, and any contribution of cross-contamination to uncertainties was negligible in comparison with statistical uncertainties in analysis results. Therefore, extensive cleaning of sampling equipment to minimize the transfer of small amounts of debris between samples is of little value. However, normal care was taken to prevent the transfer of

large amounts of material between samples from the same survey unit. These measures below helped to reduce investigative derived media (IDM) without impacting data quality.

Sampling equipment was thoroughly cleaned between uses in different survey units in accordance with normal procedures to prevent cross-contamination.

No sample preparation steps were performed during the field processing of surface soil samples other than the removal of non-soil material (grass, sticks, rocks, etc.) and decanting free water, if present. If there was reason to believe that non-soil objects were affected by radionuclides of remediation concern, they were retained for possible further evaluation as a separate sample.

5.1.4.2 Soil – Deep Subsurface Composite

Subsurface sampling was outside MARSSIM's scope. Therefore, the sampling number and locations were based on judgment. The purpose of the subsurface sampling was to determine subsurface concentrations of 90Sr, 226Ra and 137Cs and to see if those contaminants had migrated to the subsurface. Deep excavations may have precluded a gamma-walkover type survey or collection of soil samples for safety reasons in certain areas of the excavation. If so, other approved techniques may have been used, such as measuring excavated soil or using remote detectors *in-situ*.

Subsurface soil samples were collected from two depths at each subsurface sample location. One sample was collected from one to four feet below land surface and the others were collected from to four to seven feet below the surface. Subsurface samples were collected using the hydraulic push sampling methods. A dual tube soil sampling system will be used to minimize cross-contamination from surface soils. As the sample was removed from the hole, it was scanned using direct reading instruments to identify the presence of gross radionuclide contamination that could require special handling and cleanup procedures. Care was taken when collecting subsurface samples to ensure that soil that may have collapsed into the hole from the surface was not included in the subsurface sample.

The volume per sample was approximately 0.5 liter. The actual volume was a function of the recovery achieved in the sampling tube. If adequate volume was not obtained, a second sample was collected immediately adjacent to the initial sampling location and homogenized. Subsurface soil samples were managed in an identical manner as the surface soil samples.

The sample identification code was DP04YYZZ (X1 - Xs), where "DP" denotes "direct push," "04" refers to the year 2004, the designator 05 was used for samples obtained in 2005, "YY" is the designator for the survey unit or reference area sampled, and "ZZ" is the sequential number to designate the samples. X1 and X2 denote the upper and lower depth of the sampling interval, respectively. The location where each sample was collected was immediately cross-referenced with its sample identification code in project onsite records to assure proper correlation between analytical results and locations.

Sampling equipment was thoroughly cleaned between depth intervals and sample locations when applicable. Biased subsurface sampling was used at locations where a subsurface sample has been collected and radiation levels are still elevated sufficiently above background as to require further investigation at the location. In this event, a sample of the 15" of soil below the bottom of the previous sample was collected for analysis. As above, care was taken and sampling methods selected to ensure that soil from the previously sampled depth did not enter the hole and mix with the sample. Using direct read instruments, the sample hole was monitored to determine the activity level. If elevated readings were still found, additional sampling was required.

In Appendix G to Volume 2 of NUREG-1757, the NRC recognizes that core sampling may be unnecessary if sufficient data to characterize subsurface residual radioactivity is available from other sources. Weston believes that the data provided by the soil segregation system is sufficient in this regard. Therefore, as an alternative or supplement to core sampling, Weston implemented an *in situ* soil sampling protocol that achieved the required sensitivity for detection of Cs-137 as well as non-uniform radiological conditions. Weston fully believes that the radiological data provided by the soil segregation system is of sufficient quality and quantity to permit its use as FSS soil sample data. Also, the process control of segregated soil was such that the radiological data produced by the system remains representative of the soil placed in an excavation.

5.1.4.3 Structure Surfaces

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used. The smear counter MDC was calculated in accordance with the static MDC equation in the FSSP.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed for Alpha and Beta/gamma, as required. The minimum MDCs required for analytical analyses are a fraction (usually 25 to 75 percent) of the applicable $DCGL_W$ (loose) value for the survey unit.

5.1.5 Scanning

Gamma scanning surveys was performed to identify isolated areas of elevated radioactivity that may not be revealed by discrete soil sampling (i.e., confirm that radiological conditions in each survey unit are reasonably uniform) and record the direct radiological profile of each survey unit. Surveyor technique, i.e., the pace and pattern of surveyor and detector motion as well as the surveyor's professional judgment, control the fraction of the survey unit soil surface that is effectively viewed or "covered" by the field instrumentation. The surveyor scanning technique employed at the BNL area limited the detector face-to-soil surface clearance to less than 2 inches, with a half-meter per second serpentine detector motion. To permit the surveyor to focus on maintaining these detector clearance and motion constraints, the surveyor relied on the audible response signal from the survey instrument.

The fraction of each survey unit's land area to be covered by gamma scans was based upon the survey unit classification as shown below.

Land Area Scan Coverage Requirements

Survey Unit Classification	Scan Coverage
Class 1	100 percent
Class 2	10 to 100 percent Systematic and Judgmental
Class 3	Judgmental

The scanning coverage for Class 1 areas was always total, i.e., 100 percent. The scanning coverage for Class 2 areas (should any Class 1 areas be downgraded to Class 2 area) was adjusted based on the level of confidence supplied by existing data. .

5.1.5.1 Post remediation Surveys for Returned Overburden Material

When remediation activities in a survey unit that required the excavation of a substantial volume of overburden soil were completed, the following survey tasks were performed for each lift of ABM returned to the excavation:

- The excavation floor and walls to be covered by the ABM lift were surveyed by gamma scan to confirm acceptable radiological conditions.
- A maximum two-foot layer of ABM containing less than 23 pCi/g (maximum) Cs-137 was placed on the excavation floor.
- The ABM floor surface and (if necessary) remaining exposed walls were surveyed by gamma scan.

No surveys of areas backfilled with offsite material were required. Once the excavation was filled with the desired amount of below-criteria material:

- The sample grid and locations were identified in the field.
- The core sampling and analysis event proceeded as described in Section 4.2.7.2.

Sample data was reviewed as described in Section 7.0.

6.0 SURVEY INSTRUMENTATION AND MEASUREMENT TECHNIQUES

This chapter presents a description of radiological field instrumentation and laboratory measurements that were used during implementation of the FSSP and completion of the FSSR.

6.1 LAND AREAS SURVEY INSTRUMENTATION

The gamma-emitting photons of Cs-137 are easily detected using survey instruments equipped with NaI scintillation crystal detectors. Scanning for gross gamma activity was used during RASS and FSS activities. The following field and process control instruments (or other instruments providing equivalent detection sensitivity) were used to survey soil to achieve RASS and FSS objectives:

Meter Manufacturer and Model	Detector Manufacturer and Model	Detector Type	Use
Ludlum 2221	Ludlum 44-10 2″ × 2″ NaI scintillator	Sodium Iodide (unshielded)	RASS/FSS Scans or Static Measurements for Gamma-Emitting Radionuclides
Canberra Industries	Canberra ISOCS detection system	Hyper-Pure Germanium Array (HPGe)	RASS/FSS Scans, sample analysis for Processing Soil by Segregation

6.1.1 Detection Sensitivity Requirements

Field instrument use was evaluated and controlled to verify that MDCs of less than 75 percent of the $DCGL_W$ for direct measurements and/or scanning measurements were routinely achieved. This field instrument MDC specification also assured ample detection sensitivity for activity concentrations at the $DCGL_W$. Process equipment was evaluated and controlled to verify that MDCs of less than 75 percent of the DCGL are routinely achieved. Implementation of these MDC requirements is discussed in the subsections that follow.

6.1.1.1 Field Instrument Scanning

The MARSSIM framework for determining the MDC for field instrument scanning activities is based on the premise that there are two stages of scanning. That is, surveyors do not make decisions of the basis of a single indication, rather, upon noting an increased number of counts, they pause briefly and then decide

whether to move on or take further measurements. Thus, scanning consisted of two components: continuous monitoring and stationary sampling. Accordingly, field instrument surveyor scan MDCs, $MDCR_S$, are calculated to control the occurrence of Type I (false negative) and Type II (false positive) errors using the following MARSSIM equation:

$$MDCR_S = \frac{MDCR}{\sqrt{p}\varepsilon}$$

Where $MDCR$ is the minimum detectable count rate (cpm), p is the surveyor efficiency (estimated in MARSSIM to be between 0.5 and 0.75; the value of 0.5 results in a more conservative $MDCR_S$ calculation and therefore will be used), and ε is the instrument efficiency (cpm per μR/hr; Table 6.4 of NUREG-1507). In addition:

$$MDCR = s_i\left(\frac{60}{i}\right)$$

$$s_i = d'\sqrt{b_i}$$

Where s_i (counts) is the minimal number of net source counts required for a specified level of performance for the counting interval i (seconds); d' is the index of sensitivity; and b_i is the number of background counts in the interval. Index of sensitivity d' values is listed MARSSIM Table 6.5 based on the proportions for required true positive and tolerable false positive occurrence rates. The index of sensitivity value selected for initial use at the BNL area is 1.38, corresponding to a true positive proportion of 0.95 and a false positive proportion of 0.60. While this index of sensitivity value will result in at least 95% "correct" scanning detections as required by the area DQO for Type I error control, up to 60% "incorrect" (false positive) scanning detections may occur. Should this become an intolerable compromise, a larger index of sensitivity value corresponding to the 0.95 true positive proportion may instead be used provided the required scan MDC is achieved.

Typical calculated Cs-137 scan MDCs for a survey instrument equipped with 2-inch-by-2-inch NaI detector using this MARSSIM two stage scanning framework are summarized in the table below for increasing background count rates.

Bkg	i	p	ε	d'	b_i	$MDCR$	$MDCR_S$	Scan MDC^c	
cpm	sec		cpm per µR/hr		counts	ncpm	ncpm	µR/hr	pCi/g
11,000					183	1120	1584	1.76	6.7
8,000	1	0.5	900	1.38	133	955	1350	1.50	5.75
5,000					83	754	1,067	1.19	4.56

6.1.1.1.1 *Detection of Small Areas of Nonuniform Radioactivity*

By design, the MARSSIM-based FSS scan protocol presumes a uniform distribution of residual radioactivity in a survey unit. While this presumption is expected to be valid throughout remediated land areas, a likelihood that small areas containing elevated residual radioactivity may nonetheless exist. The ability to detect these small areas by scanning is an important complement to soil sampling and analysis for demonstrating compliance with the release criteria. Consequently, the detection sensitivity of the FSS land area scan protocol for the special case of a small area containing nonuniform residual radioactivity being present in a survey unit has been established by calculation. The design nonuniform, or "hot spot", geometry selected was a 60-centimeter (2-foot) thick, 28-cm (11-inch) radius cylindrical soil source with 0.25 m^2 end surface area. This soil source was modeled in *MicroShield* as containing uniformly distributed activity concentrations of Cs-137 at the DCGLw and 3.5 times $DCGL_W$, respectively.

The results of this model were interpreted with section 5.1.1.1 equations to show that the scan MDC over this small area ranges from 5.75 to 9.1 pCi/g for backgrounds ranging from 8,000 to 20,000 cpm, respectively.

6.2 STRUCTURE SURVEY INSTRUMENTATION

For surface contamination scanning and static measurements, the radionuclides of concern and/or their progeny emit alpha and/or beta particles that are easily detected using survey instruments equipped with gas proportional detectors and scalers. Scanning for gross beta activity was used as part of status surveys of structural surface survey units to ensure elevated Sr-90 areas of activity are not missed. In addition, static counts of structural surfaces at predetermined sample points was used to assess total contamination of structural surfaces. The following instruments (or other instruments providing equivalent detection sensitivity) were used to survey structural surfaces to achieve RASS and FSS objectives:

Meter Manufacturer and Model	Detector Manufacturer and Model	Detector Type	Use
Ludlum 2221	Ludlum 43-68 Gas Proportional	Gas Proportional	RASS/FSS scans and static counts for beta-emitting radionuclides

6.2.1 Detection Sensitivity Requirements

Structure survey instrument use was evaluated and controlled to verify that MDCs of less than the $DCGL_w$ for direct measurements and/or scanning measurements are routinely achieved. Field instrument scan MDCs were calculated to control the occurrence of Type I (false negative) and Type II (false positive) as discussed in the subsections that follow.

Static and scan MDCs are presented in Appendix B of the Field Sampling Plan.

6.2.1.1 Scan

There are two equations based on the MARSSIM two-stage scan methodology used to determine the scanning MDC depending on the background level. The minimum detectable concentration of a scan survey (scan MDC) depends on the intrinsic characteristics of the detector (such as efficiency and physical probe area), the nature (type and energy) of emissions, the relative distribution of the potential contamination (point versus distributed source and depth of contamination), scan rate, and other characteristics of the surveyor. MARSSIM section 6.7.2.1 discusses the basis for estimating scanning MDCs and arrives at the following equation for scan MDC:

$$\text{Scan MDC} = \frac{\text{MDCR}}{\sqrt{\text{p}}\ \text{A}\ \varepsilon\text{i}\ \varepsilon\text{s}} \times \frac{100\ \text{cm2}}{100\ \text{cm2}}$$

where MDCR is the minimum detectable count rate (interpolated from MARSSIM table 6.6), p is surveyor efficiency (assumed to be 0.5), and other parameters are shown above. The final factor, which equals 1, helps put the units of scan MDC into dpm/100 cm2.

Table B-2 lists scan MDCs for instruments used for clearance measurements. Scan MDCs were rounded up to one or two significant digits so that implied accuracy is not overstated.

Table B-2
Scan MDCs

Detector	MDCR (cpm)	Scan MDC (dpm/100 cm^2)
Ludlum Model 43-89 Alpha/Beta Scintillator	92	2000
Ludlum Model 44-9 Pancake GM Detector	55	6000

6.2.1.2 Static Counts

Minimum counting times for static counts of total and removable contamination will be chosen to provide a MDC that is a fraction (25 – 75 percent) of the survey unit-specific acceptance criteria. According to MARSSIM, the critical level (LC) is the level, in counts, at which there is a 5 percent statistical probability of incorrectly identifying a measurement system background value as greater than background. Any response above this level was considered to be greater than background. The detection limit (LD) is a priori estimate of the detection capability of a measurement system and is also reported in units of counts. The MDC is the detection limit (counts) multiplied by an appropriate conversion factor to give units consistent with a site guideline, such as picocuries per gram (pCi g-1) or dpm per 100 cm2. In other words, the MDC is the a priori net activity level above the critical level that an instrument can be expected to detect 95 percent of the time.

MARSSIM explains how to calculate LC, LD, and MDC and arrives at the following result (MARSSIM equation 6-7) for the static MDC:

$$\text{Static MDC} = C\left(3 + 4.65\sqrt{B}\right)$$

where C represents total detection efficiency and other constants or factors needed to put the static MDC into appropriate units and B is the number of background counts that are expected to occur while performing an actual measurement. All static counts were taken in one minute.

For the present purposes:

$$C = \frac{1}{A\varepsilon_i\varepsilon_s} \times \frac{100\ \text{cm}^2}{100\ \text{cm}^2}$$

where A is the effective area of the probe, εi is the instrument or detector efficiency, εs = 0.5 is the efficiency of the contamination source, and the final factor, which equals 1, helps put the units of scan MDC into dpm/100 cm2.

Table C–1 lists static MDCs for instruments used for clearance measurements. Efficiencies were taken from manufacturer's literature. Static background measurements are estimated and will be updated during the survey. Static MDCs were rounded to one or two significant digits so that implied accuracy is not overstated.

Instrument Efficiencies and Static MDCs.

Detector	Effective Probe Area (cm^2)	Instrument Efficiency (cpm/dpm)	Background (cpm)	Static MDC (dpm/100 cm^2)
Ludlum model 43-89 alpha/beta scintillator	100	0.12 (α) 0.15 (β)	3 (α) 268 (β)	200 (α) 1100 (β)
Ludlum model 44-9 pancake GM detector	12	0.18 (β)	60 (β)	3600 (β)

6.2.2 Static Sample Point Measurements

Static sample point measurements were taken at each sample point location to determine the total contamination. Placing the detector on the surface to be measured performed static measurements for gross beta. Care was taken if removable contamination was suspected. Notes about the surface condition (e.g., smooth or porous) were taken. Static sample point measurements were taken on building surfaces in impacted areas utilizing instrumentation capable of measuring each radionuclide used in that area and of the best geometry based on the surface at the survey location. Additionally, locations of elevated activity identified and marked during the scan survey will require direct survey measurements.

Direct surveys were performed using hand-held 125 cm^2 scintillation detectors, 126 cm^2 gas proportional detectors, or 15 cm^2 detectors for small geometry surveys (less than 100 cm^2). Total surface activity

measurements were taken at each identified sample point. Scaled count times were determined based on the MDC_{static} of the applicable survey instrument.

Scan MDCs.

Detector	MDCR (cpm)	Scan MDC (dpm/100 cm^2)
Ludlum Model 43-89 Alpha/Beta Scintillator	92	2000
Ludlum Model 44-9 Pancake GM Detector	55	6000

6.3 LABORATORY ANALYSIS

A Canberra In Situ Object Counting System (ISOCS)® was used to measure 137Cs concentration in all of the soil samples. A full 500-mL Marinelli beaker will hold a portion of each sample to maximize counting efficiency. Samples will not be dried or processed, though any rocks, animal matter, or vegetation will be removed from the sample prior to weighing and counting. The samples will be weighed on a laboratory balance with 0.5-g precision. Counting time will be sufficient to assure that the minimum detectable concentration (MDC) is less than 25 percent of the DCGL for that isotope, if possible.

As discussed, cross-contamination between samples from the same survey unit or reference area is not a great concern. Therefore, extensive cleaning of the Marinelli beakers to minimize the transfer of small amounts of debris between samples is of little value. However, normal care will be taken to prevent the transfer of large amounts of material between samples. Marinelli beakers will be thoroughly cleaned between use for samples from different survey units and the reference area.

To exclude the bias introduced when grouping analytical results containing "less than" values, the laboratory will be instructed to report observed counting data when reporting results that are below the critical level L_C (and thus "not detected") established for each analysis.

All MARISSM samples were also sent to Severn Trent Laboratories for Alpha Spectroscopy, Gamma Spectroscopy and Sr-90 analysis.

7.0 SURVEY UNIT STRATEGY

This section documents the calculation of survey parameters specific to each survey unit class including the following:

- Minimum number of samples (N for Sign Test)
- Scan MDC values
- Number of samples based on scan MDC
- Planned number of samples
- Grid spacing
- Static count times and MDC
- Background

The calculations are repetitive and are detailed in Section 7.1. Beginning with Section 7.2, survey unit-specific information is provided including a summary table of the survey design parameters and specific survey unit strategy. Area dependent factors may be recalculated at the time of the FSS based on actual dimensions measured during survey activities. A total of three outdoor MARISSM survey units were performed: D-yard east, D-yard west and A/B vault yard. Several additional small soil areas that had to be left behind for a variety of reasons were modeled using RESRAD. The six vaults were treated as structural survey units and released with the structural release limits. Since the vaults are below grade and will be backfilled with soil if aggressive remediation was unable to get rid of hot spots above the structural release limits these areas were treated as soil contamination layers and modeled using RESRAD.

7.1 GENERAL STRUCTURAL SURFACE SURVEY DESIGN PARAMETERS

Each of these MARSSIM parameters is detailed in Chapter 5.0 or Chapter 6.0 of this plan. How each of these parameters are calculated and used to develop a specific survey unit strategy is presented below.

7.2 D-YARD WEST MARISSM AREA

The D-yard west was approximately 8096 ft^2. The area is bounded on the North by the shield wall, the west and south by the fence line and the east by the D-yard east MARISSM area. This MARISSM area is a class 1 survey unit. Eighteen total samples were taken in the survey unit. The grid pattern was triangular with a random starting point. The sample locations were generated using Visual Sampling Plan. The size of the grid was 22.79 feet with the area being 449.8 ft^2.

7.2.1 Soil Sample Requests

All samples were collected as prescribed in the Sampling Plan. All of the data was reviewed for Quality Assurance purposes to ensure accuracy. The review was conducted as described in of the Site sampling Plan. After completing these tests the Analyst deemed the data to be verified and the data was ready for final analysis.

7.2.2 Soil Sample Analysis

The Data set was evaluated for the following tests. The Data Screening tests and Statistical Screening test evaluation criteria are listed in the Final Status Survey Plan. As part of the screen each individual data point is compared with the specified threshold and is flagged if the data point fails the test. The summary of screens is detailed in Table 7.2-1. Key values used in the screening analysis are presented in Table 7.2-2.

Table 7.2-1
Screen Test and Statistical Test Report

	Nuclide Tested			
Test Performed	Cs-137	Sr-90	Ra-226	Sum of Fractions
DCGLw	Pass	Failed	Pass	Pass
DCGLavg	Pass	Pass	Pass	Pass
EMC	Pass	Pass	Pass	N/A
Sign test	Pass	Pass	Pass	Pass

Two of the eighteen samples were above the DCGL for Sr-90. The average for the unit was well below the DCGL values.

Table 7.2-2
Test Data Report

Nuclide Tested	Cs-137	Sr-90	Radium
Maximum Survey Value (pCi/g)	16.5	39.4	0.5
Minimum survey result (pCi/g)	0.25	0.5	0.2
Difference (pCi/g)	16.25	38.9	0.3
Average Activity (pCi/g)	4.7	4.2	0.3
Standard deviation (pCi/g)	4.6	9.6	0.1
Number of Sample results below nuclide DCGL	21	19	21
Average Below DCGL (pCi/g)	4.7	1.3	0.3
Site Background level for radionuclide (pCi/g)	1.5	0.3	1.0

The unit passes the statistical tests set forth and passes the criteria for release in the Final Status Survey Plan.

7.2.3 Scan

One hundred percent of the survey unit was scanned using a Sodium Iodide Detector. Scans were performed as outlined in the site FSSP. The maximum reading was 60,000 CPM. The average reading was approximately 9000 CPM. No locations were found above the DCGL. The maximum reading was in the area of the above ground D waste line. The D waste lines are still active and are the reason for the elevated readings. The maximum reading in other areas of the unit was 15,000 DPM. The survey unit passes the scan release criteria set forth in the FSSP.

7.2.4 RESRAD model

Four randomly selected samples from the MARISSM area were additionally analyzed with Alpha Spectroscopy for Pu-238, Pu-239/240, Th-228, Th-230, Th-232, Th-234, U-234, U-235, U-238, NP-237, Ra-226 and Ra-228. Since the average values of U-238 decay chain and Ra-226 are at or below the background value for BNL they were not included in the RESRAD model. The following nuclides were used at the levels indicated in the RESRAD analysis: Cs-137 at 3.44pCi/g, Pu-239 at 0.05pCi/g, Pu-240 at 0.05pCi/g, and Sr-90 at 4.5pCi/g and U-236 at 0.05pCi/g.

Resrad does model of D-yard west by year

Year	0	50	75	100	1000	Maximum year
Dose/y (mrem/y)	8.76	1.944	1.033	0.559	1.70E-102	1.944

Since the maximum yearly dose after year 50 from the survey unit in the RESRAD model is less that 15mrem/y, the unit passes the release criteria.

7.2.5 Conclusions and Recommendations

The survey passed both scan, soil survey and RESRAD release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.3 D-YARD EAST MARISSM AREA

The D-yard west was approximately 7506 ft^2. The area is bounded on the North by the shield wall and building 810, the west by the D-west MARISSM area, the south by the fence line and the east by Building 811 and the A/B vault yard MARISSM area. This MARISSM area is a class 1-survey unit. Twenty-one total samples were taken in the survey unit. The grid pattern was triangular with a random starting point. The sample locations were generated using Visual Sampling Plan. The size of the grid was 20.3 feet with the area being 357.4 ft^2.

7.3.1 Soil Sample Requests

All samples were collected as prescribed in the Sampling Plan. All of the data was reviewed for Quality Assurance purposes to ensure accuracy. The review was conducted as described in of the Site sampling Plan. After completing these tests the Analyst deemed the data to be verified and the data was ready for final analysis.

7.3.2 Soil Sample Analysis

The Data set was evaluated for the following tests. The Data Screening tests and Statistical Screening test evaluation criteria are listed in the Final Status Survey Plan. As part of the screen each individual data point is compared with the specified threshold and is flagged if the data point fails the test. The summary of screens is detailed in Table 7.3-1. Key values used in the screening analysis are presented in Table 7.3-2.

Table 7.3-1
Screen Test and Statistical Test Report

	Nuclide Tested			
Test Performed	Cs-137	Sr-90	Ra-226	Sum of Fractions
DCGLw	Pass	Failed	Pass	Failed
DCGLavg	Pass	Pass	Pass	Pass
EMC	Pass	Pass	Pass	N/A
Sign test	Pass	Pass	Pass	Pass

Two of the twenty-one samples were above the DCGL for Sr-90. The average for the unit was well below the DCGL values.

Table 7.3-2
Test Data Report

Nuclide Tested	Cs-137	Sr-90	Radium
Maximum Survey Value (pCi/g)	16.5	39.4	0.5
Minimum survey result (pCi/g)	0.3	0.5	0.2
Difference (pCi/g)	16.2	38.9	0.3
Average Activity (pCi/g)	4.7	4.2	0.3
Standard deviation (pCi/g)	4.6	9.6	0.1
Number of Sample results below nuclide DCGL	21	19	21
Average Below DCGL (pCi/g)	3.8	3.4	0.3
Site Background level for radionuclide (pCi/g)	4.7	1.3	0.3

The unit passes the statistical tests set forth and passes the criteria for release in the Final Status Survey Plan.

7.3.3 Scan

One Hundred percent of the survey unit was scanned using a Sodium Iodide Detector. Scans were performed as outlined in the site FSSP. The Maximum reading was 10,000 CPM. The average reading was approximately 6250 CPM. No locations were found above the DCGL. The survey unit passes the scan release criteria set forth in the Final Status survey Plan.

7.3.4 RESRAD model

Four randomly selected samples from the MARISSM area were additionally analyzed with Alpha Spectroscopy for Pu-238, Pu-239/240, Th-228, Th-230, Th-232, Th-234, U-234, U-235, U-238, NP-237, Ra-226 and Ra-228. Since the average values of U-238 decay chain and Ra-226 are at or below the background value for BNL they were not included in the RESRAD model. The following nuclides were used at the levels indicated in the RESRAD analysis: Cs-137 at 4.67pCi/g, Pu-239 at 0.09pCi/g, Pu-240 at 0.09pCi/g and Sr-90 at 4.23pCi/g.

Resrad dose model of D-yard east by year

Year	0	50	75	100	1000	Maximum year
Dose/y (mrem/y)	12.26	2.89	1.53	0.84	4.9E-10	12.26

Since the maximum yearly dose after year 50 from the survey unit in the RESRAD model is less that 15mrem/y, the unit passes the release criteria.

7.3.5 Conclusions and Recommendations

The survey passed scan, soil survey and RESRAD release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.4 A/B YARD MARISSM AREA

The A/B Yard was approximately 7012 ft^2. The area is bounded on the north by the fence line, the west by the D-East MARISSM area, the south by the fence line and Building 811 and the east by the fen cline at Thompson Road. The survey unit surrounds the structural survey units the A and B vaults. This MARISSM area is a class 1-survey unit. Twenty-four total samples were taken in the survey unit. The grid pattern was triangular with a random starting point. The sample locations were generated using Visual Sampling Plan. The size of the grid was 18.4 feet with the area being 292.2 ft^2.

7.4.1 Soil Sample Requests

All samples were collected as prescribed in the Sampling Plan. All of the data was reviewed for Quality Assurance purposes to ensure accuracy. The review was conducted as described in of the Site sampling Plan. After completing these tests, the Analyst deemed the data to be verified and the data was ready for final analysis.

7.4.2 Soil Sample Analysis

The Data set was evaluated for the following tests. The Data Screening tests and Statistical Screening test evaluation criteria are listed in the Final Status Survey Plan. As part of the screen, each individual data point is compared with the specified threshold and is flagged if the data point fails the test. The summary of screens is detailed in Table 7.4-1. Key values used in the screening analysis are presented in Table 7.4-2.

Table 7.3-1
Screen Test and Statistical Test Report

	Nuclide Tested			
Test Performed	*CS-137*	*SR-90*	*RA-226*	*SUM OF FRACTIONS*
DCGLw	Failed	Failed	Pass	Failed
DCGLavg	Pass	Pass	Pass	Pass
EMC	Pass	Pass	Pass	N/A
Sign test	Pass	Pass	Pass	Pass

Three of the twenty-four samples were above the DCGL for Sr-90. One of the 24 samples was above the DCGL for Cs-137. The average for the unit was well below the DCGL values.

Table 7.3-2
Test Data Report

Nuclide Tested	*CS-137*	*SR-90*	*RADIUM*
Maximum Survey Value (pCi/g)	28.7	66.4	0.67
Minimum survey result (pCi/g)	0.09	0.6	0.29
Difference (pCi/g)	28.6	65.8	0.5
Average Activity (pCi/g)	5.7	6.1	0.4
Standard deviation (pCi/g)	7.0	14.5	0.1
Number of Sample results below nuclide DCGL	23	21	24
Average Below DCGL (pCi/g)	4.8	1.5	0.3
Site Background level for radionuclide (pCi/g)	4.7	1.3	0.3

The unit passes the statistical tests set forth and passes the criteria for release in the Final Status Survey Plan.

7.4.3 Scan

One hundred percent of the survey unit was scanned using a Sodium Iodide Detector. Scans were performed as outlined in the site FSSP. The Maximum reading was 50,000 CPM. The average reading was approximately 9000 CPM. No locations were found above the DCGL. The maximum readings were in the areas of the above ground D waste piping and two elevated areas approximately 3 meters below grade. The D waste lines are still active and are the reason for the elevated readings. The maximum reading in other areas of the unit was 15,000 DPM. The two other small-elevated areas were modeled as hot spots and compared to the EMC value. The elevated areas were approximately 3 meters below the

surface and due to structural and other physical constraints further remediation was no possible. The survey unit passes the scan release criteria set forth in the Final Status Survey Plan.

7.4.4 RESRAD model

Four randomly selected samples from the MARISSM area were additionally analyzed with Alpha Spectroscopy for Pu-238, Pu-239/240, Th-228, Th-230, Th-232, Th-234, U-234, U-235, U-238, NP-237, Ra-226 and Ra-228. Since the average values of U-238 decay chain and Ra-226 are at or below the background value for BNL they were not included in the RESRAD model. The following nuclides were used at the levels indicated in the RESRAD analysis: Cs-137 at 5.7 pCi/g, and Sr-90 at 6.1pCi/g.

Resrad dose model of A/B vault yard by year

Year	0	50	75	100	1000	Maximum year
Dose/y (mrem/y)	14.8	3.54	1.87	1.01	0	14.8

Since the maximum yearly dose after year 50 from the survey unit in the RESRAD model is less that 15mrem/y, the unit passes the release criteria.

7.4.5 Conclusions and Recommendations

The survey passed scan, soil survey and RESRAD release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.5 A1 VAULT

The vault is made of concrete and is approximately 11' x 11' and 15' deep. This MARISSM area is a class 1 structural survey unit. The area is approximately 72.5m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate

detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.5.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.5.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.5.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No Smears above the structural release criteria set forth in the FSSP were found.

7.5.4 RESRAD model

Since no elevated contamination levels were found no RESRAD analysis was performed on this unit.

7.5.5 Conclusions and Recommendations

The survey passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.6 A2 VAULT

The vault is made of concrete and is approximately 11' x 11' and 15' deep. This MARISSM area is a class 1 structural survey unit. The surface area is approximately 72.5m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.6.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.6.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.6.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.6.4 RESRAD model

Since no elevated contamination levels were found no RESRAD analysis was performed on this unit.

7.6.5 Conclusions and Recommendations

The survey passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.7 A3 VAULT

The vault is made of concrete and is approximately 11' x 11' and 15' deep. This MARISSM area is a class 1 structural survey unit. The surface area is approximately 72.5m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.7.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. An approximately 900 cm^2 area was unable to be removed with aggressive remediation. The average contamination level of this area is 3000 dpm/ Probe area. The probe area is approximately 17 cm^2. This area was approximately 1 meter below grade and was modeled as a soil contamination layer. The RESRAD model summary is in section 7.7.4. The rest of the unit passed the structural release values listed in the FSSP.

7.7.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.7.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.7.4 RESRAD model

The objective of this risk assessment was to provide and upper-bound estimate of the risk to members of the public and site workers who may be exposed to radiation and radioactive materials remaining in the A-3 vault from areas greater than the structural release limit of 15000 dpm/100cm2. The contamination was approximately 1 meter in depth below grade in the vault and will be treated as soil contamination since the area will be backfilled and no longer used as a structure. With 1 meters of cover soil above the contaminated area the maximum yearly dose for A-3 occurs at year 129.6 and is 4.25E-3 mrem/y.

The risk assessment was performed using a DOE approved and validated computer model known as RESRAD for Windows version 6.22 Created February 6, 2004. The RESRAD model was used to ensure consistency with previous risk assessments already preformed at Brookhaven National Laboratory. For more detailed information on the RESRAD model and parameters, refer to: 1) ANL/EAD/LD-2. *Manual for implementing residual radioactive material guidelines using RESRAD* and 2) ANL/EAIS-8. *Data Collection Handbook to Support Modeling the impacts of radioactive material in Soil.*

The average contamination level of the hot spots in this is 3000 dpm/ Probe area. The probe area is approximately 17 cm^2. The average contamination was estimated at 29 pCi/g of Cs-137 and 29 pCi/g of Sr-90. The Cs-137 value was derived from soil samples taken in the vaults prior to removal and analyzed first by K-2 Environmental using ISOCS and compared against scan results. Core samples of concrete were taken at various vault locations the worst case ratio of the samples was a Cs-137 concentration of 721 pCi/g per 30,000 dpm/ probe area. The average ratio was used of 289 pCi/g per 30,000 dpm per probe area. The average was used since these samples were taken prior to aggressive remediation and the numbers are greater in depth and extent than the remaining areas in the A-3 vault. The Sr-90

concentration was assumed based on less than 50% of the activity being from Sr-90 in a Beta gamma field.

The depth was assumed to be 6 inches and a homogenous layer of contamination. Based on removal activities in the vaults this assumption is very conservative since the majority of activity is removed in the first inch of concrete removal. Fifty years was used as the first dose since it is assumed the area will function as a government facility with institutional controls for the next 50 to 100 years. The area was modeled using no cover layer, a 1 m thick layer of cover. Results for the models are listed in table 7.7-1 Parameters used were consistent with previous site RESRAD models performed.

Table 7.7-1
A-3 vault contamination zone doses RESRAD model results (mrem/y)

RESRAD Ground cover depth	0 year	50 year dose	75 year dose	100 year dose
none	22.1	2.66	1.17	0.56
1m	2.65E-6	1.76E-6	1.43E-6	1.94E-4

7.7.5 Conclusions and Recommendations

The majority of the unit passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. The rest of the unit was modeled as soil and passed release criteria. It is therefore recommended that Survey Unit be released for unrestricted use.

7.8 B1 VAULT

The vault is made of concrete and is approximately 11' x 11' and 15' deep. This MARISSM area is a class 1 structural survey unit. The surface area is approximately 72.5m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.8.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.8.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.8.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No Smears above the structural release criteria set forth in the FSSP were found.

7.8.4 RESRAD model

Since no elevated contamination levels were found no RESRAD analysis was performed on this unit.

7.8.5 Conclusions and Recommendations

The survey passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.9 B2 VAULT

The vault is made of concrete and is approximately 11' x 11' and 15' deep. This MARISSM area is a class 1 structural survey unit. The surface area is approximately 72.5.m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.9.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.9.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.9.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.9.4 RESRAD model

Since no elevated contamination levels were found no RESRAD analysis was performed on this unit.

7.9.5 Conclusions and Recommendations

The survey passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.10 B3 VAULT

The vault is made of concrete and is approximately 11' x 11' and 15' deep. This MARISSM area is a class 1 structural survey unit. The area is approximately 72.5.2m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.10.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. An approximately 1450 cm^2 area was unable to be removed with aggressive remediation. The average contamination level of this area is 3000 dpm/ Probe area. The probe area is approximately 17 cm^2. This area was approximately 1 meter below grade and was modeled as a soil contamination layer. The RESRAD model summary is in section 7.7.4. The rest of the unit passed the structural release values listed in the FSSP.

7.10.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.10.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.10.4 RESRAD model

The objective of this risk assessment was to provide and upper-bound estimate of the risk to members of the public and site workers who may be exposed to radiation and radioactive materials remaining in the B-3 vault from areas greater than the structural release limit of 15000 dpm/100cm2. The contamination was approximately 1 meter in depth below grade in the vault and will be treated as soil contamination since the area will be backfilled and no longer used as a structure. With 1 meters of cover soil above the contaminated area the maximum yearly dose for B-3 occurs at year 127.5 and is 5.56E-3 mrem/y.

The risk assessment was performed using a DOE approved and validated computer model known as RESRAD for Windows version 6.22 Created February 6, 2004. The RESRAD model was used to ensure consistency with previous risk assessments already preformed at Brookhaven National Laboratory. For more detailed information on the RESRAD model and parameters, refer to: 1) ANL/EAD/LD-2. *Manual for implementing residual radioactive material guidelines using RESRAD* and 2) ANL/EAIS-8. *Data Collection Handbook to Support Modeling the impacts of radioactive material in Soil.*

The average contamination level of the hot spots in this is 3000 dpm/ Probe area. The probe area is approximately 17 cm^2. The average contamination was estimated at 29 pCi/g of Cs-137 and 29 pCi/g of Sr-90. The Cs-137 value was derived from soil samples taken in the vaults prior to removal and analyzed first by K-2 Environmental using ISOCS and compared against scan results. Core samples of concrete were taken at various vault locations the worst case ratio of the samples was a Cs-137 concentration of 721 pCi/g per 30,000 dpm/ probe area. The average ratio was used of 289 pCi/g per 30,000 dpm per probe area. The average was used since these samples were taken prior to aggressive remediation and the numbers are greater in depth and extent than the remaining areas in the B-3 vault. The Sr-90

concentration was assumed based on less than 50% of the activity being from Sr-90 in a Beta gamma field.

The depth was assumed to be 6 inches and a homogenous layer of contamination. Based on removal activities in the vaults, this assumption is very conservative since the majority of activity is removed in the first inch of concrete removal. Fifty years was used as the first dose since it is assumed the area will function as a government facility with institutional controls for the next 50 to 100 years. The area was modeled using no cover layer and a 1 meter thick layer of cover. Results for the models are listed in table 7.10-1. Parameters used were consistent with previous site RESRAD models performed.

Table 7.10-1
B-3 vault contamination zone doses RESRAD model results (mrem/y)

RESRAD Ground cover depth	0 year dose	50 year dose	75 year dose	100 year dose	Maximum year dose
none	25.6	3.31	1.41	0.66	25.6
1m	2.66E-6	1.77E-6	1.45E-6	2.64E-4	5.56E-3

7.10.5 Conclusions and Recommendations

The majority of the unit passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. The rest of the unit was modeled as soil and passed release criteria. It is therefore recommended that Survey Unit be released for unrestricted use.

7.11 5TH VALVE PIT

The valve pit is made of concrete and is approximately 6' x 5' and 6' deep. This MARISSM area is a class 1 structural survey unit. The area is approximately 15.1m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.11.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.11.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.11.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.11.4 RESRAD model

Since no elevated contamination levels were found no RESRAD analysis was performed on this unit.

7.11.5 Conclusions and Recommendations

The survey passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.12 NORTHWEST VALVE PIT

The Valve Pit is made of concrete and is approximately 6' x 5' and 6' deep. This MARISSM area is a class 1 structural survey unit. The area is approximately 15.1m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.12.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. An approximately 929 cm^2 area on the South wall and 1029 cm^2 area on the North wall were unable to be removed with aggressive remediation. The average contamination level of this area is 2500 dpm/ Probe area for the south wall and 1550 dpm/Probe area for the north wall. The probe area is approximately 17 cm^2. This area was approximately 1 meter below grade and was modeled as a soil contamination layer. The RESRAD model summary is in section 7.12.4. The rest of the unit passed the structural release values listed in the FSSP.

7.12.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.12.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.12.4 RESRAD model

The objective of this risk assessment was to provide an upper-bound estimate of the risk to members of the public and site workers who may be exposed to radiation and radioactive materials remaining in the 811 UST Northwest valve pit from areas greater than the maximum structural release limit of 15000 dpm/100cm2 and 5000 dpm/100cm2 average contamination. All surfaces except the two surfaces detailed below pass the structural surface release criteria. The remaining areas detailed below were modeled to provide an estimate of the dose to a member of the public from the valve pit.

The contamination was approximately 1 meter in depth below grade in both vaults and will be treated as soil contamination since the area will be backfilled and no longer used as a structure. The risk assessment was performed using a DOE approved and validated computer model known as RESRAD for Windows version 6.22, created February 6, 2004. The RESRAD model was used to ensure consistency with previous risk assessments already preformed at Brookhaven National Laboratory. For more detailed information on the RESRAD model and parameters, refer to: 1) ANL/EAD/LD-2. *Manual for implementing residual radioactive material guidelines using RESRAD* and 2) ANL/EAIS-8. *Data Collection Handbook to Support Modeling the impacts of radioactive material in Soil.*

The probe area is approximately 17 cm^2. The average contamination was estimated at 29 pCi/g of Cs-137 and 29 pCi/g of Sr-90 for 3000dpm/ Probe area contamination. The Cs-137 value was derived from concrete core samples taken in the vaults prior to removal and analyzed first by K-2 Environmental using ISOCS and compared against scan results. Core samples of concrete were taken at various vault locations the worst case ratio of the samples was a Cs-137 concentration of 721 pCi/g per 30,000 dpm/ probe area. The average ratio was used of 289 pCi/g per 30,000 dpm per probe area. The average was used since these samples were taken prior to aggressive remediation and the numbers are greater in depth and extent than the remaining areas in valve pits. The Sr-90 concentration was assumed based on less than 50% of the activity being from Sr-90 in a Beta gamma field.

The depth was assumed to be 6 inches and a homogenous layer of contamination. Based on removal activities in the vaults, this assumption is very conservative since the majority of activity is removed in

the first inch of concrete removal. The total wall contamination area was 1958 cm^2 for the northwest vault pit. The average contamination was estimated at 19.6 pCi/g of Cs-137 and 19.6 pCi/g of Sr-90.

Fifty years was used as the first dose since it is assumed the area will function as a government facility with institutional controls for the next 50 to 100 years. The areas were modeled using both no cover and a 1 m thick layer of cover layer. Results for the various models are listed in table 7.12-1.

Table 7.12-1
Northwest valve pit contamination zone doses RESRAD model results (mrem/y)

RESRAD Ground cover depth	0 year dose	50 year dose	75 year dose	100 year dose	Maximum year dose
none	14.9	1.80	0.79	0.38	1.80
1m	1.79E-6	1.19E-6	9.67E-7	1.31E-4	2.87E-3

7.12.5 Conclusions and Recommendations

The majority of the unit passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. The rest of the unit was modeled as soil and passed release criteria. It is therefore recommended that Survey Unit be released for unrestricted use.

7.13 SOUTHWEST VALVE PIT

The Valve Pit is made of concrete and is approximately 6' x 5' and 6' deep. This MARISSM area is a class 1 structural survey unit. The area is approximately 15.1m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.13.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. An approximately 1858 cm^2 area on the North wall and 1000 cm^2 area on the floor were unable to be removed with aggressive remediation. The average contamination level of this area is 1500 dpm/ Probe area for the North wall and 14000 dpm/Probe area for the Floor. The probe area is approximately 17 cm^2. This area was approximately 1 meter below grade and was modeled as a soil contamination layer. The RESRAD model summary is in section 7.13.4. The rest of the unit passed the structural release values listed in the FSSP.

7.13.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.13.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.13.4 RESRAD model

The objective of this risk assessment was to provide an upper-bound estimate of the risk to members of the public and site workers who may be exposed to radiation and radioactive materials remaining in the 811 UST southwest valve pit from areas greater than the maximum structural release limit of 15000 dpm/100cm2 and 5000 dpm/100cm2 average contamination. All surfaces except the two surfaces detailed below pass the structural surface release criteria. The remaining areas detailed below were modeled to provide an estimate of the dose to a member of the public from the vaults.

The contamination was approximately 1 meter in depth below grade in both vaults and will be treated as soil contamination since the area will be backfilled and no longer used as a structure. The risk assessment was performed using a DOE approved and validated computer model known as RESRAD for Windows version 6.22, created February 6, 2004. The RESRAD model was used to ensure consistency with previous risk assessments already preformed at Brookhaven National Laboratory. For more detailed information on the RESRAD model and parameters, refer to: 1) ANL/EAD/LD-2. *Manual for implementing residual radioactive material guidelines using RESRAD* and 2) ANL/EAIS-8. *Data Collection Handbook to Support Modeling the impacts of radioactive material in Soil..*

The probe area is approximately 17 cm^2. The average contamination was estimated at 29 pCi/g of Cs-137 and 29 pCi/g of Sr-90 for 3000dpm/ Probe area contamination. The Cs-137 value was derived from concrete core samples taken in the vaults prior to removal and analyzed first by K-2 Environmental using ISOCS and compared against scan results. Core samples of concrete were taken at various vault locations the worst case ratio of the samples was a Cs-137 concentration of 721 pCi/g per 30,000 dpm/ probe area. The average ratio was used of 289 pCi/g per 30,000 dpm per probe area. The average was used since these samples were taken prior to aggressive remediation and the numbers are greater in depth and extent than the remaining areas in valve pits. The Sr-90 concentration was assumed based on less than 50% of the activity being from Sr-90 in a Beta gamma field.

The depth was assumed to be 6 inches and a homogenous layer of contamination. Based on removal activities in the vaults this assumption is very conservative since the majority of activity is removed in the first inch of concrete removal. The total contamination area for the southwest valve area was 2858 cm^2. The average contamination was estimated at 14.2 pCi/g of Cs-137 and 14.2 pCi/g of Sr-90 for Southwest valve pit.

Fifty years was used as the first dose since it is assumed the area will function as a government facility with institutional controls for the next 50 to 100 years. The areas were modeled using both no cover and a 1 m thick layer of cover layer. Results for the various models are listed in table 7.13-1.

Table 7.13-1
Southwest valve pit contamination zone doses RESRAD model results (mrem/y)

RESRAD Ground cover depth	0 year dose	50 year dose	75 year dose	100 year dose	Maximum year dose
none	10.81	1.30	0.57	0.28	1.30
1m	1.30E-6	8.6E-7	7.0E-7	9.5E-5	2.08E-3

7.13.5 Conclusions and Recommendations

The majority of the unit passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. The rest of the unit was modeled as soil and passed release criteria. It is therefore recommended that Survey Unit be released for unrestricted use.

7.14 NORTHEAST VALVE PIT

The Valve Pit is made of concrete and is approximately 6' x 5' and 6' deep. This MARISSM area is a class 1 structural survey unit. The area is approximately 15.1m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.14.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.14.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found

7.14.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.14.4 RESRAD model

Since no elevated contamination levels were found no RESRAD analysis was performed on this unit.

7.14.5 Conclusions and Recommendations

The survey passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.15 SOUTHEAST VALVE PIT

The Valve Pit is made of concrete and is approximately 6' x 5' and 6' deep. This MARISSM area is a class 1 structural survey unit. The area is approximately 15.1m^2. Structural surfaces will be laid out in 1m^2 square grids areas. Some grids were less than 1m^2 to ensure 100% coverage of the entire interior surface of the structure. Smear (swipe) samples and 1 minute fixed counts for Alpha, Beta and Gamma were obtained at each corner of the grid. 100% of the grid was scanned for fixed Beta/gamma and Alpha contamination. Alpha surveys were performed using a Ludlum Alpha Probe 43-5 with an appropriate

detector. Beta/gamma surveys were performed utilizing a Beta/Gamma GM pancake probe model 44-9 with an appropriate detector.

7.15.1 Beta/Gamma scan surveys

One hundred percent of the unit was scanned for Beta/Gamma contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.15.2 Alpha scan surveys

One hundred percent of the unit was scanned for Alpha contamination. One minute fixed counts were obtained at the corner of each grid. No elevated readings above the structural release criteria in the Final Status Survey plan were found.

7.15.3 Wipe Surveys

Smears for removable contamination were obtained by wiping an area of approximately 100 cm^2, using a dry filter paper while applying moderate pressure. For beta analyses, a 47-millimeter-diameter filter was used.

Smear (swipe) samples collected for the assessment of removable contamination during the final survey were analyzed using a Tenellec Smear counter model S5-XLB. No smears above the structural release criteria set forth in the FSSP were found.

7.15.4 RESRAD model

Since no elevated contamination levels were found no RESRAD analysis was performed on this unit.

7.15.5 Conclusions and Recommendations

The survey passed both scan and smear release criteria as outlined in the Final Status Survey Plan and Sampling Plan. It is therefore recommended that Survey Unit be released for unrestricted use.

7.16 ADDITIONAL ELEVATED SOIL AREAS LEFT BEHIND

Two areas are being left behind that further remediation was not possible due to physical and structural constraints. The two areas are the footing to building 810 and the soil beneath the A3 and B3 vaults.

7.16.1 Building 810 footing

The objective of this risk assessment was to provide and upper-bound estimate of the risk to members of the public and site workers who may be exposed to radiation and radioactive materials remaining in a 3' x 8' by 1' deep area of contamination remaining near building 810 and 811. The area cannot be remediated at this time due to the structural constraints of Building 810 and 811. This contamination layer will be remediated later with the removal of Buildings 810 and 811. The contamination was approximately two meters in depth below grade. With two meters of cover soil above the contaminated area the maximum yearly dose occurs at year 136.4 and is 0.44 mrem/y.

The risk assessment was performed using a DOE approved and validated computer model known as RESRAD for Windows version 6.22 Created February 6, 2004. The RESRAD model was used to ensure consistency with previous risk assessments already preformed at Brookhaven National Laboratory. For more detailed information on the RESRAD model and parameters, refer to: 1) ANL/EAD/LD-2. *Manual for implementing residual radioactive material guidelines using RESRAD* and 2) ANL/EAIS-8. *Data Collection Handbook to Support Modeling the impacts of radioactive material in Soil.*

The average contamination was found to be 99.4 pCi/g of Cs-137, 0.3 pCi/g of Co-57, 0.59 pCi/g of Co-60, 0.79 pCi/g of Eu-152 and 1.8 pCi/g of Am-241. All five samples taken had positive results for Cs-137. One sample had a positive result for the other nuclides listed above. The average for those nuclides was determined using the MDC value for each sample in the average.

Fifty years was used as the first dose since it is assumed the area will function as a government facility with institutional controls for the next 50 to 100 years. The area was modeled using no cover layer, a 1 m thick layer of cover soil and a 3m layer of cover soil. Results for the various models are listed in table 7.16.1 List of major Resrad parameters used are in table 2. Parameters used were consistent with previous site RESRAD models performed.

Table 7.16.1
3'x8'x1' contamination zone doses fumed over all pathways RESRAD model results (mrem/y)

RESRAD Ground cover depth	0 year dose	50 year dose	75 year dose	100 year dose	Maximum year dose
none	36.6	10.65	5.95	3.42	36.6
2m	1.88E-10	2.54E-11	1.87E-11	1.43E-11	0.44

7.16.2 D-Vault Area

The objective of this risk assessment was to provide and upper-bound estimate of the risk to members of the public and site workers who may be exposed to radiation and radioactive materials remaining in a 5'x4' by 6' deep area of contamination remaining under the D-Vault area. The contamination was approximately 3 meters in depth below grade. With 3 meters of cover soil above the contaminated area the maximum yearly dose occurs at year 143.5 and is 2.03E-4 mrem/y.

The risk assessment was performed using a DOE approved and validated computer model known as RESRAD for Windows version 6.22 Created February 6, 2004. The RESRAD model was used to ensure consistency with previous risk assessments already preformed at Brookhaven National Laboratory. For more detailed information on the RESRAD model and parameters, refer to: 1) ANL/EAD/LD-2. *Manual for implementing residual radioactive material guidelines using RESRAD* and 2) ANL/EAIS-8. *Data Collection Handbook to Support Modeling the impacts of radioactive material in Soil.*

The average contamination was found to be 193.5 pCi/g of Cs-137. Five of the eight samples had positive results for Sr-90; the average of these five samples was 2.9 pCi/g. One sample had a positive result for Co-60 this result was 1.08 pCi/g. This average was determined by core samples taken at various depths under the vault and analyzed first by K-2 Environmental using ISOCS and then reanalyzed by Brookhaven National Laboratory. The average concentrations were rounded to 200pCi/g for Cs-137, 3 pCi/g for Sr-90 and 1.1 pCi/g for Co-60.

Fifty years was used as the first dose since it is assumed the area will function as a government facility with institutional controls for the next 50 to 100 years. The area was modeled using no cover layer, a 1 m

thick layer of cover soil and a 3m layer of cover soil. Results for the various models are listed in table 7.16.2. Parameters used were consistent with previous site RESRAD models performed.

Table 7.16.2

5'x4'x6' contamination zone doses fumed over all pathways RESRAD model results (mrem/y)

RESRAD Ground cover depth	0 year dose	50 year dose	75 year dose	100 year dose	Maximum year dose
none	85.7	25.74	14.3	7.92	85.7
1m	3.26E-5	1.65E-5	1.37E-5	8.10E-4	2.63-2
3m	4.00E-17	4.36E-19	2.80E-19	2.27E-19	2.03E-4

7.17 811 TOTAL AREA DOSE

A model of the entire 811 area was performed using data from all soil and structural areas treated as soil left. A sum of fractions and a RESRAD model were performed.

7.17.1 Site wide data

A weighted average of the radionuclide concentration was obtained and used to do a sum of fractions and an area wide RESRAD assessment for the total area.

Table 7.17-1
RESRAD areas used

Area Description	Area (sq m)	Area Factor (portion of total area)
A/B Vault Yard	651	0.31
D-East	697	0.33
D-west	752	0.36
B-3 vault structure	0.06	2.8E-5
A-3 Vault structure	0.05	2.4E-5
NW Valve Pit	0.2	9.4E-5
SW valve Pit	0.3	1.4E-4
Beneath B-3 Vault Floor	7.43	3.5E-3
Beneath A-3 vault floor	7.43	3.5E-3
Total Area	2115.47	1

The area factor was used to weight the contribution to the site radionuclide average for the area from each area.

Table 7.17-2
Site Radionuclide average

Radionuclide	Site Average (pCi/g)
Cs-137	4.56
Sr-90	5.35
Pu-239/240	0.05
Am-241	4.20 E-3

7.17.2 SUM of Fractions Analysis

Table 7.17-3
811 total Sum of Fractions analysis

Radionuclide	Remediation Goal (pCi/g)	Average (pCi/g)	Sum of Fractions
Cesium-137	23	4.56	0.20
Stronium-90	15	5.35	0.36
Americum-241	40	4.20E-3	1.05E-4
Plutonium-239/240	40	0.09	1.25E-3
Total	NA	NA	0.56

Since the Sum of fractions for the area is less than 1 for the area, it passes the sum of fractions analysis.

7.17.3 RESRAD model

Since the average values of U-238 decay chain and Ra-226 are at or below the background value for BNL, they were not included in the RESRAD model. The following nuclides were used at the levels indicated in table 7.17-2.

Table 7.17-4
Resrad dose model of 811 by year

Year	0	50	75	100	1000	Maximum year
Dose/y (mrem/y)	12.79	3.75	2.42	1.69	4.9E-10	12.79

Since the maximum yearly dose from the survey unit in the RESRAD model is less that 15mrem/y, the unit passes the release criteria.

7.17.4 Conclusions and Recommendations

Since the area passes all the release criteria. It is therefore recommended that the area be released for unrestricted use.

8.0 QA/QC

The objective of the FSS quality assurance program (QAP) is to identify sampling and analytical methodologies that were implemented that limit the introduction of error into analytical data. This chapter establishes the programs used to ensure that FSS activities produced results that are of the type and quality needed and expected for their intended use. The QAP includes quality control (QC) functions that cover all aspects of data collection, including both field radiation instrument surveys, and soil sampling for laboratory analysis, through the preparation of the documentation of the results. The evaluation of the results is covered in Section 9.0.

8.1 FSSP PERFORMANCE ASSESSMENT

Periodic audits and surveillances of FSSP implementation were conducted in accordance with project QAP requirements. To the extent permitted by FSSP requirements, the formal audits were performance-based and focus on the technical efficacy of the results produced. Corrective actions resulting from audits were promptly implemented. Surveillances (work practice observations) were informal routine occurrences at the remediation area, particularly for RASS activities. The surveillance objective was twofold: (1) verify FSSP requirements were being anticipated and implemented correctly, and (2) identify improvements in work practices improving project efficiency. Supervisory project personnel were responsible for the effectiveness of the surveillance portion of FSSP performance assessment.

8.2 INSTRUMENTATION

For all counting systems and instruments used as part of analytical analyses, at a minimum, the following QC principles were applied.

8.2.1 Procedures

Counting systems and instruments were used in accordance with approved procedures.

8.2.2 Source and Instrument Checks

Each day that a counting system and instrument are used, the system's response were checked using an appropriate source before use. Additional response checks may have been necessary depending on the counting system used. In addition:

- For laboratory and ISOCS counting systems, source check acceptance criteria (e.g., $\pm 2\ \sigma$ of the average response determined after the most recent calibration, or otherwise linking the response to the current calibration) was established prior to using the counting system. Control charts will be used to evaluate the data.
- Each Field instrument was checked at the beginning, middle, and end of each shift with check sources to verify that its response is within ± 20 percent of the value established by the calibration laboratory for that instrument/check source/geometry combination. If the instrument failed the post-survey source check, all data collected during that time period with the instrument must be reviewed and adjusted or discarded as appropriate. The affected data was flagged and later studied to determine if they are useable. All source check results were documented.
- Failed source checks were repeated. Consecutive failure would result in additional testing of the counting system, in accordance with the applicable procedure, and ultimately removing the counting system from service.
- Survey data acquired prior to an instrument failing a source check was reviewed and documented by the Data Manager to determine the validity of the data.
- For field instruments of increased complexity, (e.g., single-channel analyzer, soil segregation system), additional checks such as energy calibration and efficiency checks were performed and documented.

8.2.3 Background Determination

When FSS activities were conducted, the ambient background was determined and documented at least once daily, depending on the counting system and instrument used and the variability in the background for field instruments.

8.2.4 Calibration

All instruments were calibrated by a qualified calibration/repair facility at least annually in accordance with manufacturers' instructions. Sources used in calibration were National Institute of Standards and

Technology-traceable. A calibration certificate was maintained onsite for each instrument and will be included in the project final report.

8.3 SAMPLE COLLECTION

8.3.1 Procedure

Soil samples were collected in accordance with written procedures. Sampling tools were cleaned and monitored, as appropriate, after each use. Samples were collected in clean/unused sealable containers. Smear samples were collected and stored in clean containers in accordance with written procedures. The following SOPs were used:

- Soils were sampled in accordance with EM-SOP-601 Collection of Soil Samples (Rev. 1). Soil Sample Data will be recorded on BNL's Form (included in Appendix C.2) or equivalent equal.
- Sediments were sampled in accordance with EM-SOP-600 Sediment Sampling (Rev. 1). Sediment Sample Data were recorded on BNL's Form (included in Appendix C.2) or equivalent WESTON form.
- Waters collected from the site as runoff were sampled in accordance with EM-SOP-100 Sample Collection Methods for Radiological and Non-Radiological Parameters in Environmental and Facility Effluent Water Samples (Rev. 1). Water quality sampling data will be recorded on BNL's Water Quality Sample Collection Log included as Appendix C.3, or equivalent form.
- Materials were sampled from drums will follow EM-SOP 803 Drum Sampling (Rev. 1). Samples taken from drums may use BNL's Drum Sample Collection Form, included as Appendix C.4.
- Porous Surfaces, such as concrete, were sampled in accordance with EM-SOP-901 Sampling of Porous Surfaces (Rev. 0). A BNL Porous Sample Form (included as Appendix C.5) or equal was completed for these samples.
- Quality Control (QC) Sampling will follow EM-SOP-200 Collection and Frequency of Field Quality Control Samples (Rev. 2). QC Samples were recorded with their associated materials, and appropriately designated.

Field radiological screening was performed and records kept in accordance with the BNL Radiological Control Manual.

8.3.2 Sample Identification

Sample containers were permanently labeled/marked in the field at the time of collection by the individual collecting the sample. At a minimum, the following information was recorded on the sample container: sample date/time, sample identification number, sample location, and initials of person collecting the sample. The Radiological Engineer assured proper coding of appropriate information on the sample container (e.g., sample type, location, and sample depth) by an establishing a sample identification scheme.

8.3.3 Sample Control

An approved chain of custody (CoC) procedure was implemented ensuring complete sample integrity control from the time the sample is obtained through final disposition (disposed or maintained in the sample archive). The CoC procedure featured both administrative sample custody transfer and physical controls. Chains of Custody for all off-site samples were prepared in accordance with EM-SOP-109 Chain-of-Custody Procedure (Rev. 2).

8.4 ANALYTICAL LABORATORY SERVICES

Radiological analytical services provided by each laboratory were provided in accordance with a formal approved QAP implemented by documented policies and procedures. The Data Manager confirmed that the management objectives of the QAP, policies, and procedures were used to produce data that are scientifically valid, defensible, and of known an documented quality.

8.4.1 Laboratory Analysis Specifications

For each laboratory analysis requested, the following minimum specifications were provided to the laboratory on the appropriate CoC record:

- Required analyses and/or analytical methodology.
- The required MDC value for each radionuclide.
- Non-standard results presentation requirements.
- Sample disposition (disposed or archived).
- Turnaround time required.

8.4.2 Laboratory Measurements Verification

The accuracy and precision of measurement results provided by the analytical laboratory were routinely checked using performance evaluation (PE) samples for measurement. The dual PE sample measurement categories, internal and external, implemented are discussed below.

8.4.2.1 Internal Performance Evaluation

All measuring and test equipment affecting the accuracy and precision of measurements were calibrated and/or verified initially and on a continuing basis using NIST traceable source materials and standard reference materials. The internal PE (IPE) samples included laboratory controls, duplicates, matrix spikes, and method blanks. Where possible, the matrix matched IPE samples were to be analyzed singly along side each group of samples to ensure the sample preparation and/or measurement processes will be 'in control'.

8.4.2.2 External Performance Evaluation

External PE (EPE) samples were sent to the analytical laboratory at a frequency no less than five percent of the total FSS sample load for the respective measurement protocol. The EPE sample load will be an even distribution of the following sample categories:

- Field Blanks, also known as rinsate blanks or equipment blanks - were used to assess the effectiveness of equipment decontamination when necessary. The frequency for rinsate blanks were one per every 20 samples collected for each equipment type and for each sample matrix. Field blanks were analyzed for the same constituents as the environmental samples and will be generated by pouring demonstrated analyte-free water over the decontaminated sampling tool.

- Field Duplicates – were collected and analyzed to assess the overall precision of the field sampling technique. Field duplicates samples were collected at a rate of five percent, or one per 20 environmental samples collected.

All EPE samples were submitted "blind" to the laboratory with the CoC and sample identification convention used for FSS samples being followed. The Radiological Engineer maintained the five percent

EPE sample load. The performance of the laboratory measurement system was considered in-control when the range of the EPE sample activity concentration result (defined by the reported $\pm 2\sigma$ uncertainty interval) bounds all or part of the known result and its $\pm 2\sigma$ uncertainty interval. In the event that an EPE sample measurement results in no activity being identified above the critical level for the analysis, the acceptance criterion becomes the value of the required MDC.

Field duplicate EPE sample results that fail the acceptance criterion do not necessarily imply an out of control laboratory measurement system, but rather may be symptomatic of the difficulty in preparing a homogenous master composite sample. If a sufficient adverse trend in this category of EPE samples is experienced, the Data Manager may specify changes to improve the FSS sampling protocol including the preparation of multiple field sample splits. These split samples may then be screened onsite for radioactivity and the split having the greatest radioactivity chosen for laboratory submittal as the FSS sample.

8.5 DETERMINATION OF THE AS-COLLECTED SAMPLE ANALYSIS BIAS

The laboratory processes FSS and RASS samples for gamma spectrometry on an "as-collected" basis, thus systematically biasing the measurement result due to each sample's moisture content. This protocol, which ignores any moisture dilution effect, is in accordance with the DP, DPA, and MARSSIM, Section 7.7.1 that states:

> "There is no special sample preparation required for counting samples using a germanium detector or sodium iodide detector beyond placing the sample in a known geometry for which the detector has been calibrated. The samples can be measured as they arrive at the laboratory, or the sample can be dried, ground to a uniform particle size, and mixed to provide a more homogenous sample if required by the SOPs."

9.0 DATA ASSESSMENT

Data was reviewed by the Radiological Engineer to ensure that the requirements were implemented as prescribed and that the results of the data collection activities supported the objectives of the survey, or permitted a determination that these objectives should be modified. The Radiological Engineer determined if the data was of the right type, quality, and quantity to demonstrate compliance with the FSSP objective. The review checked that the appropriate number of samples was taken in the correct locations and that they were analyzed with measurement systems with appropriate sensitivity. After the data was analyzed, an estimate of data variability (sample standard deviation, σ) and the actual number of valid measurements was used to determine that the sampling design provides adequate power to determine that the objectives of the survey design were met.

9.1 PRELIMINARY DATA REVIEW

The Radiological Engineer reviewed field and laboratory data records as they were provided, prepare data graphs as necessary to permit proper interpretation, and calculated statistical quantities to analyze the structure of the data and identify patterns, relationships, or potential anomalies. All data generated in the final status survey including scans, ISOCS and lab sample results were used to fully assess the completeness and effectiveness of the MARISSM survey. The preliminary data examination included the following:

- Evaluation of data completeness.
- Verification of instrument calibration.
- Verification of sample identification and traceability back to sampling location.
- Measurement of precision using duplicates, replicates, or split samples.
- Measurement of bias using reference materials or spikes examination of blanks for contamination.
- Assessment of adherence to method specifications and QC limits.
- Evaluation of method performance in the sample matrix.
- Applicability and validation of analytical procedures for site-specific measurements.
- Assessment of external QC measurement results and QA assessments, including the results of analytical laboratory QA/QC reports related to the analysis of final status survey samples.

9.1.1 Data Evaluation and Conversion

For comparison of survey data to $DCGL_W$s, the survey data from field and laboratory measurements were converted to $DCGL_W$ units. The Radiological Engineer ensured data measurements retain traceability to NIST and conversion factors as appropriate for the radiation quantity. The preliminary data reports were reviewed to ensure adequate measurement sensitivity was being achieved and to resolve any detector sensitivity problems. Analytical reports were reviewed for proper MDC and MDA values. The results of analytical results were reported whether the result was above or below the reported MDC value so that the MDC value is not used in the data assessment. Preliminary scan data was also reviewed against the percent coverage requirement of the survey unit.

An evaluation was made to determine that the data was consistent with the underlying assumptions made for survey plan statistical procedures. The basic statistical quantities that were calculated for the survey unit are the following:

- Mean
- Standard deviation
- Median
- Minimum
- Maximum

The value of the sample standard deviation was used to determine if a sufficient number of samples were collected to achieve the desired power of the statistical test. A verification that the sample sizes determined for the tests are sufficient to achieve the DQOs set for the Type I (α) and Type II (β) error rates was completed. Additionally, verification of the power of the tests ($1-\beta$) to detect adequate remediation was performed. If an insufficient number of samples were taken, a resurvey would be performed. A resurvey was performed only if the sample size must be increased by more than 20 percent, since MARSIMM Tables 5.3 and 5.5 include a correction factor of 20 percent to allow for loss or unusable data.

If it was not possible to show that the DQOs were met with reasonable assurance, a resurvey was performed.

The parameter of interest to demonstrate achievement of the FSSP objective is the mean concentration in the survey unit.

Summary of Statistical Tests

Typical Level of Contamination	Possible Action
Less than DCGLs.	No further action.
On the order of DCGLs.	Spot remediation and/or periodic monitoring
Greater than DCGLs	Land use restrictions and periodic monitoring or remediation and final status survey.

Both the measurements at discrete locations and the scans were used to identify elevated areas within a survey unit. Analytical results of soil samples were used to complete the elevated measurement comparison. If residual radioactivity was found in a localized area of elevated activity - in addition to the residual radioactivity distributed relatively uniformly across the survey unit - the unity rule discussed above was used to ensure that the release criterion has been met as follows:

$$\frac{\delta}{DCGL} + \sum_{x+1}^{n} \frac{(\delta_{EMC} - \delta)}{DCGL_{EMC}} \leq 1$$

Where:

δ = Is the average concentration of contaminant over the entire survey unit

δ_{EMC} = the average concentration of contaminant over the elevated area x within the survey unit

DCGL = the $DCGL_w$ for contaminant

$DCGL_{EMC}$ = (area factor for elevated area x) X (DCGL)

x = refers to one of the elevated areas within the survey unit

n = the total number of elevated areas within the survey unit

If there is more than one elevated area, a separate term will be included for each area. The result of the EMC was used as a trigger for further investigation. The investigations have involved taking further measurements to determine that the area and level of the elevated residual radioactivity are such that the resulting dose or risk meets the release criterion. The investigations provided adequate assurance, using the DQO process, that there are no other undiscovered areas of elevated residual radioactivity in the survey unit that might otherwise result in a dose or risk exceeding the release criterion.

9.1.2 Investigation Levels

The Radiological Engineer applied radionuclide-specific investigation levels when reviewing preliminary FSS data to determine if additional investigations may be necessary. These investigation levels (listed below) also served as a QC check to determine when a measurement process appeared out of control.

Post-Remediation Preliminary FSS Investigation Levels

Survey Unit Classification	Flag Direct Measurement or Sample Result When:	Flag Scanning Measurement Result When:
Class 1	>$DCGL_{EMC}$ or > $DCGL_W$ and the mean of the survey unit is greater than 0.75$DCGL_W$	>$DCGL_{EMC}$
Class 2	> $DCGL_W$	NA
Class 3	> 0.5$DCGL_W$ + background	NA

A measurement that exceeded the investigation level may indicate that the survey unit had been improperly classified or it may indicate a failing instrument. When an investigation level is exceeded, the first step will be to confirm that the initial measurement/sample actually exceeds the particular investigation level. This may involve taking further measurements to determine that the area and level of the elevated residual radioactivity are such that the resulting dose or risk meets the release criterion. Depending on the results of the investigation actions, the survey unit may (1) be reclassified, (2) remediated further, and/or (3) be resurveyed. If the FSS data suggest that the survey unit is misclassified, the original DQOs will be redeveloped for the correct classification. The sampling design and data collection documentation was reviewed for consistency with the DQOs. No areas were reclassified since all areas were initially Class 1 areas.

9.2 FINAL STATUS SURVEY REPORT

A final status survey report (FSSR) was prepared documenting the final radiological conditions of remediation area, to include, at a minimum:

- An overview of the results of FSS and RASS activities (as necessary to support FSS results interpretation).

- A discussion or tabulation of any changes (deviations) that were made in FSS implementation from what was described in the FSSP.
- A description of the method by which the number of samples was determined for each survey unit.
- A summary of the values used to determine the number of samples and justification for these values.
- A summary of QAP implementation results.

The survey results for each survey unit including the following:

- The number of samples taken for the survey unit.
- A map or drawing of the survey unit showing the reference system and random-start systematic sample locations.
- The measured sample concentrations.
- The statistical evaluation of measured concentrations.
- Judgmental and miscellaneous sample data sets reported separately from those samples collected for performing the statistical evaluation.
- A discussion of anomalous data including any areas of elevated direct radiation detected during scanning that exceeded the investigation level or measurement locations in excess of the $DCGL_W$.
- A statement that a given survey unit satisfied the $DCGL_W$ unity rule measurement comparison, if any sample points exceeded the $DCGL_W$.
- A description of any changes in initial survey unit assumptions relative to the extent of residual radioactivity.
- A discussion of a survey unit reclassification including applicable data.

References

(1) USEPA 402-R-97-016, December 1997, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575.

(2) 62 FR 39058, July 21, 1997, Final Rule on Radiological Criteria for License Termination.

(3) Title 10 CFR Part 20, Subpart E, Radiological Criteria for License Termination.

(4) NUREG/CR-5849, June 1992, Manual for Conducting Radiological Surveys in Support of License Termination.

(5) 63 FR 64132, November 18, 1998, Supplemental Information on the Implementation of the Final Rule on Radiological Criteria for License Termination.

(6) 64 FR 68395, December 7, 1999, Supplemental Information on the Implementation of the Final Rule on Radiological Criteria for License Termination.

(7) 65 FR 37186, June 13, 2000, Use of Screening Values to Demonstrate Compliance with the Final Rule on Radiological Criteria for License Termination.

(8) NUREG/CR-5512, 1999, Residual Radioactive Contamination From Decommissioning, Parameter Analysis, Draft Report for Comment, NRC.

(9) Pacific Northwest National Laboratory, Visual Sample Plan, DQO Web Site, http://etd.pnl.gov:2080/DQO/.

(10) NRC, 1997, Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions, NUREG/CR-1507, Final, NRC, Washington, DC.

(11) NRC, 1998, Human Performance of Radiological Survey Scanning, NUREG/CR-6364, NRC, Washington, DC.

(12) USEPA, 1998, Guidance for Data Quality Assessment, EPA QA/G-9, Quality Assurance Division, Washington, DC.

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Dose Conversion Factor (and Related) Parameter Summary
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Menu	Parameter	Current Value	Default	Pa
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.720E+00	6.720E+00	DCF
B-1	Am-241	4.440E-01	4.440E-01	DCF
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Np-237+D	5.400E-01	5.400E-01	DCF
B-1	Pa-231	1.280E+00	1.280E+00	DCF
B-1	Pu-239	4.290E-01	4.290E-01	DCF
B-1	Pu-240	4.290E-01	4.290E-01	DCF
B-1	Ra-228+D	5.080E-03	5.080E-03	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
B-1	Th-228+D	3.450E-01	3.450E-01	DCF
B-1	Th-229+D	2.160E+00	2.160E+00	DCF
B-1	Th-232	1.640E+00	1.640E+00	DCF
B-1	U-233	1.350E-01	1.350E-01	DCF
B-1	U-235+D	1.230E-01	1.230E-01	DCF
B-1	U-236	1.250E-01	1.250E-01	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.480E-02	DCF
D-1	Am-241	3.640E-03	3.640E-03	DCF
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Np-237+D	4.440E-03	4.440E-03	DCF
D-1	Pa-231	1.060E-02	1.060E-02	DCF
D-1	Pu-239	3.540E-03	3.540E-03	DCF
D-1	Pu-240	3.540E-03	3.540E-03	DCF
D-1	Ra-228+D	1.440E-03	1.440E-03	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-1	Th-228+D	8.080E-04	8.080E-04	DCF
D-1	Th-229+D	4.030E-03	4.030E-03	DCF
D-1	Th-232	2.730E-03	2.730E-03	DCF
D-1	U-233	2.890E-04	2.890E-04	DCF
D-1	U-235+D	2.670E-04	2.670E-04	DCF
D-1	U-236	2.690E-04	2.690E-04	DCF
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF
D-34				
D-34	Am-241 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Am-241 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-05	5.000E-05	RTF
D-34	Am-241 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF
D-34				
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Np-237+D , plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF
D-34	Np-237+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF
D-34	Np-237+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				

Dose Conversion Factor (and Related) Parameter Summary (continued)
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Menu	Parameter	Current Value	Default	Pa
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	Pu-239 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Pu-239 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Pu-239 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF
D-34				
D-34	Pu-240 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Pu-240 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Pu-240 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF
D-34				
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF
D-34				
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-34				
D-34	Th-228+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Th-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Th-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	Th-229+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Th-229+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Th-229+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	U-233 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	U-233 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF
D-34	U-233 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF
D-34				
D-34	U-236 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	U-236 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF
D-34	U-236 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIO
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIO
D-5				
D-5	Am-241 , fish	3.000E+01	3.000E+01	BIO
D-5	Am-241 , crustacea and mollusks	1.000E+03	1.000E+03	BIO
D-5				

Dose Conversion Factor (and Related) Parameter Summary (continued)
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Menu	Parameter	Current Value	Default	Pa
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Np-237+D , fish	3.000E+01	3.000E+01	BIO
D-5	Np-237+D , crustacea and mollusks	4.000E+02	4.000E+02	BIO
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIO
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIO
D-5				
D-5	Pu-239 , fish	3.000E+01	3.000E+01	BIO
D-5	Pu-239 , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Pu-240 , fish	3.000E+01	3.000E+01	BIO
D-5	Pu-240 , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIO
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIO
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIO
D-5				
D-5	Th-229+D , fish	1.000E+02	1.000E+02	BIO
D-5	Th-229+D , crustacea and mollusks	5.000E+02	5.000E+02	BIO
D-5				
D-5	Th-232 , fish	1.000E+02	1.000E+02	BIO
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIO
D-5				
D-5	U-233 , fish	1.000E+01	1.000E+01	BIO
D-5	U-233 , crustacea and mollusks	6.000E+01	6.000E+01	BIO
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIO
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIO
D-5				
D-5	U-236 , fish	1.000E+01	1.000E+01	BIO
D-5	U-236 , crustacea and mollusks	6.000E+01	6.000E+01	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b (If different
R011	Area of contaminated zone (m**2)	2.115E+03	1.000E+04	-
R011	Thickness of contaminated zone (m)	3.050E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	4.600E+01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Ac-227	9.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Am-241	4.000E-03	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	4.560E+00	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Np-237	4.000E-03	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Pa-231	9.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Pu-239	5.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Pu-240	5.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Ra-228	9.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	4.890E+00	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Th-228	9.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Th-229	4.000E-03	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Th-232	9.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): U-235	5.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): U-236	9.000E-02	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Ac-227	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Am-241	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Np-237	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Pa-231	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Pu-239	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Pu-240	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Ra-228	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Th-228	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Th-229	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Th-232	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): U-236	not used	0.000E+00	-
R013	Cover depth (m)	0.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	not used	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	2.300E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Ac-227			
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	-
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.76
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Am-241			
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	-
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.76
R016	Solubility constant	0.000E+00	0.000E+00	not

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b If different
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.57
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Np-237			
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.57
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	2.57
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.57
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.71
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Pa-231			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.91
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Pu-239			
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	-
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.78
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Pu-240			
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	-
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.78
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Ra-228			
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	-
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.36
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.18
R016	Solubility constant	0.000E+00	0.000E+00	not

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R016	Distribution coefficients for Th-228			
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	-
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.59
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Th-229			
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	-
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.59
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Th-232			
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	-
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.59
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for U-235			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.91
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for U-236			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.91
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter U-233			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.91
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	5.100E+02	5.100E+02	-
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	1.000E+00	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions	
Area:	2115.47 square meters
Thickness:	0.31 meters
Cover Depth:	0.00 meters

Initial Soil Concentrations, pCi/g	
Ac-227	9.000E-02
Am-241	4.000E-03
Cs-137	4.560E+00
Np-237	4.000E-03
Pa-231	9.000E-02
Pu-239	5.000E-02
Pu-240	5.000E-02
Ra-228	9.000E-02
Sr-90	4.890E+00
Th-228	9.000E-02
Th-229	4.000E-03
Th-232	9.000E-02
U-235	5.000E-02
U-236	9.000E-02

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	1.279E+01	3.740E+00	3.091E+00	2.390E+00	2.051E+00	1.693E+00	3.021E-01	2.92
M(t):	8.524E-01	2.493E-01	2.061E-01	1.593E-01	1.367E-01	1.129E-01	2.014E-02	1.95

Maximum TDOSE(t): 1.279E+01 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	9.771E-02	0.0076	7.545E-02	0.0059	0.000E+00	0.0000	3.775E-02	0.0030	0.000E+00	0.0000
Am-241	9.550E-05	0.0000	2.249E-04	0.0000	0.000E+00	0.0000	1.676E-04	0.0000	0.000E+00	0.0000
Cs-137	8.546E+00	0.6684	1.865E-05	0.0000	0.000E+00	0.0000	1.061E-01	0.0083	0.000E+00	0.0000
Np-237	2.468E-03	0.0002	2.798E-04	0.0000	0.000E+00	0.0000	4.175E-03	0.0003	0.000E+00	0.0000
Pa-231	1.118E-02	0.0009	1.602E-02	0.0013	0.000E+00	0.0000	1.121E-01	0.0088	0.000E+00	0.0000
Pu-239	8.407E-06	0.0000	2.783E-03	0.0002	0.000E+00	0.0000	2.084E-03	0.0002	0.000E+00	0.0000
Pu-240	4.295E-06	0.0000	2.783E-03	0.0002	0.000E+00	0.0000	2.084E-03	0.0002	0.000E+00	0.0000
Ra-228	3.594E-01	0.0281	6.759E-04	0.0001	0.000E+00	0.0000	5.762E-02	0.0045	0.000E+00	0.0000
Sr-90	6.530E-02	0.0051	8.087E-04	0.0001	0.000E+00	0.0000	2.573E+00	0.2013	0.000E+00	0.0000
Th-228	4.283E-01	0.0335	3.380E-03	0.0003	0.000E+00	0.0000	7.186E-04	0.0001	0.000E+00	0.0000
Th-229	3.592E-03	0.0003	1.121E-03	0.0001	0.000E+00	0.0000	1.899E-04	0.0000	0.000E+00	0.0000
Th-232	2.062E-02	0.0016	1.918E-02	0.0015	0.000E+00	0.0000	6.225E-03	0.0005	0.000E+00	0.0000
U-235	2.119E-02	0.0017	7.907E-04	0.0001	0.000E+00	0.0000	3.902E-04	0.0000	0.000E+00	0.0000
U-236	1.091E-05	0.0000	1.446E-03	0.0001	0.000E+00	0.0000	7.064E-04	0.0001	0.000E+00	0.0000
Total	9.556E+00	0.7474	1.250E-01	0.0098	0.000E+00	0.0000	2.904E+00	0.2271	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-229	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	1.848E-03	0.0005	1.419E-03	0.0004	0.000E+00	0.0000	5.937E-04	0.0002	0.000E+00	0.0000
Am-241	8.158E-06	0.0000	1.918E-05	0.0000	0.000E+00	0.0000	1.197E-05	0.0000	0.000E+00	0.0000
Cs-137	2.580E+00	0.6899	5.601E-06	0.0000	0.000E+00	0.0000	2.663E-02	0.0071	0.000E+00	0.0000
Np-237	2.061E-03	0.0006	2.323E-04	0.0001	0.000E+00	0.0000	2.898E-03	0.0008	0.000E+00	0.0000
Pa-231	2.325E-02	0.0062	2.070E-02	0.0055	0.000E+00	0.0000	4.208E-02	0.0113	0.000E+00	0.0000
Pu-239	8.228E-06	0.0000	2.713E-03	0.0007	0.000E+00	0.0000	1.699E-03	0.0005	0.000E+00	0.0000
Pu-240	4.172E-06	0.0000	2.703E-03	0.0007	0.000E+00	0.0000	1.692E-03	0.0005	0.000E+00	0.0000
Ra-228	1.266E-03	0.0003	7.364E-06	0.0000	0.000E+00	0.0000	5.990E-05	0.0000	0.000E+00	0.0000
Sr-90	4.073E-03	0.0011	5.014E-05	0.0000	0.000E+00	0.0000	1.334E-01	0.0357	0.000E+00	0.0000
Th-228	5.799E-09	0.0000	4.582E-11	0.0000	0.000E+00	0.0000	8.142E-12	0.0000	0.000E+00	0.0000
Th-229	3.591E-03	0.0010	1.115E-03	0.0003	0.000E+00	0.0000	1.578E-04	0.0000	0.000E+00	0.0000
Th-232	7.268E-01	0.1943	2.280E-02	0.0061	0.000E+00	0.0000	4.893E-02	0.0131	0.000E+00	0.0000
U-235	8.199E-03	0.0022	3.138E-04	0.0001	0.000E+00	0.0000	1.492E-04	0.0000	0.000E+00	0.0000
U-236	4.198E-06	0.0000	5.562E-04	0.0001	0.000E+00	0.0000	2.271E-04	0.0001	0.000E+00	0.0000
Total	3.351E+00	0.8961	5.264E-02	0.0141	0.000E+00	0.0000	2.585E-01	0.0691	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-229	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	8.354E-04	0.0003	6.411E-04	0.0002	0.000E+00	0.0000	2.577E-04	0.0001	0.000E+00	0.0000
Am-241	4.991E-06	0.0000	1.172E-05	0.0000	0.000E+00	0.0000	7.035E-06	0.0000	0.000E+00	0.0000
Cs-137	2.030E+00	0.6566	4.403E-06	0.0000	0.000E+00	0.0000	2.011E-02	0.0065	0.000E+00	0.0000
Np-237	1.987E-03	0.0006	2.239E-04	0.0001	0.000E+00	0.0000	2.682E-03	0.0009	0.000E+00	0.0000
Pa-231	1.958E-02	0.0063	1.738E-02	0.0056	0.000E+00	0.0000	3.350E-02	0.0108	0.000E+00	0.0000
Pu-239	8.191E-06	0.0000	2.700E-03	0.0009	0.000E+00	0.0000	1.624E-03	0.0005	0.000E+00	0.0000
Pu-240	4.147E-06	0.0000	2.687E-03	0.0009	0.000E+00	0.0000	1.616E-03	0.0005	0.000E+00	0.0000
Ra-228	3.307E-04	0.0001	1.924E-06	0.0000	0.000E+00	0.0000	1.504E-05	0.0000	0.000E+00	0.0000
Sr-90	2.338E-03	0.0008	2.875E-05	0.0000	0.000E+00	0.0000	7.348E-02	0.0238	0.000E+00	0.0000
Th-228	1.546E-10	0.0000	1.223E-12	0.0000	0.000E+00	0.0000	2.088E-13	0.0000	0.000E+00	0.0000
Th-229	3.590E-03	0.0012	1.114E-03	0.0004	0.000E+00	0.0000	1.515E-04	0.0000	0.000E+00	0.0000
Th-232	7.270E-01	0.2352	2.281E-02	0.0074	0.000E+00	0.0000	4.704E-02	0.0152	0.000E+00	0.0000
U-235	6.781E-03	0.0022	2.613E-04	0.0001	0.000E+00	0.0000	1.223E-04	0.0000	0.000E+00	0.0000
U-236	3.468E-06	0.0000	4.594E-04	0.0001	0.000E+00	0.0000	1.802E-04	0.0001	0.000E+00	0.0000
Total	2.792E+00	0.9033	4.831E-02	0.0156	0.000E+00	0.0000	1.808E-01	0.0585	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-229	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	2.539E-04	0.0001	1.947E-04	0.0001	0.000E+00	0.0000	7.343E-05	0.0000	0.000E+00	0.0000
Am-241	2.392E-06	0.0000	5.603E-06	0.0000	0.000E+00	0.0000	3.164E-06	0.0000	0.000E+00	0.0000
Cs-137	1.416E+00	0.5923	3.069E-06	0.0000	0.000E+00	0.0000	1.316E-02	0.0055	0.000E+00	0.0000
Np-237	1.882E-03	0.0008	2.117E-04	0.0001	0.000E+00	0.0000	2.381E-03	0.0010	0.000E+00	0.0000
Pa-231	1.491E-02	0.0062	1.319E-02	0.0055	0.000E+00	0.0000	2.365E-02	0.0099	0.000E+00	0.0000
Pu-239	8.137E-06	0.0000	2.679E-03	0.0011	0.000E+00	0.0000	1.513E-03	0.0006	0.000E+00	0.0000
Pu-240	4.111E-06	0.0000	2.664E-03	0.0011	0.000E+00	0.0000	1.504E-03	0.0006	0.000E+00	0.0000
Ra-228	4.409E-05	0.0000	2.570E-07	0.0000	0.000E+00	0.0000	1.885E-06	0.0000	0.000E+00	0.0000
Sr-90	1.017E-03	0.0004	1.248E-05	0.0000	0.000E+00	0.0000	2.995E-02	0.0125	0.000E+00	0.0000
Th-228	6.727E-13	0.0000	5.334E-15	0.0000	0.000E+00	0.0000	8.548E-16	0.0000	0.000E+00	0.0000
Th-229	3.588E-03	0.0015	1.112E-03	0.0005	0.000E+00	0.0000	1.419E-04	0.0001	0.000E+00	0.0000
Th-232	7.259E-01	0.3037	2.280E-02	0.0095	0.000E+00	0.0000	4.416E-02	0.0185	0.000E+00	0.0000
U-235	5.099E-03	0.0021	1.985E-04	0.0001	0.000E+00	0.0000	9.036E-05	0.0000	0.000E+00	0.0000
U-236	2.604E-06	0.0000	3.449E-04	0.0001	0.000E+00	0.0000	1.270E-04	0.0001	0.000E+00	0.0000
Total	2.168E+00	0.9073	4.342E-02	0.0182	0.000E+00	0.0000	1.168E-01	0.0489	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-229	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	1.148E-04	0.0001	8.793E-05	0.0000	0.000E+00	0.0000	3.173E-05	0.0000	0.000E+00	0.0000
Am-241	1.466E-06	0.0000	3.425E-06	0.0000	0.000E+00	0.0000	1.855E-06	0.0000	0.000E+00	0.0000
Cs-137	1.113E+00	0.5426	2.413E-06	0.0000	0.000E+00	0.0000	9.894E-03	0.0048	0.000E+00	0.0000
Np-237	1.814E-03	0.0009	2.040E-04	0.0001	0.000E+00	0.0000	2.194E-03	0.0011	0.000E+00	0.0000
Pa-231	1.237E-02	0.0060	1.093E-02	0.0053	0.000E+00	0.0000	1.870E-02	0.0091	0.000E+00	0.0000
Pu-239	8.100E-06	0.0000	2.666E-03	0.0013	0.000E+00	0.0000	1.439E-03	0.0007	0.000E+00	0.0000
Pu-240	4.087E-06	0.0000	2.648E-03	0.0013	0.000E+00	0.0000	1.430E-03	0.0007	0.000E+00	0.0000
Ra-228	1.150E-05	0.0000	6.716E-08	0.0000	0.000E+00	0.0000	4.712E-07	0.0000	0.000E+00	0.0000
Sr-90	5.836E-04	0.0003	7.159E-06	0.0000	0.000E+00	0.0000	1.642E-02	0.0080	0.000E+00	0.0000
Th-228	1.792E-14	0.0000	1.424E-16	0.0000	0.000E+00	0.0000	2.182E-17	0.0000	0.000E+00	0.0000
Th-229	3.585E-03	0.0017	1.111E-03	0.0005	0.000E+00	0.0000	1.356E-04	0.0001	0.000E+00	0.0000
Th-232	7.246E-01	0.3533	2.280E-02	0.0111	0.000E+00	0.0000	4.223E-02	0.0206	0.000E+00	0.0000
U-235	4.217E-03	0.0021	1.652E-04	0.0001	0.000E+00	0.0000	7.359E-05	0.0000	0.000E+00	0.0000
U-236	2.151E-06	0.0000	2.849E-04	0.0001	0.000E+00	0.0000	1.003E-04	0.0000	0.000E+00	0.0000
Total	1.860E+00	0.9070	4.091E-02	0.0199	0.000E+00	0.0000	9.265E-02	0.0452	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-229	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

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Dose Conversion Factor (and Related) Parameter Summary
File: FGR 13 Morbidity

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B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-34	Food transfer factors:			
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b (If different
R011	Area of contaminated zone (m**2)	6.510E+02	1.000E+04	-
R011	Thickness of contaminated zone (m)	3.800E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	2.550E+01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	5.800E+00	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	6.100E+00	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R013	Cover depth (m)	0.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	not used	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	2.300E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.68
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.55
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	5.100E+02	5.100E+02	-
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	1.000E+00	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	651.00 square meters	Cs-137	5.800E+00
Thickness:	0.38 meters	Sr-90	6.100E+00
Cover Depth:	0.00 meters		

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	1.476E+01	3.544E+00	2.734E+00	1.869E+00	1.457E+00	1.007E+00	6.862E-03	0.00
M(t):	9.838E-01	2.362E-01	1.822E-01	1.246E-01	9.712E-02	6.716E-02	4.574E-04	0.00

Maximum TDOSE(t): 1.476E+01 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.046E+01	0.7087	2.097E-05	0.0000	0.000E+00	0.0000	1.682E-01	0.0114	0.000E+00	0.0000
Sr-90	7.864E-02	0.0053	8.944E-04	0.0001	0.000E+00	0.0000	4.013E+00	0.2719	0.000E+00	0.0000
Total	1.054E+01	0.7140	9.154E-04	0.0001	0.000E+00	0.0000	4.181E+00	0.2833	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	3.192E+00	0.9007	6.357E-06	0.0000	0.000E+00	0.0000	4.427E-02	0.0125	0.000E+00	0.0000
Sr-90	6.714E-03	0.0019	7.590E-05	0.0000	0.000E+00	0.0000	2.957E-01	0.0834	0.000E+00	0.0000
Total	3.198E+00	0.9026	8.226E-05	0.0000	0.000E+00	0.0000	3.400E-01	0.0959	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	2.517E+00	0.9207	5.007E-06	0.0000	0.000E+00	0.0000	3.381E-02	0.0124	0.000E+00	0.0000
Sr-90	4.104E-03	0.0015	4.635E-05	0.0000	0.000E+00	0.0000	1.751E-01	0.0640	0.000E+00	0.0000
Total	2.521E+00	0.9222	5.135E-05	0.0000	0.000E+00	0.0000	2.089E-01	0.0764	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.763E+00	0.9431	3.500E-06	0.0000	0.000E+00	0.0000	2.253E-02	0.0121	0.000E+00	0.0000
Sr-90	1.962E-03	0.0010	2.211E-05	0.0000	0.000E+00	0.0000	7.960E-02	0.0426	0.000E+00	0.0000
Total	1.765E+00	0.9441	2.561E-05	0.0000	0.000E+00	0.0000	1.021E-01	0.0546	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.390E+00	0.9540	2.757E-06	0.0000	0.000E+00	0.0000	1.716E-02	0.0118	0.000E+00	0.0000
Sr-90	1.199E-03	0.0008	1.350E-05	0.0000	0.000E+00	0.0000	4.701E-02	0.0323	0.000E+00	0.0000
Total	1.391E+00	0.9548	1.626E-05	0.0000	0.000E+00	0.0000	6.417E-02	0.0440	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	9.730E-01	0.9659	1.927E-06	0.0000	0.000E+00	0.0000	1.138E-02	0.0113	0.000E+00	0.0000
Sr-90	5.730E-04	0.0006	6.441E-06	0.0000	0.000E+00	0.0000	2.129E-02	0.0211	0.000E+00	0.0000
Total	9.736E-01	0.9665	8.368E-06	0.0000	0.000E+00	0.0000	3.267E-02	0.0324	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	6.828E-03	0.9951	8.620E-09	0.0000	0.000E+00	0.0000	2.734E-05	0.0040	0.000E+00	0.0000
Sr-90	2.639E-08	0.0000	1.771E-10	0.0000	0.000E+00	0.0000	3.141E-07	0.0000	0.000E+00	0.0000
Total	6.828E-03	0.9951	8.797E-09	0.0000	0.000E+00	0.0000	2.765E-05	0.0040	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	1.910E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	8.239E-08	0.0000	0.000E+00	0.0000
Total	1.910E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	8.239E-08	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t=	DSR(j,t) (mrem/yr)/(pCi/g) 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00		1.834E+00	5.584E-01	4.402E-01	3.080E-01	2.428E-01	1.699E-01	1.183E-
Sr-90	Sr-90	1.000E+00		6.756E-01	4.999E-02	2.963E-02	1.349E-02	7.977E-03	3.619E-03	3.834E-

*Branch Fraction is the cumulative factor for the j'th principal radionuclide daughter: CUMBRF(j
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	
Cs-137	8.180E+00	2.686E+01	3.408E+01	4.870E+01	6.178E+01	8.830E+01	1.268E+04	*
Sr-90	2.220E+01	3.000E+02	5.063E+02	1.112E+03	1.880E+03	4.145E+03	3.912E+07	*

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Cs-137	5.800E+00	0.000E+00	1.834E+00	8.180E+00	1.834E+00	8.180E+00
Sr-90	6.100E+00	0.000E+00	6.756E-01	2.220E+01	6.756E-01	2.220E+01

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	1.064E+01	3.239E+00	2.553E+00	1.787E+00	1.408E+00	9.853E-01	6.859E-
Sr-90	Sr-90	1.000E+00	4.121E+01	3.050E-01	1.807E-01	8.231E-02	4.866E-02	2.208E-02	2.339E-

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	5.800E+00	1.758E+00	1.385E+00	9.679E-01	7.623E-01	5.329E-01	4.498E-
Sr-90	Sr-90	1.000E+00	6.100E+00	5.177E-01	3.161E-01	1.508E-01	9.208E-02	4.393E-02	2.278E-

BRF(i) is the branch fraction of the parent nuclide.

RESCALC.EXE execution time = 1.02 seconds

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Dose Conversion Factor (and Related) Parameter Summary
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.720E+00	6.720E+00	DCF
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Pa-231	1.280E+00	1.280E+00	DCF
B-1	Pu-239	4.290E-01	4.290E-01	DCF
B-1	Pu-240	4.290E-01	4.290E-01	DCF
B-1	Ra-228+D	5.080E-03	5.080E-03	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
B-1	Th-228+D	3.450E-01	3.450E-01	DCF
B-1	Th-232	1.640E+00	1.640E+00	DCF
B-1	U-235+D	1.230E-01	1.230E-01	DCF
B-1	U-236	1.250E-01	1.250E-01	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.480E-02	DCF
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Pa-231	1.060E-02	1.060E-02	DCF
D-1	Pu-239	3.540E-03	3.540E-03	DCF
D-1	Pu-240	3.540E-03	3.540E-03	DCF
D-1	Ra-228+D	1.440E-03	1.440E-03	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-1	Th-228+D	8.080E-04	8.080E-04	DCF
D-1	Th-232	2.730E-03	2.730E-03	DCF
D-1	U-235+D	2.670E-04	2.670E-04	DCF
D-1	U-236	2.690E-04	2.690E-04	DCF
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF
D-34				
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	Pu-239 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Pu-239 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Pu-239 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF
D-34				
D-34	Pu-240 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Pu-240 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Pu-240 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF
D-34				
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF
D-34				

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-34				
D-34	Th-228+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Th-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Th-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF
D-34				
D-34	U-236 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	U-236 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF
D-34	U-236 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIO
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIO
D-5				
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIO
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIO
D-5				
D-5	Pu-239 , fish	3.000E+01	3.000E+01	BIO
D-5	Pu-239 , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Pu-240 , fish	3.000E+01	3.000E+01	BIO
D-5	Pu-240 , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIO
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIO
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIO
D-5				
D-5	Th-232 , fish	1.000E+02	1.000E+02	BIO
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIO
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIO
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIO
D-5				

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
D-5	U-236 , fish	1.000E+01	1.000E+01	BIO
D-5	U-236 , crustacea and mollusks	6.000E+01	6.000E+01	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b (If different
R011	Area of contaminated zone (m**2)	6.970E+02	1.000E+04	-
R011	Thickness of contaminated zone (m)	5.000E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	2.640E+01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	4.670E+00	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Pu-239	9.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Pu-240	9.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	4.230E+00	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): U-236	9.000E-02	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Pu-239	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Pu-240	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): U-236	not used	0.000E+00	-
R013	Cover depth (m)	0.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	not used	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	1.660E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	8.09
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Pu-239			
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	-
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.04
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Pu-240			
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	-
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.04
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.68
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for U-236			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.61
R016	Solubility constant	0.000E+00	0.000E+00	not

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b If different
R016	Distribution coefficients for daughter Ac-227			
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	-
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.01
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Pa-231			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.61
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Ra-228			
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	-
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.15
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Th-228			
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	-
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.34
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Th-232			
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	-
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.34
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter U-235			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.61
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	5.100E+02	5.100E+02	-
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b If different
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	1.000E+00	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	697.00 square meters	Cs-137	4.670E+00
Thickness:	0.50 meters	Pu-239	9.000E-02
Cover Depth:	0.00 meters	Pu-240	9.000E-02
		Sr-90	4.230E+00
		U-236	9.000E-02

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	1.226E+01	2.886E+00	2.229E+00	1.532E+00	1.201E+00	8.408E-01	3.873E-02	4.90
M(t):	8.170E-01	1.924E-01	1.486E-01	1.021E-01	8.006E-02	5.605E-02	2.582E-03	3.27

Maximum TDOSE(t): 1.226E+01 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	8.287E+00	0.6762	1.701E-05	0.0000	0.000E+00	0.0000	1.783E-01	0.0145	0.000E+00	0.0000
Pu-239	1.469E-05	0.0000	4.460E-03	0.0004	0.000E+00	0.0000	6.154E-03	0.0005	0.000E+00	0.0000
Pu-240	7.655E-06	0.0000	4.460E-03	0.0004	0.000E+00	0.0000	6.153E-03	0.0005	0.000E+00	0.0000
Sr-90	5.380E-02	0.0044	6.243E-04	0.0001	0.000E+00	0.0000	3.660E+00	0.2986	0.000E+00	0.0000
U-236	1.075E-05	0.0000	1.289E-03	0.0001	0.000E+00	0.0000	1.160E-03	0.0001	0.000E+00	0.0000
Total	8.341E+00	0.6806	1.085E-02	0.0009	0.000E+00	0.0000	3.852E+00	0.3143	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	2.525E+00	0.8749	5.145E-06	0.0000	0.000E+00	0.0000	4.853E-02	0.0168	0.000E+00	0.0000
Pu-239	1.442E-05	0.0000	4.364E-03	0.0015	0.000E+00	0.0000	5.419E-03	0.0019	0.000E+00	0.0000
Pu-240	7.462E-06	0.0000	4.347E-03	0.0015	0.000E+00	0.0000	5.398E-03	0.0019	0.000E+00	0.0000
Sr-90	4.301E-03	0.0015	4.960E-05	0.0000	0.000E+00	0.0000	2.617E-01	0.0907	0.000E+00	0.0000
U-236	4.799E-06	0.0000	5.753E-04	0.0002	0.000E+00	0.0000	4.659E-04	0.0002	0.000E+00	0.0000
Total	2.529E+00	0.8764	9.342E-03	0.0032	0.000E+00	0.0000	3.215E-01	0.1114	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.990E+00	0.8929	4.051E-06	0.0000	0.000E+00	0.0000	3.736E-02	0.0168	0.000E+00	0.0000
Pu-239	1.437E-05	0.0000	4.346E-03	0.0019	0.000E+00	0.0000	5.276E-03	0.0024	0.000E+00	0.0000
Pu-240	7.424E-06	0.0000	4.325E-03	0.0019	0.000E+00	0.0000	5.251E-03	0.0024	0.000E+00	0.0000
Sr-90	2.595E-03	0.0012	2.989E-05	0.0000	0.000E+00	0.0000	1.542E-01	0.0692	0.000E+00	0.0000
U-236	4.084E-06	0.0000	4.896E-04	0.0002	0.000E+00	0.0000	3.877E-04	0.0002	0.000E+00	0.0000
Total	1.993E+00	0.8941	9.194E-03	0.0041	0.000E+00	0.0000	2.025E-01	0.0908	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.393E+00	0.9095	2.830E-06	0.0000	0.000E+00	0.0000	2.521E-02	0.0165	0.000E+00	0.0000
Pu-239	1.429E-05	0.0000	4.317E-03	0.0028	0.000E+00	0.0000	5.063E-03	0.0033	0.000E+00	0.0000
Pu-240	7.368E-06	0.0000	4.292E-03	0.0028	0.000E+00	0.0000	5.033E-03	0.0033	0.000E+00	0.0000
Sr-90	1.216E-03	0.0008	1.398E-05	0.0000	0.000E+00	0.0000	6.967E-02	0.0455	0.000E+00	0.0000
U-236	3.207E-06	0.0000	3.843E-04	0.0003	0.000E+00	0.0000	2.939E-04	0.0002	0.000E+00	0.0000
Total	1.394E+00	0.9103	9.011E-03	0.0059	0.000E+00	0.0000	1.053E-01	0.0687	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.098E+00	0.9145	2.228E-06	0.0000	0.000E+00	0.0000	1.938E-02	0.0161	0.000E+00	0.0000
Pu-239	1.424E-05	0.0000	4.299E-03	0.0036	0.000E+00	0.0000	4.922E-03	0.0041	0.000E+00	0.0000
Pu-240	7.330E-06	0.0000	4.270E-03	0.0036	0.000E+00	0.0000	4.890E-03	0.0041	0.000E+00	0.0000
Sr-90	7.337E-04	0.0006	8.425E-06	0.0000	0.000E+00	0.0000	4.099E-02	0.0341	0.000E+00	0.0000
U-236	2.729E-06	0.0000	3.270E-04	0.0003	0.000E+00	0.0000	2.442E-04	0.0002	0.000E+00	0.0000
Total	1.099E+00	0.9152	8.907E-03	0.0074	0.000E+00	0.0000	7.042E-02	0.0586	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	7.687E-01	0.9142	1.556E-06	0.0000	0.000E+00	0.0000	1.305E-02	0.0155	0.000E+00	0.0000
Pu-239	1.416E-05	0.0000	4.271E-03	0.0051	0.000E+00	0.0000	4.713E-03	0.0056	0.000E+00	0.0000
Pu-240	7.274E-06	0.0000	4.238E-03	0.0050	0.000E+00	0.0000	4.677E-03	0.0056	0.000E+00	0.0000
Sr-90	3.438E-04	0.0004	3.941E-06	0.0000	0.000E+00	0.0000	1.848E-02	0.0220	0.000E+00	0.0000
U-236	2.143E-06	0.0000	2.567E-04	0.0003	0.000E+00	0.0000	1.848E-04	0.0002	0.000E+00	0.0000
Total	7.690E-01	0.9146	8.771E-03	0.0104	0.000E+00	0.0000	4.110E-02	0.0489	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	3.957E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.562E-17	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	3.957E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.562E-17	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	6.373E-03	0.1645	1.303E-08	0.0000	0.000E+00	0.0000	5.455E-05	0.0014	0.000E+00	0.0000
Pu-239	1.305E-05	0.0003	3.916E-03	0.1011	0.000E+00	0.0000	2.159E-03	0.0557	0.000E+00	0.0000
Pu-240	6.567E-06	0.0002	3.826E-03	0.0988	0.000E+00	0.0000	2.109E-03	0.0545	0.000E+00	0.0000
Sr-90	1.381E-08	0.0000	1.570E-10	0.0000	0.000E+00	0.0000	3.678E-07	0.0000	0.000E+00	0.0000
U-236	8.696E-08	0.0000	1.017E-05	0.0003	0.000E+00	0.0000	3.658E-06	0.0001	0.000E+00	0.0000
Total	6.393E-03	0.1651	7.753E-03	0.2002	0.000E+00	0.0000	4.327E-03	0.1117	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	1.395E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.578E-12	0.0000	0.000E+00	0.0000
Pu-240	2.096E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.382E-11	0.0000	0.000E+00	0.0000
Sr-90	1.306E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.632E-08	0.0000	0.000E+00	0.0000
U-236	1.205E-03	0.0311	0.000E+00	0.0000	0.000E+00	0.0000	4.824E-05	0.0012	0.000E+00	0.0000
Total	1.207E-03	0.0312	0.000E+00	0.0000	0.000E+00	0.0000	4.830E-05	0.0012	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	2.835E-11	0.0578	0.000E+00	0.0000	0.000E+00	0.0000	1.134E-12	0.0023	0.000E+00	0.0000
Pu-240	4.183E-10	0.8525	0.000E+00	0.0000	0.000E+00	0.0000	1.673E-11	0.0341	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	2.516E-11	0.0513	0.000E+00	0.0000	0.000E+00	0.0000	1.018E-12	0.0021	0.000E+00	0.0000
Total	4.718E-10	0.9615	0.000E+00	0.0000	0.000E+00	0.0000	1.888E-11	0.0385	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t=	DSR(j,t) (mrem/yr)/(pCi/g) 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00		1.814E+00	5.515E-01	4.346E-01	3.040E-01	2.396E-01	1.675E-01	1.378E-
Pu-239	Pu-239	1.000E+00		2.396E-01	2.278E-01	2.255E-01	2.220E-01	2.198E-01	2.164E-01	1.744E-
Pu-239	U-235	1.000E+00		2.198E-10	1.511E-08	1.686E-08	1.897E-08	2.010E-08	2.145E-08	2.525E-
Pu-239	Pa-231	1.000E+00		8.641E-15	3.832E-11	4.889E-11	6.396E-11	7.313E-11	8.527E-11	2.870E-
Pu-239	Ac-227	1.000E+00		9.086E-17	1.350E-11	1.896E-11	2.762E-11	3.340E-11	4.174E-11	7.068E-
Pu-239	∑DSR(j)			2.396E-01	2.278E-01	2.255E-01	2.220E-01	2.198E-01	2.164E-01	1.744E-
Pu-240	Pu-240	1.000E+00		2.396E-01	2.269E-01	2.244E-01	2.207E-01	2.182E-01	2.146E-01	1.703E-
Pu-240	U-236	1.000E+00		5.346E-10	3.576E-08	3.957E-08	4.399E-08	4.622E-08	4.873E-08	7.089E-
Pu-240	Th-232	1.000E+00		8.337E-20	4.738E-16	6.459E-16	9.332E-16	1.140E-15	1.468E-15	6.169E-
Pu-240	Ra-228	1.000E+00		2.986E-20	4.238E-15	6.055E-15	9.168E-15	1.145E-14	1.509E-14	6.497E-
Pu-240	Th-228	1.000E+00		2.744E-21	4.950E-15	7.267E-15	1.133E-14	1.435E-14	1.926E-14	9.296E-
Pu-240	∑DSR(j)			2.396E-01	2.269E-01	2.244E-01	2.207E-01	2.182E-01	2.146E-01	1.703E-
Sr-90	Sr-90	1.000E+00		8.832E-01	6.331E-02	3.732E-02	1.688E-02	9.935E-03	4.484E-03	4.135E-
U-236	U-236	1.000E+00		3.650E-02	1.571E-02	1.327E-02	1.030E-02	8.702E-03	6.754E-03	1.416E-
U-236	Th-232	1.000E+00		8.367E-12	5.638E-10	6.284E-10	7.065E-10	7.482E-10	7.983E-10	9.211E-
U-236	Ra-228	1.000E+00		4.039E-12	5.863E-09	6.719E-09	7.750E-09	8.297E-09	8.949E-09	1.012E-
U-236	Th-228	1.000E+00		4.545E-13	7.299E-09	8.513E-09	1.001E-08	1.082E-08	1.182E-08	1.444E-
U-236	∑DSR(j)			3.650E-02	1.571E-02	1.327E-02	1.030E-02	8.702E-03	6.754E-03	1.416E-

*Branch Fraction is the cumulative factor for the j'th principal radionuclide daughter: CUMBRF(j
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	
Cs-137	8.267E+00	2.720E+01	3.451E+01	4.934E+01	6.262E+01	8.953E+01	1.089E+04	*
Pu-239	6.259E+01	6.584E+01	6.652E+01	6.755E+01	6.825E+01	6.932E+01	8.602E+01	
Pu-240	6.262E+01	6.612E+01	6.685E+01	6.797E+01	6.873E+01	6.989E+01	8.808E+01	
Sr-90	1.698E+01	2.369E+02	4.019E+02	8.889E+02	1.510E+03	3.346E+03	3.627E+07	*
U-236	4.109E+02	9.547E+02	1.130E+03	1.456E+03	1.724E+03	2.221E+03	1.060E+03	*

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Cs-137	4.670E+00	0.000E+00	1.814E+00	8.267E+00	1.814E+00	8.267E+00
Pu-239	9.000E-02	0.000E+00	2.396E-01	6.259E+01	2.396E-01	6.259E+01
Pu-240	9.000E-02	0.000E+00	2.396E-01	6.262E+01	2.396E-01	6.262E+01
Sr-90	4.230E+00	0.000E+00	8.832E-01	1.698E+01	8.832E-01	1.698E+01
U-236	9.000E-02	0.000E+00	3.650E-02	4.109E+02	3.650E-02	4.109E+02

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	8.473E+00	2.576E+00	2.030E+00	1.420E+00	1.119E+00	7.824E-01	6.434E-
Pu-239	Pu-239	1.000E+00	2.157E-02	2.050E-02	2.029E-02	1.998E-02	1.978E-02	1.947E-02	1.569E-
U-235	Pu-239	1.000E+00	1.978E-11	1.360E-09	1.517E-09	1.707E-09	1.809E-09	1.931E-09	2.272E-
Pa-231	Pu-239	1.000E+00	7.777E-16	3.449E-12	4.400E-12	5.756E-12	6.582E-12	7.674E-12	2.583E-
Ac-227	Pu-239	1.000E+00	8.177E-18	1.215E-12	1.706E-12	2.486E-12	3.006E-12	3.757E-12	6.362E-
Pu-240	Pu-240	1.000E+00	2.156E-02	2.042E-02	2.019E-02	1.986E-02	1.964E-02	1.932E-02	1.533E-
U-236	Pu-240	1.000E+00	4.812E-11	3.218E-09	3.561E-09	3.959E-09	4.160E-09	4.386E-09	6.380E-
U-236	U-236	1.000E+00	3.285E-03	1.414E-03	1.194E-03	9.273E-04	7.832E-04	6.078E-04	1.274E-
U-236	∑DOSE(j)		3.285E-03	1.414E-03	1.194E-03	9.273E-04	7.832E-04	6.078E-04	1.274E-
Th-232	Pu-240	1.000E+00	7.504E-21	4.264E-17	5.813E-17	8.399E-17	1.026E-16	1.321E-16	5.552E-
Th-232	U-236	1.000E+00	7.530E-13	5.074E-11	5.656E-11	6.359E-11	6.734E-11	7.185E-11	8.290E-
Th-232	∑DOSE(j)		7.530E-13	5.074E-11	5.656E-11	6.359E-11	6.734E-11	7.185E-11	8.290E-
Ra-228	Pu-240	1.000E+00	2.687E-21	3.815E-16	5.450E-16	8.251E-16	1.030E-15	1.358E-15	5.847E-
Ra-228	U-236	1.000E+00	3.635E-13	5.277E-10	6.047E-10	6.975E-10	7.468E-10	8.055E-10	9.106E-
Ra-228	∑DOSE(j)		3.635E-13	5.277E-10	6.047E-10	6.975E-10	7.468E-10	8.055E-10	9.106E-
Th-228	Pu-240	1.000E+00	2.469E-22	4.455E-16	6.540E-16	1.019E-15	1.291E-15	1.733E-15	8.366E-
Th-228	U-236	1.000E+00	4.091E-14	6.569E-10	7.662E-10	9.007E-10	9.739E-10	1.064E-09	1.300E-
Th-228	∑DOSE(j)		4.091E-14	6.569E-10	7.662E-10	9.007E-10	9.739E-10	1.064E-09	1.300E-
Sr-90	Sr-90	1.000E+00	3.736E+00	2.678E-01	1.579E-01	7.138E-02	4.203E-02	1.897E-02	1.749E-

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	4.670E+00	1.413E+00	1.112E+00	7.769E-01	6.117E-01	4.273E-01	3.578E-
Pu-239	Pu-239	1.000E+00	9.000E-02	8.807E-02	8.769E-02	8.712E-02	8.674E-02	8.618E-02	7.903E-
U-235	Pu-239	1.000E+00	0.000E+00	3.004E-09	3.356E-09	3.781E-09	4.008E-09	4.280E-09	4.911E-
Pa-231	Pu-239	1.000E+00	0.000E+00	1.383E-12	1.800E-12	2.423E-12	2.823E-12	3.387E-12	6.325E-
Ac-227	Pu-239	1.000E+00	0.000E+00	3.940E-13	5.583E-13	8.225E-13	1.001E-12	1.262E-12	2.780E-
Pu-240	Pu-240	1.000E+00	9.000E-02	8.773E-02	8.728E-02	8.662E-02	8.618E-02	8.552E-02	7.722E-
U-236	Pu-240	1.000E+00	0.000E+00	9.011E-08	1.006E-07	1.133E-07	1.200E-07	1.280E-07	1.449E-
U-236	U-236	1.000E+00	9.000E-02	4.016E-02	3.417E-02	2.682E-02	2.283E-02	1.792E-02	7.101E-
U-236	∑S(j):		9.000E-02	4.016E-02	3.417E-02	2.682E-02	2.283E-02	1.792E-02	7.103E-
Th-232	Pu-240	1.000E+00	0.000E+00	1.266E-16	1.737E-16	2.530E-16	3.105E-16	4.023E-16	1.819E-
Th-232	U-236	1.000E+00	0.000E+00	1.523E-10	1.706E-10	1.930E-10	2.052E-10	2.201E-10	2.720E-
Th-232	∑S(j):		0.000E+00	1.523E-10	1.706E-10	1.930E-10	2.052E-10	2.201E-10	2.720E-
Ra-228	Pu-240	1.000E+00	0.000E+00	8.819E-17	1.271E-16	1.945E-16	2.443E-16	3.250E-16	1.611E-
Ra-228	U-236	1.000E+00	0.000E+00	1.235E-10	1.424E-10	1.657E-10	1.784E-10	1.940E-10	2.480E-
Ra-228	∑S(j):		0.000E+00	1.235E-10	1.424E-10	1.657E-10	1.784E-10	1.940E-10	2.480E-
Th-228	Pu-240	1.000E+00	0.000E+00	7.869E-17	1.160E-16	1.815E-16	2.304E-16	3.098E-16	1.593E-
Th-228	U-236	1.000E+00	0.000E+00	1.175E-10	1.374E-10	1.618E-10	1.750E-10	1.913E-10	2.479E-
Th-228	∑S(j):		0.000E+00	1.175E-10	1.374E-10	1.618E-10	1.750E-10	1.913E-10	2.479E-
Sr-90	Sr-90	1.000E+00	4.230E+00	3.361E-01	2.025E-01	9.473E-02	5.708E-02	2.670E-02	1.064E-

BRF(i) is the branch fraction of the parent nuclide.

RESCALC.EXE execution time = 3.61 seconds

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Dose Conversion Factor (and Related) Parameter Summary
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.720E+00	6.720E+00	DCF
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Pa-231	1.280E+00	1.280E+00	DCF
B-1	Pu-239	4.290E-01	4.290E-01	DCF
B-1	Pu-240	4.290E-01	4.290E-01	DCF
B-1	Ra-228+D	5.080E-03	5.080E-03	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
B-1	Th-228+D	3.450E-01	3.450E-01	DCF
B-1	Th-232	1.640E+00	1.640E+00	DCF
B-1	U-235+D	1.230E-01	1.230E-01	DCF
B-1	U-236	1.250E-01	1.250E-01	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.480E-02	DCF
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Pa-231	1.060E-02	1.060E-02	DCF
D-1	Pu-239	3.540E-03	3.540E-03	DCF
D-1	Pu-240	3.540E-03	3.540E-03	DCF
D-1	Ra-228+D	1.440E-03	1.440E-03	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-1	Th-228+D	8.080E-04	8.080E-04	DCF
D-1	Th-232	2.730E-03	2.730E-03	DCF
D-1	U-235+D	2.670E-04	2.670E-04	DCF
D-1	U-236	2.690E-04	2.690E-04	DCF
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF
D-34				
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	Pu-239 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Pu-239 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Pu-239 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF
D-34				
D-34	Pu-240 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Pu-240 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Pu-240 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF
D-34				
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF
D-34				

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-34				
D-34	Th-228+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Th-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Th-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF
D-34				
D-34	U-236 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF
D-34	U-236 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF
D-34	U-236 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIO
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIO
D-5				
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIO
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIO
D-5				
D-5	Pu-239 , fish	3.000E+01	3.000E+01	BIO
D-5	Pu-239 , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Pu-240 , fish	3.000E+01	3.000E+01	BIO
D-5	Pu-240 , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIO
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIO
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIO
D-5				
D-5	Th-232 , fish	1.000E+02	1.000E+02	BIO
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIO
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIO
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIO
D-5				

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
D-5	U-236 , fish	1.000E+01	1.000E+01	BIO
D-5	U-236 , crustacea and mollusks	6.000E+01	6.000E+01	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b If different
R011	Area of contaminated zone (m**2)	7.520E+02	1.000E+04	-
R011	Thickness of contaminated zone (m)	3.000E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	2.740E+01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	3.440E+00	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Pu-239	5.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Pu-240	5.000E-02	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	4.500E+00	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): U-236	5.000E-02	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Pu-239	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Pu-240	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): U-236	not used	0.000E+00	-
R013	Cover depth (m)	0.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	not used	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	1.660E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b If different
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.34
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Pu-239			
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	-
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	6.74
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Pu-240			
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	-
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	6.74
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.47
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for U-236			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.69
R016	Solubility constant	0.000E+00	0.000E+00	not

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R016	Distribution coefficients for daughter Ac-227			
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	-
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	6.69
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Pa-231			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.69
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Ra-228			
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	-
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.92
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Th-228			
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	-
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.24
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter Th-232			
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	-
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.24
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for daughter U-235			
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	-
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.69
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	5.100E+02	5.100E+02	-
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	1.000E+00	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	752.00 square meters	Cs-137	3.440E+00
Thickness:	0.30 meters	Pu-239	5.000E-02
Cover Depth:	0.00 meters	Pu-240	5.000E-02
		Sr-90	4.500E+00
		U-236	5.000E-02

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	8.761E+00	1.944E+00	1.504E+00	1.033E+00	8.067E-01	5.590E-01	4.461E-04	1.70
M(t):	5.841E-01	1.296E-01	1.003E-01	6.885E-02	5.378E-02	3.726E-02	2.974E-05	1.13

Maximum TDOSE(t): 8.761E+00 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	6.254E+00	0.7138	1.263E-05	0.0000	0.000E+00	0.0000	7.872E-02	0.0090	0.000E+00	0.0000
Pu-239	8.278E-06	0.0000	2.497E-03	0.0003	0.000E+00	0.0000	2.050E-03	0.0002	0.000E+00	0.0000
Pu-240	4.256E-06	0.0000	2.497E-03	0.0003	0.000E+00	0.0000	2.050E-03	0.0002	0.000E+00	0.0000
Sr-90	5.819E-02	0.0066	6.636E-04	0.0001	0.000E+00	0.0000	2.315E+00	0.2643	0.000E+00	0.0000
U-236	5.954E-06	0.0000	7.182E-04	0.0001	0.000E+00	0.0000	3.846E-04	0.0000	0.000E+00	0.0000
Total	6.312E+00	0.7204	6.389E-03	0.0007	0.000E+00	0.0000	2.398E+00	0.2738	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.837E+00	0.9446	3.717E-06	0.0000	0.000E+00	0.0000	1.931E-02	0.0099	0.000E+00	0.0000
Pu-239	8.005E-06	0.0000	2.411E-03	0.0012	0.000E+00	0.0000	1.649E-03	0.0008	0.000E+00	0.0000
Pu-240	4.093E-06	0.0000	2.402E-03	0.0012	0.000E+00	0.0000	1.642E-03	0.0008	0.000E+00	0.0000
Sr-90	1.893E-03	0.0010	2.154E-05	0.0000	0.000E+00	0.0000	6.264E-02	0.0322	0.000E+00	0.0000
U-236	1.552E-06	0.0000	1.871E-04	0.0001	0.000E+00	0.0000	8.349E-05	0.0000	0.000E+00	0.0000
Total	1.839E+00	0.9456	5.025E-03	0.0026	0.000E+00	0.0000	8.532E-02	0.0439	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.436E+00	0.9545	2.911E-06	0.0000	0.000E+00	0.0000	1.452E-02	0.0096	0.000E+00	0.0000
Pu-239	7.948E-06	0.0000	2.394E-03	0.0016	0.000E+00	0.0000	1.572E-03	0.0010	0.000E+00	0.0000
Pu-240	4.061E-06	0.0000	2.383E-03	0.0016	0.000E+00	0.0000	1.564E-03	0.0010	0.000E+00	0.0000
Sr-90	9.539E-04	0.0006	1.085E-05	0.0000	0.000E+00	0.0000	3.029E-02	0.0201	0.000E+00	0.0000
U-236	1.186E-06	0.0000	1.430E-04	0.0001	0.000E+00	0.0000	6.124E-05	0.0000	0.000E+00	0.0000
Total	1.437E+00	0.9552	4.934E-03	0.0033	0.000E+00	0.0000	4.801E-02	0.0319	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	9.914E-01	0.9600	2.017E-06	0.0000	0.000E+00	0.0000	9.428E-03	0.0091	0.000E+00	0.0000
Pu-239	7.861E-06	0.0000	2.369E-03	0.0023	0.000E+00	0.0000	1.458E-03	0.0014	0.000E+00	0.0000
Pu-240	4.014E-06	0.0000	2.355E-03	0.0023	0.000E+00	0.0000	1.449E-03	0.0014	0.000E+00	0.0000
Sr-90	3.408E-04	0.0003	3.882E-06	0.0000	0.000E+00	0.0000	1.016E-02	0.0098	0.000E+00	0.0000
U-236	7.924E-07	0.0000	9.551E-05	0.0001	0.000E+00	0.0000	3.835E-05	0.0000	0.000E+00	0.0000
Total	9.917E-01	0.9603	4.826E-03	0.0047	0.000E+00	0.0000	2.253E-02	0.0218	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	7.738E-01	0.9592	1.580E-06	0.0000	0.000E+00	0.0000	7.054E-03	0.0087	0.000E+00	0.0000
Pu-239	7.802E-06	0.0000	2.352E-03	0.0029	0.000E+00	0.0000	1.383E-03	0.0017	0.000E+00	0.0000
Pu-240	3.982E-06	0.0000	2.337E-03	0.0029	0.000E+00	0.0000	1.374E-03	0.0017	0.000E+00	0.0000
Sr-90	1.715E-04	0.0002	1.956E-06	0.0000	0.000E+00	0.0000	4.889E-03	0.0061	0.000E+00	0.0000
U-236	6.056E-07	0.0000	7.298E-05	0.0001	0.000E+00	0.0000	2.800E-05	0.0000	0.000E+00	0.0000
Total	7.740E-01	0.9594	4.766E-03	0.0059	0.000E+00	0.0000	1.473E-02	0.0183	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	5.327E-01	0.9530	1.095E-06	0.0000	0.000E+00	0.0000	4.546E-03	0.0081	0.000E+00	0.0000
Pu-239	7.708E-06	0.0000	2.328E-03	0.0042	0.000E+00	0.0000	1.273E-03	0.0023	0.000E+00	0.0000
Pu-240	3.936E-06	0.0000	2.310E-03	0.0041	0.000E+00	0.0000	1.263E-03	0.0023	0.000E+00	0.0000
Sr-90	6.119E-05	0.0001	6.994E-07	0.0000	0.000E+00	0.0000	1.626E-03	0.0029	0.000E+00	0.0000
U-236	4.047E-07	0.0000	4.875E-05	0.0001	0.000E+00	0.0000	1.739E-05	0.0000	0.000E+00	0.0000
Total	5.328E-01	0.9531	4.688E-03	0.0084	0.000E+00	0.0000	8.726E-03	0.0156	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	1.882E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.370E-18	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.882E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.370E-18	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.329E-11	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.343E-09	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.289E-09	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.965E-15	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.722E-13	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.706E-09	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	5.831E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.332E-12	0.0000	0.000E+00	0.0000
Pu-240	9.391E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.756E-11	0.0000	0.000E+00	0.0000
Sr-90	8.095E-08	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	3.494E-09	0.0000	0.000E+00	0.0000
U-236	4.288E-04	0.9613	0.000E+00	0.0000	0.000E+00	0.0000	1.717E-05	0.0385	0.000E+00	0.0000
Total	4.289E-04	0.9615	0.000E+00	0.0000	0.000E+00	0.0000	1.717E-05	0.0385	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pu-239	9.719E-12	0.0570	0.000E+00	0.0000	0.000E+00	0.0000	3.888E-13	0.0023	0.000E+00	0.0000
Pu-240	1.447E-10	0.8491	0.000E+00	0.0000	0.000E+00	0.0000	5.788E-12	0.0340	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-236	9.434E-12	0.0554	0.000E+00	0.0000	0.000E+00	0.0000	3.819E-13	0.0022	0.000E+00	0.0000
Total	1.638E-10	0.9615	0.000E+00	0.0000	0.000E+00	0.0000	6.558E-12	0.0385	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
				DSR(j,t) (mrem/yr)/(pCi/g)						
Cs-137	Cs-137	1.000E+00		1.843E+00	5.401E-01	4.220E-01	2.912E-01	2.272E-01	1.563E-01	2.131E-
Pu-239	Pu-239	1.000E+00		2.222E-01	2.080E-01	2.052E-01	2.011E-01	1.984E-01	1.944E-01	4.686E-
Pu-239	U-235	1.000E+00		2.207E-10	1.204E-08	1.295E-08	1.387E-08	1.427E-08	1.463E-08	6.463E-
Pu-239	Pa-231	1.000E+00		6.106E-15	1.865E-11	2.228E-11	2.653E-11	2.857E-11	3.060E-11	1.494E-
Pu-239	Ac-227	1.000E+00		8.126E-17	7.650E-12	9.956E-12	1.307E-11	1.483E-11	1.696E-11	4.170E-
Pu-239	∑DSR(j)			2.222E-01	2.080E-01	2.052E-01	2.011E-01	1.984E-01	1.944E-01	4.807E-
Pu-240	Pu-240	1.000E+00		2.221E-01	2.071E-01	2.042E-01	1.998E-01	1.970E-01	1.928E-01	4.579E-
Pu-240	U-236	1.000E+00		4.716E-10	2.485E-08	2.651E-08	2.804E-08	2.861E-08	2.900E-08	1.953E-
Pu-240	Th-232	1.000E+00		7.945E-20	3.903E-16	5.189E-16	7.248E-16	8.673E-16	1.085E-15	4.341E-
Pu-240	Ra-228	1.000E+00		2.736E-20	3.168E-15	4.387E-15	6.359E-15	7.722E-15	9.780E-15	1.702E-
Pu-240	Th-228	1.000E+00		2.717E-21	4.073E-15	5.784E-15	8.602E-15	1.058E-14	1.359E-14	2.374E-
Pu-240	∑DSR(j)			2.221E-01	2.071E-01	2.042E-01	1.998E-01	1.970E-01	1.928E-01	6.532E-
Sr-90	Sr-90	1.000E+00		5.331E-01	1.452E-02	7.036E-03	2.365E-03	1.141E-03	3.809E-04	1.877E-
U-236	U-236	1.000E+00		3.201E-02	8.006E-03	6.066E-03	4.001E-03	3.031E-03	1.999E-03	8.919E-
U-236	Th-232	1.000E+00		7.992E-12	4.341E-10	4.679E-10	5.032E-10	5.193E-10	5.356E-10	3.264E-
U-236	Ra-228	1.000E+00		3.688E-12	4.105E-09	4.518E-09	4.933E-09	5.107E-09	5.258E-09	1.352E-
U-236	Th-228	1.000E+00		4.503E-13	5.644E-09	6.308E-09	6.991E-09	7.289E-09	7.565E-09	1.898E-
U-236	∑DSR(j)			3.201E-02	8.006E-03	6.066E-03	4.001E-03	3.031E-03	1.999E-03	8.919E-

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

Nuclide (i)	t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	
Cs-137		8.140E+00	2.778E+01	3.554E+01	5.151E+01	6.602E+01	9.595E+01	7.040E+11	*
Pu-239		6.750E+01	7.213E+01	7.310E+01	7.459E+01	7.561E+01	7.716E+01	3.120E+08	*
Pu-240		6.752E+01	7.244E+01	7.347E+01	7.506E+01	7.614E+01	7.779E+01	2.296E+08	
Sr-90		2.814E+01	1.033E+03	2.132E+03	6.342E+03	1.315E+04	3.938E+04	7.993E+08	*
U-236		4.686E+02	1.874E+03	2.473E+03	3.749E+03	4.949E+03	7.505E+03	1.682E+03	*

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Cs-137	3.440E+00	0.000E+00	1.843E+00	8.140E+00	1.843E+00	8.140E+00
Pu-239	5.000E-02	0.000E+00	2.222E-01	6.750E+01	2.222E-01	6.750E+01
Pu-240	5.000E-02	0.000E+00	2.221E-01	6.752E+01	2.221E-01	6.752E+01
Sr-90	4.500E+00	0.000E+00	5.331E-01	2.814E+01	5.331E-01	2.814E+01
U-236	5.000E-02	0.000E+00	3.201E-02	4.686E+02	3.201E-02	4.686E+02

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	3.440E+00	1.013E+00	7.931E-01	5.496E-01	4.304E-01	2.982E-01	2.241E-
Pu-239	Pu-239	1.000E+00	5.000E-02	4.827E-02	4.793E-02	4.743E-02	4.710E-02	4.660E-02	4.049E-
U-235	Pu-239	1.000E+00	0.000E+00	1.325E-09	1.428E-09	1.533E-09	1.580E-09	1.624E-09	1.522E-
Pa-231	Pu-239	1.000E+00	0.000E+00	5.519E-13	6.779E-13	8.412E-13	9.318E-13	1.041E-12	1.224E-
Ac-227	Pu-239	1.000E+00	0.000E+00	1.344E-13	1.767E-13	2.348E-13	2.684E-13	3.105E-13	3.969E-
Pu-240	Pu-240	1.000E+00	5.000E-02	4.809E-02	4.771E-02	4.716E-02	4.679E-02	4.625E-02	3.956E-
U-236	Pu-240	1.000E+00	0.000E+00	3.973E-08	4.279E-08	4.591E-08	4.727E-08	4.857E-08	4.482E-
U-236	U-236	1.000E+00	5.000E-02	1.303E-02	9.954E-03	6.649E-03	5.081E-03	3.394E-03	1.564E-
U-236	∑S(j):		5.000E-02	1.303E-02	9.954E-03	6.649E-03	5.081E-03	3.394E-03	1.568E-
Th-232	Pu-240	1.000E+00	0.000E+00	6.021E-17	8.059E-17	1.135E-16	1.365E-16	1.719E-16	6.418E-
Th-232	U-236	1.000E+00	0.000E+00	6.776E-11	7.338E-11	7.942E-11	8.227E-11	8.534E-11	9.113E-
Th-232	∑S(j):		0.000E+00	6.776E-11	7.338E-11	7.942E-11	8.227E-11	8.534E-11	9.113E-
Ra-228	Pu-240	1.000E+00	0.000E+00	4.082E-17	5.721E-17	8.436E-17	1.036E-16	1.337E-16	5.399E-
Ra-228	U-236	1.000E+00	0.000E+00	5.355E-11	5.955E-11	6.599E-11	6.905E-11	7.233E-11	7.860E-
Ra-228	∑S(j):		0.000E+00	5.355E-11	5.955E-11	6.599E-11	6.905E-11	7.233E-11	7.860E-
Th-228	Pu-240	1.000E+00	0.000E+00	3.668E-17	5.259E-17	7.922E-17	9.826E-17	1.281E-16	5.346E-
Th-228	U-236	1.000E+00	0.000E+00	5.152E-11	5.799E-11	6.495E-11	6.825E-11	7.180E-11	7.860E-
Th-228	∑S(j):		0.000E+00	5.152E-11	5.799E-11	6.495E-11	6.825E-11	7.180E-11	7.860E-
Sr-90	Sr-90	1.000E+00	4.500E+00	1.461E-01	7.361E-02	2.632E-02	1.326E-02	4.743E-03	5.270E-

BRF(i) is the branch fraction of the parent nuclide.

RESCALC.EXE execution time = 3.99 seconds

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Dose Conversion Factor (and Related) Parameter Summary
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-34	Food transfer factors:			
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b (If different
R011	Area of contaminated zone (m**2)	2.000E-01	1.000E+04	-
R011	Thickness of contaminated zone (m)	3.160E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	5.000E-01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	1.960E+01	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	1.960E+01	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R013	Cover depth (m)	1.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	1.660E+00	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	2.300E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.24
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.07
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	not used	5.100E+02	-
R018	Contamination fraction of drinking water	not used	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	not used	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	0.20 square meters	Cs-137	1.960E+01
Thickness:	0.32 meters	Sr-90	1.960E+01
Cover Depth:	1.00 meters		

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	1.793E-06	1.186E-06	1.092E-06	9.650E-07	8.885E-07	1.312E-04	2.229E-04	1.53
M(t):	1.195E-07	7.909E-08	7.282E-08	6.434E-08	5.924E-08	8.749E-06	1.486E-05	1.02

Maximum TDOSE(t): 2.872E-03 mrem/yr at t = 129.6 ± 0.3 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.296E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	6.149E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	1.999E-03	0.6961	0.000E+00	0.0000
Sr-90	2.040E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.723E-04	0.3037	0.000E+00	0.0000
Total	6.150E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	2.871E-03	0.9998	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.296E+02 years

Water Dependent Pathways

Radio-Nuclide Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.793E-06	0.9999	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	1.802E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.793E-06	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.186E-06	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	3.196E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.186E-06	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.092E-06	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	2.262E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.092E-06	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	9.650E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	1.346E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	9.650E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	8.885E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	9.526E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	8.885E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	7.850E-07	0.0060	0.000E+00	0.0000	0.000E+00	0.0000	6.306E-05	0.4806	0.000E+00	0.0000
Sr-90	5.671E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.738E-05	0.5135	0.000E+00	0.0000
Total	7.850E-07	0.0060	0.000E+00	0.0000	0.000E+00	0.0000	1.304E-04	0.9940	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.505E-07	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	2.222E-04	0.9969	0.000E+00	0.0000
Sr-90	5.618E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.379E-07	0.0024	0.000E+00	0.0000
Total	1.505E-07	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	2.227E-04	0.9993	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.418E-09	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.418E-09	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.366E-10	0.8874	1.084E-15	0.0000	0.000E+00	0.0000	1.733E-11	0.1126	0.000E+00	0.0000
Sr-90	5.576E-26	0.0000	2.548E-27	0.0000	0.000E+00	0.0000	2.279E-23	0.0000	0.000E+00	0.0000
Total	1.366E-10	0.8874	1.084E-15	0.0000	0.000E+00	0.0000	1.733E-11	0.1126	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.945E-25	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.945E-25	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,t) (mrem/yr)/(pCi/g) t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	9.147E-08	6.053E-08	5.573E-08	4.924E-08	4.533E-08	3.258E-06	1.134E-
Sr-90	Sr-90	1.000E+00	9.192E-12	1.631E-12	1.154E-12	6.869E-13	4.860E-13	3.438E-06	2.762E-

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	
Cs-137	1.640E+08	2.478E+08	2.692E+08	3.047E+08	3.309E+08	4.605E+06	1.322E+06	
Sr-90	1.632E+12	9.198E+12	1.300E+13	2.184E+13	3.086E+13	4.363E+06	5.431E+08	*

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 129.6 ± 0.3 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Cs-137	1.960E+01	141.2 ± 0.3	1.070E-04	1.401E+05	1.020E-04	1.470E+05
Sr-90	1.960E+01	117.9 ± 0.2	5.139E-05	2.919E+05	4.450E-05	3.371E+05

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)		DOSE(j,t), mrem/yr					
			t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	1.793E-06	1.186E-06	1.092E-06	9.650E-07	8.885E-07	6.385E-05	2.224E-
Sr-90	Sr-90	1.000E+00	1.802E-10	3.196E-11	2.262E-11	1.346E-11	9.526E-12	6.738E-05	5.413E-

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)		S(j,t), pCi/g					
			t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	1.960E+01	5.895E+00	4.636E+00	3.233E+00	2.542E+00	1.773E+00	1.451E-
Sr-90	Sr-90	1.000E+00	1.960E+01	1.284E+00	7.447E-01	3.288E-01	1.906E-01	8.416E-02	1.552E-

BRF(i) is the branch fraction of the parent nuclide.

RESCALC.EXE execution time = 0.71 seconds

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Time = 6.000E+01 11
Time = 7.500E+01 12
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Dose Conversion Factor (and Related) Parameter Summary
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-34	Food transfer factors:			
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b (If different
R011	Area of contaminated zone (m**2)	2.000E-01	1.000E+04	-
R011	Thickness of contaminated zone (m)	3.160E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	5.000E-01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	1.960E+01	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	1.960E+01	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R013	Cover depth (m)	0.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	not used	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	2.300E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.24
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.07
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	not used	5.100E+02	-
R018	Contamination fraction of drinking water	not used	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	not used	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	0.20 square meters	Cs-137	1.960E+01
Thickness:	0.32 meters	Sr-90	1.960E+01
Cover Depth:	0.00 meters		

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	1.492E+01	1.804E+00	1.275E+00	7.877E-01	5.831E-01	3.799E-01	4.367E-04	0.00
M(t):	9.945E-01	1.203E-01	8.502E-02	5.251E-02	3.888E-02	2.533E-02	2.912E-05	0.00

Maximum TDOSE(t): 1.492E+01 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	3.725E+00	0.2497	2.956E-05	0.0000	0.000E+00	0.0000	4.726E-01	0.0317	0.000E+00	0.0000
Sr-90	2.617E-02	0.0018	1.196E-03	0.0001	0.000E+00	0.0000	1.069E+01	0.7168	0.000E+00	0.0000
Total	3.751E+00	0.2515	1.225E-03	0.0001	0.000E+00	0.0000	1.117E+01	0.7485	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.093E+00	0.6058	8.889E-06	0.0000	0.000E+00	0.0000	1.196E-01	0.0663	0.000E+00	0.0000
Sr-90	1.672E-03	0.0009	7.834E-05	0.0000	0.000E+00	0.0000	5.897E-01	0.3269	0.000E+00	0.0000
Total	1.094E+00	0.6067	8.723E-05	0.0000	0.000E+00	0.0000	7.093E-01	0.3932	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	8.548E-01	0.6702	6.991E-06	0.0000	0.000E+00	0.0000	9.052E-02	0.0710	0.000E+00	0.0000
Sr-90	9.644E-04	0.0008	4.542E-05	0.0000	0.000E+00	0.0000	3.291E-01	0.2580	0.000E+00	0.0000
Total	8.557E-01	0.6710	5.241E-05	0.0000	0.000E+00	0.0000	4.196E-01	0.3290	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	5.911E-01	0.7504	4.875E-06	0.0000	0.000E+00	0.0000	5.942E-02	0.0754	0.000E+00	0.0000
Sr-90	4.224E-04	0.0005	2.005E-05	0.0000	0.000E+00	0.0000	1.368E-01	0.1736	0.000E+00	0.0000
Total	5.915E-01	0.7509	2.493E-05	0.0000	0.000E+00	0.0000	1.962E-01	0.2490	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	4.621E-01	0.7924	3.834E-06	0.0000	0.000E+00	0.0000	4.479E-02	0.0768	0.000E+00	0.0000
Sr-90	2.436E-04	0.0004	1.163E-05	0.0000	0.000E+00	0.0000	7.599E-02	0.1303	0.000E+00	0.0000
Total	4.623E-01	0.7929	1.546E-05	0.0000	0.000E+00	0.0000	1.208E-01	0.2071	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	3.192E-01	0.8403	2.674E-06	0.0000	0.000E+00	0.0000	2.920E-02	0.0769	0.000E+00	0.0000
Sr-90	1.066E-04	0.0003	5.134E-06	0.0000	0.000E+00	0.0000	3.137E-02	0.0826	0.000E+00	0.0000
Total	3.193E-01	0.8405	7.807E-06	0.0000	0.000E+00	0.0000	6.057E-02	0.1594	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	4.195E-04	0.9605	2.261E-09	0.0000	0.000E+00	0.0000	1.722E-05	0.0394	0.000E+00	0.0000
Sr-90	3.829E-10	0.0000	9.784E-12	0.0000	0.000E+00	0.0000	4.170E-08	0.0001	0.000E+00	0.0000
Total	4.195E-04	0.9605	2.270E-09	0.0000	0.000E+00	0.0000	1.726E-05	0.0395	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.805E-09	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.805E-09	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t=	DSR(j,t) (mrem/yr)/(pCi/g) 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00		2.142E-01	6.186E-02	4.823E-02	3.319E-02	2.586E-02	1.778E-02	2.228E-
Sr-90	Sr-90	1.000E+00		5.470E-01	3.018E-02	1.684E-02	7.000E-03	3.890E-03	1.606E-03	2.240E-

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	
Cs-137	7.004E+01	2.425E+02	3.110E+02	4.519E+02	5.800E+02	8.438E+02	6.733E+05	*
Sr-90	2.742E+01	4.971E+02	8.907E+02	2.143E+03	3.856E+03	9.339E+03	6.697E+09	*

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Cs-137	1.960E+01	0.000E+00	2.142E-01	7.004E+01	2.142E-01	7.004E+01
Sr-90	1.960E+01	0.000E+00	5.470E-01	2.742E+01	5.470E-01	2.742E+01

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	4.198E+00	1.212E+00	9.453E-01	6.505E-01	5.069E-01	3.484E-01	4.367E-
Sr-90	Sr-90	1.000E+00	1.072E+01	5.915E-01	3.301E-01	1.372E-01	7.625E-02	3.148E-02	4.390E-

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	1.960E+01	5.895E+00	4.636E+00	3.233E+00	2.542E+00	1.773E+00	1.451E-
Sr-90	Sr-90	1.000E+00	1.960E+01	1.284E+00	7.447E-01	3.288E-01	1.906E-01	8.416E-02	1.552E-

BRF(i) is the branch fraction of the parent nuclide.

RESCALC.EXE execution time = 0.69 seconds

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Dose Conversion Factor (and Related) Parameter Summary
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-34	Food transfer factors:			
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b (If different
R011	Area of contaminated zone (m**2)	3.000E-01	1.000E+04	-
R011	Thickness of contaminated zone (m)	3.160E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	5.300E-01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	1.420E+01	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	1.420E+01	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R013	Cover depth (m)	0.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	not used	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	2.300E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.24
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.07
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	not used	5.100E+02	-
R018	Contamination fraction of drinking water	not used	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	not used	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b If different
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	0.30 square meters	Cs-137	1.420E+01
Thickness:	0.32 meters	Sr-90	1.420E+01
Cover Depth:	0.00 meters		

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	1.081E+01	1.307E+00	9.240E-01	5.707E-01	4.225E-01	2.752E-01	3.164E-04	0.00
M(t):	7.205E-01	8.713E-02	6.160E-02	3.805E-02	2.817E-02	1.835E-02	2.109E-05	0.00

Maximum TDOSE(t): 1.081E+01 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	2.699E+00	0.2497	2.239E-05	0.0000	0.000E+00	0.0000	3.424E-01	0.0317	0.000E+00	0.0000
Sr-90	1.896E-02	0.0018	9.057E-04	0.0001	0.000E+00	0.0000	7.747E+00	0.7168	0.000E+00	0.0000
Total	2.718E+00	0.2514	9.281E-04	0.0001	0.000E+00	0.0000	8.089E+00	0.7485	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	7.917E-01	0.6058	6.735E-06	0.0000	0.000E+00	0.0000	8.666E-02	0.0663	0.000E+00	0.0000
Sr-90	1.211E-03	0.0009	5.935E-05	0.0000	0.000E+00	0.0000	4.273E-01	0.3269	0.000E+00	0.0000
Total	7.929E-01	0.6067	6.609E-05	0.0001	0.000E+00	0.0000	5.139E-01	0.3932	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	6.193E-01	0.6702	5.296E-06	0.0000	0.000E+00	0.0000	6.558E-02	0.0710	0.000E+00	0.0000
Sr-90	6.987E-04	0.0008	3.441E-05	0.0000	0.000E+00	0.0000	2.384E-01	0.2580	0.000E+00	0.0000
Total	6.200E-01	0.6710	3.971E-05	0.0000	0.000E+00	0.0000	3.040E-01	0.3290	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	4.282E-01	0.7504	3.693E-06	0.0000	0.000E+00	0.0000	4.305E-02	0.0754	0.000E+00	0.0000
Sr-90	3.060E-04	0.0005	1.519E-05	0.0000	0.000E+00	0.0000	9.907E-02	0.1736	0.000E+00	0.0000
Total	4.286E-01	0.7509	1.889E-05	0.0000	0.000E+00	0.0000	1.421E-01	0.2490	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	3.348E-01	0.7924	2.904E-06	0.0000	0.000E+00	0.0000	3.245E-02	0.0768	0.000E+00	0.0000
Sr-90	1.765E-04	0.0004	8.809E-06	0.0000	0.000E+00	0.0000	5.506E-02	0.1303	0.000E+00	0.0000
Total	3.350E-01	0.7928	1.171E-05	0.0000	0.000E+00	0.0000	8.750E-02	0.2071	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	2.313E-01	0.8403	2.025E-06	0.0000	0.000E+00	0.0000	2.116E-02	0.0769	0.000E+00	0.0000
Sr-90	7.726E-05	0.0003	3.889E-06	0.0000	0.000E+00	0.0000	2.273E-02	0.0826	0.000E+00	0.0000
Total	2.313E-01	0.8405	5.915E-06	0.0000	0.000E+00	0.0000	4.388E-02	0.1594	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	3.039E-04	0.9605	1.713E-09	0.0000	0.000E+00	0.0000	1.248E-05	0.0394	0.000E+00	0.0000
Sr-90	2.774E-10	0.0000	7.412E-12	0.0000	0.000E+00	0.0000	3.021E-08	0.0001	0.000E+00	0.0000
Total	3.039E-04	0.9605	1.720E-09	0.0000	0.000E+00	0.0000	1.251E-05	0.0395	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.386E-09	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.386E-09	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,t) (mrem/yr)/(pCi/g) t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	2.142E-01	6.186E-02	4.823E-02	3.319E-02	2.586E-02	1.778E-02	2.228E-
Sr-90	Sr-90	1.000E+00	5.470E-01	3.018E-02	1.684E-02	7.000E-03	3.890E-03	1.606E-03	2.245E-

*Branch Fraction is the cumulative factor for the j'th principal radionuclide daughter: CUMBRF(j
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	
Cs-137	7.004E+01	2.425E+02	3.110E+02	4.519E+02	5.800E+02	8.438E+02	6.733E+05	*
Sr-90	2.742E+01	4.970E+02	8.907E+02	2.143E+03	3.856E+03	9.339E+03	6.681E+09	*

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Cs-137	1.420E+01	0.000E+00	2.142E-01	7.004E+01	2.142E-01	7.004E+01
Sr-90	1.420E+01	0.000E+00	5.470E-01	2.742E+01	5.470E-01	2.742E+01

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	3.041E+00	8.784E-01	6.849E-01	4.713E-01	3.672E-01	2.524E-01	3.164E-
Sr-90	Sr-90	1.000E+00	7.767E+00	4.285E-01	2.391E-01	9.940E-02	5.524E-02	2.281E-02	3.188E-

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	1.420E+01	4.271E+00	3.359E+00	2.342E+00	1.842E+00	1.284E+00	1.051E-
Sr-90	Sr-90	1.000E+00	1.420E+01	9.305E-01	5.395E-01	2.382E-01	1.381E-01	6.097E-02	1.124E-

BRF(i) is the branch fraction of the parent nuclide.

RESCALC.EXE execution time = 1.71 seconds

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Dose Conversion Factor (and Related) Parameter Summary
File: FGR 13 Morbidity

Menu	Parameter	Current Value	Default	Pa
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF
D-34	Food transfer factors:			
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34				
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIO
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO
D-5				
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIO
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIO

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used b (If different
R011	Area of contaminated zone (m**2)	3.000E-01	1.000E+04	-
R011	Thickness of contaminated zone (m)	3.160E-01	2.000E+00	-
R011	Length parallel to aquifer flow (m)	5.300E-01	1.000E+02	-
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	-
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	-
R011	Times for calculations (yr)	5.000E+01	1.000E+00	-
R011	Times for calculations (yr)	6.000E+01	3.000E+00	-
R011	Times for calculations (yr)	7.500E+01	1.000E+01	-
R011	Times for calculations (yr)	8.500E+01	3.000E+01	-
R011	Times for calculations (yr)	1.000E+02	1.000E+02	-
R011	Times for calculations (yr)	3.000E+02	3.000E+02	-
R011	Times for calculations (yr)	1.000E+03	1.000E+03	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R011	Times for calculations (yr)	not used	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Cs-137	1.420E+01	0.000E+00	-
R012	Initial principal radionuclide (pCi/g): Sr-90	1.420E+01	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	-
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	-
R013	Cover depth (m)	1.000E+00	0.000E+00	-
R013	Density of cover material (g/cm**3)	1.660E+00	1.500E+00	-
R013	Cover depth erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Density of contaminated zone (g/cm**3)	2.300E+00	1.500E+00	-
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	-
R013	Contaminated zone total porosity	3.300E-01	4.000E-01	-
R013	Contaminated zone field capacity	2.400E-01	2.000E-01	-
R013	Contaminated zone hydraulic conductivity (m/yr)	5.000E+03	1.000E+01	-
R013	Contaminated zone b parameter	4.900E+00	5.300E+00	-
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	-
R013	Humidity in air (g/m**3)	not used	8.000E+00	-
R013	Evapotranspiration coefficient	4.600E-01	5.000E-01	-
R013	Precipitation (m/yr)	1.230E+00	1.000E+00	-
R013	Irrigation (m/yr)	2.600E-01	2.000E-01	-
R013	Irrigation mode	overhead	overhead	-
R013	Runoff coefficient	2.000E-01	2.000E-01	-
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	-
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	-
R014	Density of saturated zone (g/cm**3)	1.660E+00	1.500E+00	-
R014	Saturated zone total porosity	3.300E-01	4.000E-01	-
R014	Saturated zone effective porosity	2.400E-01	2.000E-01	-
R014	Saturated zone field capacity	2.000E-01	2.000E-01	-
R014	Saturated zone hydraulic conductivity (m/yr)	2.000E+04	1.000E+02	-
R014	Saturated zone hydraulic gradient	4.800E-03	2.000E-02	-
R014	Saturated zone b parameter	4.900E+00	5.300E+00	-
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	-
R014	Well pump intake depth (m below water table)	1.800E+01	1.000E+01	-
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	-
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R015	Number of unsaturated zone strata	1	1	-
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	-
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	-
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	-
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	-
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	-
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	-
R016	Distribution coefficients for Cs-137			
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	-
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.24
R016	Solubility constant	0.000E+00	0.000E+00	not
R016	Distribution coefficients for Sr-90			
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	-
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	-
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.07
R016	Solubility constant	0.000E+00	0.000E+00	not
R017	Inhalation rate (m**3/yr)	2.000E+04	8.400E+03	-
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	-
R017	Exposure duration	3.000E+01	3.000E+01	-
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	-
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	-
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	-
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	-
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows ci
R017	Radii of shape factor array (used if FS = -1):			
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	-
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	-
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	-
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R017	Fractions of annular areas within AREA:			
R017	Ring 1	not used	1.000E+00	-
R017	Ring 2	not used	2.732E-01	-
R017	Ring 3	not used	0.000E+00	-
R017	Ring 4	not used	0.000E+00	-
R017	Ring 5	not used	0.000E+00	-
R017	Ring 6	not used	0.000E+00	-
R017	Ring 7	not used	0.000E+00	-
R017	Ring 8	not used	0.000E+00	-
R017	Ring 9	not used	0.000E+00	-
R017	Ring 10	not used	0.000E+00	-
R017	Ring 11	not used	0.000E+00	-
R017	Ring 12	not used	0.000E+00	-
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	-
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	-
R018	Milk consumption (L/yr)	not used	9.200E+01	-
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	-
R018	Fish consumption (kg/yr)	not used	5.400E+00	-
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	-
R018	Soil ingestion rate (g/yr)	6.570E+01	3.650E+01	-
R018	Drinking water intake (L/yr)	not used	5.100E+02	-
R018	Contamination fraction of drinking water	not used	1.000E+00	-
R018	Contamination fraction of household water	not used	1.000E+00	-
R018	Contamination fraction of livestock water	not used	1.000E+00	-
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	-
R018	Contamination fraction of aquatic food	not used	5.000E-01	-
R018	Contamination fraction of plant food	2.000E-01	-1	-
R018	Contamination fraction of meat	not used	-1	-
R018	Contamination fraction of milk	not used	-1	-
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	-
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	-
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	-
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	-
R019	Livestock soil intake (kg/day)	not used	5.000E-01	-
R019	Mass loading for foliar deposition (g/m**3)	1.000E-05	1.000E-04	-
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	-
R019	Depth of roots (m)	9.000E-01	9.000E-01	-
R019	Drinking water fraction from ground water	not used	1.000E+00	-
R019	Household water fraction from ground water	not used	1.000E+00	-
R019	Livestock water fraction from ground water	not used	1.000E+00	-
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	-
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	-
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	-
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	-
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	-
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	-
R19B	Growing Season for Fodder (years)	not used	8.000E-02	-
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	-
R19B	Translocation Factor for Fodder	not used	1.000E+00	-
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	-
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	-
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	-
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	-
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	-
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	-
C14	Fraction of vegetation carbon from air	not used	9.800E-01	-
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	-
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	-
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	-
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	-
C14	Fraction of grain in milk cow feed	not used	2.000E-01	-
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	-
STOR	Storage times of contaminated foodstuffs (days):			
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	-
STOR	Leafy vegetables	1.000E+00	1.000E+00	-
STOR	Milk	1.000E+00	1.000E+00	-
STOR	Meat and poultry	2.000E+01	2.000E+01	-
STOR	Fish	7.000E+00	7.000E+00	-
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	-
STOR	Well water	1.000E+00	1.000E+00	-
STOR	Surface water	1.000E+00	1.000E+00	-
STOR	Livestock fodder	4.500E+01	4.500E+01	-
R021	Thickness of building foundation (m)	not used	1.500E-01	-
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	-
R021	Total porosity of the cover material	not used	4.000E-01	-
R021	Total porosity of the building foundation	not used	1.000E-01	-
R021	Volumetric water content of the cover material	not used	5.000E-02	-
R021	Volumetric water content of the foundation	not used	3.000E-02	-
R021	Diffusion coefficient for radon gas (m/sec):			
R021	in cover material	not used	2.000E-06	-
R021	in foundation material	not used	3.000E-07	-
R021	in contaminated zone soil	not used	2.000E-06	-
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	-
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	-
R021	Height of the building (room) (m)	not used	2.500E+00	-
R021	Building interior area factor	not used	0.000E+00	-
R021	Building depth below ground surface (m)	not used	-1.000E+00	-
R021	Emanating power of Rn-222 gas	not used	2.500E-01	-
R021	Emanating power of Rn-220 gas	not used	1.500E-01	-
TITL	Number of graphical time points	32	---	-
TITL	Maximum number of integration points for dose	17	---	-

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used b (If different
TITL	Maximum number of integration points for risk	257	---	-

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	0.30 square meters	Cs-137	1.420E+01
Thickness:	0.32 meters	Sr-90	1.420E+01
Cover Depth:	1.00 meters		

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	1.00
TDOSE(t):	1.299E-06	8.595E-07	7.914E-07	6.992E-07	6.437E-07	9.507E-05	1.615E-04	1.11
M(t):	8.660E-08	5.730E-08	5.276E-08	4.661E-08	4.292E-08	6.338E-06	1.077E-05	7.43

Maximum TDOSE(t): 2.081E-03 mrem/yr at t = 129.6 ± 0.3 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.296E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	4.455E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	1.448E-03	0.6961	0.000E+00	0.0000
Sr-90	1.478E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.319E-04	0.3037	0.000E+00	0.0000
Total	4.455E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	2.080E-03	0.9998	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.296E+02 years

Water Dependent Pathways

Radio-Nuclide Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.299E-06	0.9999	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	1.305E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.299E-06	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	8.595E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	2.316E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	8.595E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 5.000E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	7.914E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	1.639E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	7.914E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 6.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	6.991E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	9.754E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	6.992E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 7.500E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	6.437E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	6.902E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	6.437E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 8.500E+01 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	5.687E-07	0.0060	0.000E+00	0.0000	0.000E+00	0.0000	4.569E-05	0.4806	0.000E+00	0.0000
Sr-90	4.108E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.882E-05	0.5135	0.000E+00	0.0000
Total	5.687E-07	0.0060	0.000E+00	0.0000	0.000E+00	0.0000	9.451E-05	0.9940	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	1.090E-07	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	1.610E-04	0.9969	0.000E+00	0.0000
Sr-90	4.070E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.897E-07	0.0024	0.000E+00	0.0000
Total	1.090E-07	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	1.614E-04	0.9993	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.625E-09	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.625E-09	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground		Inhalation		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	9.896E-11	0.8874	8.211E-16	0.0000	0.000E+00	0.0000	1.255E-11	0.1126	0.000E+00	0.0000
Sr-90	4.040E-26	0.0000	1.930E-27	0.0000	0.000E+00	0.0000	1.651E-23	0.0000	0.000E+00	0.0000
Total	9.896E-11	0.8874	8.211E-16	0.0000	0.000E+00	0.0000	1.255E-11	0.1126	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) an
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-Nuclide	Water		Fish		Radon		Plant		Meat	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.262E-25	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.262E-25	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t=	DSR(j,t) (mrem/yr)/(pCi/g) 0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00		9.147E-08	6.053E-08	5.573E-08	4.924E-08	4.533E-08	3.258E-06	1.134E-
Sr-90	Sr-90	1.000E+00		9.192E-12	1.631E-12	1.154E-12	6.869E-13	4.860E-13	3.438E-06	2.763E-

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

Nuclide (i)	t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+02	
Cs-137		1.640E+08	2.478E+08	2.692E+08	3.047E+08	3.309E+08	4.605E+06	1.322E+06	
Sr-90		1.632E+12	9.198E+12	1.300E+13	2.184E+13	3.086E+13	4.363E+06	5.429E+08	*

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 129.6 ± 0.3 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Cs-137	1.420E+01	141.2 ± 0.3	1.070E-04	1.401E+05	1.020E-04	1.470E+05
Sr-90	1.420E+01	117.9 ± 0.2	5.139E-05	2.919E+05	4.450E-05	3.371E+05

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	1.299E-06	8.595E-07	7.914E-07	6.991E-07	6.437E-07	4.626E-05	1.611E-
Sr-90	Sr-90	1.000E+00	1.305E-10	2.316E-11	1.639E-11	9.754E-12	6.902E-12	4.882E-05	3.923E-

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g						
		t=	0.000E+00	5.000E+01	6.000E+01	7.500E+01	8.500E+01	1.000E+02	3.000E+
Cs-137	Cs-137	1.000E+00	1.420E+01	4.271E+00	3.359E+00	2.342E+00	1.842E+00	1.284E+00	1.051E-
Sr-90	Sr-90	1.000E+00	1.420E+01	9.305E-01	5.395E-01	2.382E-01	1.381E-01	6.097E-02	1.124E-

BRF(i) is the branch fraction of the parent nuclide.

RESCALC.EXE execution time = 0.92 seconds

Attachment 3
Waste Control Forms and UST Disposal Documentation

Radioactive Waste Control Form

RWCF # 49431

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BLDG 811 Box # 304 Ext. 2423 Life/Guest # X6263

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 4.05 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Misc Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	10 %	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	80 %
PPE	10 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs/137	378 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 6/3/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. J Kurt Life # 22144 Date 6/6/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

6/3/05 Filled Yt

Radioactive Waste Control Form RWCF# 49430

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 303 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Asphalt from D yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	2 %	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	98 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/31/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.03 @ contact 0.01 @ 12"	— NA — @ contact — @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zondy Life # J8949 Date 5-31-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49429

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BLDG 811 Box # 302 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Asphalt from D yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	2 %	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	98 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/31/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0-03 @ contact 0.01 @ 12"	~~_____~~ NA ~~_____~~ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zonca Life # J8949 Date 5/31/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic _ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 49428

GENERAL INFORMATION Generator (print) Alan Danford (Weston)

Department/Division BIDG 611 Box 301 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 94000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Asphalt from D pad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/27/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.03 @ contact 0.01 @ 12"	— @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. C Frank Life # 08949 Date 5/27/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 49439

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BLDG 811 BOX 300 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type ______ Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Asphalt from D yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	10 %	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	90 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity:
(attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards No

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 5/27/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.03 @ contact 0.01 @ 12"	— @ N/A contact — @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U8949 Date 5/27/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______
Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF# 49411

GENERAL INFORMATION Generator (print) Alan Darford (Wesken)

Department/Division BIDG 811 Box# 299 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 22000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Misc Debris from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	5 %	glass	%	metal	5 %	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	5 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	µCi		µCi		µCi		µCi		µCi
Sr 90	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Darford Date 5/27/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.03 @ contact 0.01 @ 12"	N/A @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zaruba Life # U8949 Date 5/27/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49410

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Bat# 298 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 35000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: S.O.I + Misc Debris from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	2 %	glass	%	metal	%	soil	96 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	2 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 5/27/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.03 @ contact 0.01 @ 12"	___ @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # V8949 Date 5-27-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

Radioactive Waste Control Form RWCF# 49409

GENERAL INFORMATION Generator (print) Alan Danford [Wesken]

Department/Division Bldg 811 Box # 2907 Ext. 2483 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Misc Debris from AB yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	2 %	glass	%	metal	%	soil	96 %	rubber	%
water	%	sludge	%	cloth	%	concrete	2 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/27/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.03 @ contact 0.01 @ 12"	— @ contact N/A — @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zomple Life # U8949 Date 5/27/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

Radioactive Waste Control Form

RWCF# 49408

#3

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BIDG 811 Box #296 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + 1 Drum from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	22 %	plastic	%	glass	%	metal	3 %	soil	95 %	rubber	%
water	63 %	sludge	%	cloth	%	concrete	2 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	µCi		µCi		µCi		µCi		µCi
Sr 90	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 2/26/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.02 @ contact 0.01 @ 12"	___ N/A ___ @ contact ___ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zamora Life # U8949 Date 5/26/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ **Waste Profile Number** _____

BNL F 2975C 11/01

5/26/05 1500

#16

Radioactive Waste Control Form RWCF# 49407

GENERAL INFORMATION Generator (print) Alan Dayford (Weskem)

Department/Division BIDG 811 Box 295 Ext. 2423 Life/Guest # K60063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Misc Debris Hoses, plastic, Metal

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	10 %	glass	%	metal	10 %	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	279 µCi		µCi		µCi		µCi		µCi
Sr 90	651 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dayford Date 5/26/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.02 @ contact 0.01 @ 12"	——— @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zonck Life # U8949 Date 5-26-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ **Waste Profile Number** _____

BNL F 2975C 11/01

5/26/05 1405

Radioactive Waste Control Form

RWCF# 49406

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BLDG 811 Box 294 Ext. 2423 Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	276 µCi		µCi		µCi		µCi		µCi
Sr 90	63 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☐ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☒ Material Balance ☐ Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/25/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Karina Hull Life # 22144 Date 5/26/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

0835 / 5.26.05

Radioactive Waste Control Form

RWCF # 49390

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BLDG 811 Box 293 Ext. _____ Life/Guest # X60637

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☐ NO ☑

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 35000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + PPE from AMB yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	95 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
PPE	5 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/24/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 5/24/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

0900 / 5.26.05

Radioactive Waste Control Form RWCF# 49389

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box# 292 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 765 (ft^3) WEIGHT OF WASTE: 35000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Wood from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	30 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs137	µCi		µCi		µCi		µCi		µCi
Sr 90	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NAI

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/24/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#6

Radioactive Waste Control Form RWCF# 49388

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box 291 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 33000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Debris from A+B

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	~~878~~ %	plastic	5 %	glass	%	metal	15 %	soil	75 %	rubber	%
water	~~631~~ %	sludge	%	cloth	%	concrete	%	resin	%	wood	5 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs137	278 µCi		µCi		µCi		µCi		µCi
Sr90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/24/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Karen Kuil Life # 22144 Date 5/24/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49387

GENERAL INFORMATION Generator (print) Alan Danford (Western)

Department/Division BIDG 811 Box# 290 Ext. 2423 Life/Guest #X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Wood from A+B yard and Vaults

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	40 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	355 µCi		µCi		µCi		µCi		µCi
Sr 90	907 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49386

GENERAL INFORMATION Generator (print) Alan Danford (weskem)

Department/Division BIDG 811 Box 286 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard Misc Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	10 %	glass	%	metal	%	soil	85 %	rubber	%
water	%	sludge	%	cloth	%	concrete	5 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	355 µCi		µCi		µCi		µCi		µCi
Sr 90	907 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Karen Kelly Life # 22144 Date 6/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49385

GENERAL INFORMATION Generator (print) Alan Donford (Wesker)

Department/Division BIDC 811 Box # 289 Ext. 2423 Life/Guest # 86063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☑

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Wood + Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	30 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	35 2780 µCi		µCi		µCi		µCi		µCi
Sr 90	90 0370 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Donford Date 5/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donna Fuller Life # 02144 Date 5/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 49383

#3

GENERAL INFORMATION Generator (print) Kelly Epperson

Department/Division BLDG 811 287 Ext. 2423 Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil - Debris from A/B Yard

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	4 %	glass	%	metal	1 %	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	5 %	resin	%	wood	10 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Epperson Date 5/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Ramon Hull Life # 22144 Date 5/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49382

File

GENERAL INFORMATION Generator (print) Kelly Epperson

Department/Division Bldg 811 2816 Ext. 2423 Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A/B yard excavation

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	278 µCi		µCi		µCi		µCi		µCi
Sr-90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy (S/W) ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Epp Date 5/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 5/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#6

Radioactive Waste Control Form

RWCF# 49381

GENERAL INFORMATION Generator (print) Alan Dantard (Wesken)

Department/Division BIDG 811 Box 285 [redacted] Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 5/20/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 5/20/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

loaded 5/19/05 #3

Radioactive Waste Control Form RWCF# 49155

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BIDG 811 Box 284 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 (ft³) WEIGHT OF WASTE: 38 000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Misc Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete 5	%	Asphalt resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	533 μCi		μCi		μCi		μCi		μCi
Sr 90	609 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/20/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. James Kell Life # 28144 Date 5/20/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Page ____ of ____

Radioactive Waste Inventory

RWCF # 49155

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
5/19/05	plastic			
	Hose			
	Stone Blend			
	Soil			
	sample Bottles			
	pipes			
	concrete			
	Re-bark			
	Empty Drum			

Has any hazardous waste been introduced to this waste? _____
If Yes please complete the Hazardous Waste Inventory Table.

Hazardous Waste Inventory

Hazardous component	How much?

Comments : _____

Signature: _____ 5/20/05
Generator Date

*definitions on back

Load 5/16-17/05 7+8

Radioactive Waste Control Form RWCF# 49154

GENERAL INFORMATION Generator (print) Alan Dorfman (Wesken)

Department/Division B/DG 811 Box # 283 Ext. 2427 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 36,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 9 Concrete Blocks from Vaults B3-A3 (8 from vault floor, 1 from valve pit)

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	100%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	83 µCi		µCi		µCi		µCi		µCi
Sr 90	787 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☐ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☑ Material Balance ☐ Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dorfman Date 5/17/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.07 @ contact .015 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Thomas Daly Life # 22860 Date 5/18/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

1-3

Radioactive Waste Control Form RWCF# 49153

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box 282 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Misc. Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	20 %	glass	%	metal	20 %	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	40 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/16/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Jaime Kuil Life # 22144 Date 5/16/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49152

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BLDG 911 Box# 281 Ext. 2423 Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Concrete from A+B yard and vaults 2 Empty Drums

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	40 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278	µCi		µCi		µCi		µCi		µCi	
Sr 90	631	µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/9/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.05 @ contact 0.01 @ 12"	~~@ contact~~ N/A ~~@ 12"~~
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zamb Life # U8949 Date 5/9/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#3

Radioactive Waste Control Form RWCF# 49151

GENERAL INFORMATION Generator (print) Alan Danford (Weston

Department/Division BIDG 811 Box # 280 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/5/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Hull Life # 22144 Date 5/5/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#8

Radioactive Waste Control Form RWCF# 49150

GENERAL INFORMATION Generator (print) Kelly Epperson (Weskem)

Department/Division BLDG 811 Box #279 Ext. 2423 Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll-Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil & Stone Blend from the BLDG 811 A/B Tank Yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	982 µCi		µCi		µCi		µCi		µCi
Sr-90	2229 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Epperson Date 5/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .06 @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#10

Radioactive Waste Control Form RWCF# 49149

GENERAL INFORMATION Generator (print) Kelly Epperson (Weskem)

Department/Division BLDG 811 Box # 278 Ext. 2423 Life/Guest # 60063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll-Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil & Stone Blend from the A & B yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	2926 µCi		µCi		µCi		µCi		µCi
Sr-90	1664 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards > 100 µR/hr

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Epperson Date 5/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.5 @ contact 0.1 @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

Radioactive Waste Control Form

RWCF# 49148 #6

GENERAL INFORMATION Generator (print) Alan Danford (Wesker)

Department/Division BIDG 811 Box #277 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 5 Drums of Soil from A+B yard 5 drums contain scabble and vac Dust and tubes emptied in soil.

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	15 %	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
radsorb	15 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	2233 µCi		µCi		µCi		µCi		µCi
Sr 90	5069 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 5/3/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.7 @ contact .2 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Diana Kuh Life # 22144 Date 5/3/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#8

Radioactive Waste Control Form RWCF# 49147

GENERAL INFORMATION Generator (print) Alan Dayton (Weskem)

Department/Division ERD BLDG 811 Box # 276 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 40000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + concrete from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	65 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
concete	35 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	533 µCi		µCi		µCi		µCi		µCi
Sr 90	1209 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dayton Date 5/3/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. J. Kull Life # 22144 Date 5/3/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#9

Radioactive Waste Control Form RWCF# 49146

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division Bldg 811 Box* 275 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 36000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	355 µCi		µCi		µCi		µCi		µCi
Sr 90	807 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/20/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 4/21/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#3

Radioactive Waste Control Form RWCF# 49145

GENERAL INFORMATION Generator (print) Alan Dantes (Weston)

Department/Division BIDG 811 Box # 274 Ext. 2423 Life/Guest # X60063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: M's Debris from Dpad + A + B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	80 %	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	20 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	878 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dantes Date 4/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Hull Life # 22141 Date 4/26/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Page 1 of (#3

Radioactive Waste Inventory

RWCF # 49145

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
4/18/05	20 Bags of Insulation			
	1 Pre Hepa filter			
	6 large Rolls of Insulation			
	1 Bag of Mixed Trash wood plastic metal			
	12 Bags of PPE			
4/26/05	7 Bags of PPE			
4/27/05	2 Bags of PPE			
	Pre filter			
	Hose from Hepa			

Has any hazardous waste been introduced to this waste? _____
If Yes please complete the Hazardous Waste Inventory Table.

Hazardous Waste Inventory

Hazardous component	How much?

Comments : _____

Signature: Alan Dalton
Generator

4/18/05
Date

*definitions on back

#3

Radioactive Waste Control Form RWCF# 49144

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box 273 Ext. 2423 Life/Guest # X60063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1902 µCi		µCi		µCi		µCi		µCi
Sr 90	4317 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Trustan Life # R6004 Date 4-18-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49143

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box 272 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	50 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	114 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurtan Life # Q6004 Date 4-18-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

(#5)

Radioactive Waste Control Form RWCF# 49142

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box 271 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	533 µCi		µCi		µCi		µCi		µCi
Sr 90	1209 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/14/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Dunton Life # Q6004 Date 9-14-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

3

Radioactive Waste Control Form RWCF# 49141

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 270 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad + A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	5476 µCi		µCi		µCi		µCi		µCi
Sr 90	12430 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/14/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurista Life # Q6004 Date 4-14-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49139

GENERAL INFORMATION Generator (print) Alan Dantes (Weskem

Department/Division BIDG # 811 Bx # 269 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 1/1

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Asphalt + soil from Dpad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	5 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	95 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	50 µCi		µCi		µCi		µCi		µCi
Sr 90	114 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dantes Date 4/12/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurtan Life # Q6004 Date 4-12-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#10

Radioactive Waste Control Form

RWCF# 49138

GENERAL INFORMATION Generator (print) Alan Danford Cwosken

Department/Division BLDG 811 Box 268 Ext. 2423 Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	355 µCi		µCi		µCi		µCi		µCi
Sr 90	807 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dcf Date 4/6/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jewett Life # Q6004 Date 4-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#6

Radioactive Waste Control Form

RWCF # 49137

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BLDG 811 Box #267 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278	µCi		µCi		µCi		µCi		µCi	
Sr 90	631	µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/6/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Thomas Kuk Life # 22144 Date 4/7/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#5

Radioactive Waste Control Form RWCF# 49136

GENERAL INFORMATION Generator (print) Alan Dan Ford CWC3Kem

Department/Division BIDG 811 Box 266 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	30 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Ford Date 4/6/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kuel Life # 22144 Date 4/7/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

#3

RWCF# 49133

GENERAL INFORMATION Generator (print) Alan Dantzed (Weskem)

Department/Division BIDG 811 Box 265 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	355 µCi		µCi		µCi		µCi		µCi
Sr 90	807 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dantzed Date 4/5/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carl Anthony Fuentes Life # 06004 Date 4-6-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#5

Radioactive Waste Control Form RWCF# 49131

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 264 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 425 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	405 µCi		µCi		µCi		µCi		µCi
Sr 90	920 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/5/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetten Life # Q6004 Date 4-5-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#7

Radioactive Waste Control Form RWCF# 49130

GENERAL INFORMATION Generator (print) Alan Danford (Weston)

Department/Division BIDG 911 Box 263 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 2 super sacks of concrete
1 super sacks of Re Bar + 14 pieces of pipe.

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	50 %	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	565 µCi		µCi		µCi		µCi		µCi
Sr 90	1283 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.07 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Feel Life # 32144 Date 4/5/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Dump 6/1/05

Radioactive Waste Inventory

RWCF # 49130

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
4/4/05	2 super sacks			
"	1 1/2 super sacks full of Re Bar			
"	14 pieces of pipe			
4/8/05	1 1/2 super sacks full of Rebar			
4/13/05	5 1yd super sacks of concrete			

Has any hazardous waste been introduced to this waste? _____
If Yes please complete the Hazardous Waste Inventory Table.

Hazardous Waste Inventory

Hazardous component	How much?

Comments : _____

Signature: _____ Date: ___/___/___
Generator

*definitions on back

#6

Radioactive Waste Control Form RWCF# 49129

GENERAL INFORMATION Generator (print) Alan Dastoor (Weskem)

Department/Division BIDC E11 Bux #262 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A-B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	228 µCi		µCi		µCi		µCi		µCi
Sr 90	517 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dastoor Date 4/5/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Sweton Life # Q6004 Date 4-5-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#7

Radioactive Waste Control Form RWCF# 49128

GENERAL INFORMATION Generator (print) Alan Dunford (Weston

Department/Division BIDG 611 Box # 261 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 35,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	378 µCi		µCi		µCi		µCi		µCi
Sr 90	231 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dunford Date 4/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Linda Kuck Life # 22144 Date 4/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

#3

Radioactive Waste Control Form RWCF# 49127

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 260 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1209 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	2744 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/1/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.4 @ contact .15 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurtas Life # Q6004 Date 4-1-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#10

Radioactive Waste Control Form RWCF# 49126

GENERAL INFORMATION Generator (print) Alan Dantord (Weskem

Department/Division BLDG 811 Box # 259 Ext. 2423 Life/Guest # x60[illegible]3

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	880 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	1940 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dantord Date 4/1/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurestan Life # Q6004 Date 4-1-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF# 49125 #5

GENERAL INFORMATION Generator (print) Alan Danford (weskem)

Department/Division B1DC 811 Box # 258 Ext. 2423 Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 39000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard + D pad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	2243 µCi		µCi		µCi		µCi		µCi
Sr 90	5091 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑A
Material Balance ☐
Scaling Factors ☑B

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/1/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.3 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Diana Kuhl Life # 2244 Date 4/1/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

6#

Radioactive Waste Control Form RWCF# 49124

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 257 Ext. 2423 Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad + A+B yard phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	[100] %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	~~2273~~ µCi	405	µCi		µCi		µCi		µCi
Sr 90	~~3097~~ µCi	920	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☐ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☒ Material Balance ☐ Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/29/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donna Krull Life # 22144 Date 4/1/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

10

Radioactive Waste Control Form RWCF# 49132

GENERAL INFORMATION Generator (print) Alan Danford & Westem

Department/Division BLDG 811 Box# 256 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from A+B yard

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	μCi		μCi		μCi		μCi		μCi
Sr 90	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/5/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.102 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Keith Life # 32140 Date 4/5/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#1 S

Radioactive Waste Control Form RWCF# 49101

GENERAL INFORMATION Generator (print) Alan

Department/Division BIDG 811 Box 2545 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 S (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from Dpad phase II

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	10 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	278 μCi		μCi		μCi		μCi		μCi
Sr 90	631 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/28/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 32144 Date 3/28/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Inventory

Box #255

RWCF # 49101

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
3/25/05	3x3 Diamond cover metal			
	snow fence			
	7 pieces wood			
	plastic sheeting			
	3 fence post			
	1 piece of metal			
	soil			

Has any hazardous waste been introduced to this waste? _____
If Yes please complete the Hazardous Waste Inventory Table.

Hazardous Waste Inventory

Hazardous component	How much?

Comments : _____

Signature: _____ 3/29/05
Generator Date

*definitions on back

#10

Radioactive Waste Control Form RWCF# 49100

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BLDG 811 Box# ~~857~~ 254 Ext. 2423 Life/Guest # 16063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 3800 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from Dpool phase II

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	228 μCi		μCi		μCi		μCi		μCi
Sr 90	631 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 3/28/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	~~.01~~ N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22141 Date 3/28/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic ___ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

Radioactive Waste Control Form

RWCF# 49099

#3 7

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BIDG 911 Box 253 Ext. 2423 Life/Guest #

Dept. Responsible for Waste: ERD Acct. # Accumulation Area Bldg. # Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from D pad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/28/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Kevin Kell Life # 23144 Date 3/28/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date

Waste Management Division Storage Location Life #

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes:

Packaging Category: Compactible Non-Compactible Pathological WAC Designation:

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code:

DOT Hazard Class Waste Profile Number

#3

Radioactive Waste Control Form RWCF# 49098

GENERAL INFORMATION Generator (print) Alan Danford (Weston)

Department/Division B1DG 811 Box# 252 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☐ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☒ Material Balance ☐ Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/24/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Ron Kerr Life # 22144 Date 3/24/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#6

Radioactive Waste Control Form RWCF# 49097

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BIDG 811 Box # 251 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Box # 251 Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + concrete from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	1 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi	
Sr 90	631 µCi		µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.07 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurtan Life # Q6004 Date 3-23-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#10

Radioactive Waste Control Form

RWCF# 49096

GENERAL INFORMATION Generator (print) Alan Danford (wesken)

Department/Division BLDG 811 Box #250 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	278 μCi		μCi		μCi		μCi		μCi
Sr 90	631 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jinetan Life # Q6004 Date 3-23-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

Radioactive Waste Control Form

RWCF # 49003 #8

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BIDG 811 Box # 249 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 435 (ft^3) WEIGHT OF WASTE: 38006 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from D pad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	98 %	rubber	%
water	%	sludge	%	cloth	%	concrete	2 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurentas Life # Q6004 Date 3-23-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF# 49091

GENERAL INFORMATION Generator (print) Alan Danford (wesken)

Department/Division BIDG 811 Box #248 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi	
Sr 90	631 µCi		µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Gunter Life # 26004 Date 3-23-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#7

Radioactive Waste Control Form RWCF# 49090

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BIDG 811 Box# 247 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278	µCi		µCi		µCi		µCi		µCi	
Sr 90	631	µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☑
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA.

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/22/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Sweeton Life # Q6004 Date 3-23-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49089

GENERAL INFORMATION Generator (print) Alan Dosford Weston

Department/Division B/DG 811 Box #246 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 39000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpond + 12 pieces of pipe from Vault 5 PHASE II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	2 %	glass	%	metal	3 %	soil	95 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	278 µCi		µCi		µCi		µCi		µCi
Sr-90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dosford Date 3/22/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Kuli Life # 32144 Date 3/22/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Page ____ of ____

Radioactive Waste Inventory

RWCF # 49089 Box #286

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
3/22/05	12 pipes size Reduced			

Has any hazardous waste been introduced to this waste? _____
If Yes please complete the Hazardous Waste Inventory Table.

Hazardous Waste Inventory

Hazardous component	How much?

Comments : _____

Signature: _____ ____/____/____
Generator Date

*definitions on back

#10

Radioactive Waste Control Form RWCF# 49088

GENERAL INFORMATION Generator (print) Alan Penfold (Weskem)

Department/Division BIDG 811 Box #245 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Penfold Date 3/16/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. C R Zamora Life # V 8949 Date 3-16-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49087

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BIDG 811 Box # 244 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # 405 Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/16/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurestan Life # Q6004 Date 3-16-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

Radioactive Waste Control Form RWCF# 49086

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BIDG 811 Bux 243 Ext. _____ Life/Guest # K6023

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: S.S.I from Dpad Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs137	278 µCi		µCi		µCi		µCi		µCi	
Sr 90	631 µCi		µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/16/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U8949 Date 3/16/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

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Radioactive Waste Control Form

RWCF# 49085

GENERAL INFORMATION Generator (print) Alan Danford (weskem)

Department/Division BLDG 811 Box # 242 Ext. ______ Life/Guest # X6065

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	.278 µCi		µCi		µCi		µCi		µCi
Sr 90	.031 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/16/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.22 @ contact .01 @ 12"	NA @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. C R Zand Life # U8949 Date 3/16/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

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Radioactive Waste Control Form RWCF# 49084

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 241 Ext. 2423 Life/Guest # X6263

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	276 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☐ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☑ Material Balance ☐ Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/16/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zamora Life # V8949 Date 3/16/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

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Radioactive Waste Control Form

RWCF # 49083

GENERAL INFORMATION Generator (print) Alan Danford Weskem

Department/Division BIDG 811 Box # 240 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpod Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	651 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/15/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zondy Life # 08949 Date 3/16/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49082

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG Box # 239 Ext. 2423 Life/Guest # 6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 3700 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dept

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	4.78 µCi		µCi		µCi		µCi		µCi		µCi
Sr 90	6.31 µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ½

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/15/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. James Kuil Life # 22144 Date 3/15/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49039

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 238 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpod Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	~~100~~ 98 %	rubber	%
water	%	sludge	%	cloth	%	concrete	2 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/15/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Xavier Kill Life # 22144 Date 3/15/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49038

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BLDG 611 Box # 237 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: S.I from Dpad Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/15/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kerl Life # 22144 Date 3/15/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49037

GENERAL INFORMATION Generator (print) Alan Danford (Wesken)

Department/Division BIDG 811 Box # 236 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	.72 µCi		µCi		µCi		µCi		µCi
Sr 90	1.31 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/15/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 22144 Date 3/15/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49036

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 235 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/15/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Keith Life # 20144 Date 3/15/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49035

GENERAL INFORMATION Generator (print) Alan Danford (Weskem)

Department/Division BIDG 811 Box # 2304 Ext. 2423 Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 39000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date _____

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Rina Kuk Life # 22144 Date 3/15/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible PathologicalWAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49034

GENERAL INFORMATION Generator (print) Alan Dorford

Department/Division BLDG 811 Box # 2303 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 125 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	878 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/8/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Tweten Life # Q6004 Date 3-8-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#8

Radioactive Waste Control Form RWCF# 49033

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BIDG 811 Box 232 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/8/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Tweten Life # Q6004 Date 3-8-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49032

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BIDG 811 Box 231 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: FRD Acct. # _____ Accumulation Area Bldg. # ___ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38900 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	754 μCi		μCi		μCi		μCi		μCi
Sr 90	1712 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/8/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurtan Life # Q6004 Date 3-8-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF# 49031

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BIDG 811 Box* 230 Ext. _____ Life/Guest # X60063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38600 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	279	µCi		µCi		µCi		µCi		µCi	
Sr 90	63	µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/7/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Caroline Fenton Life # 260004 Date 3-8-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

#6

Radioactive Waste Control Form

RWCF# 49030

GENERAL INFORMATION Generator (print) Alan Dorfman

Department/Division BIDG 811 Box # 229 Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 4105 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	10 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	2243 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr-90	5091 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dorfman Date 3/7/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.3 @ contact .1 @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurstan Life # 06014 Date 3-8-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49029

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BIDG 811 Box #228 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 4105 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	305 µCi		µCi		µCi		µCi		µCi		µCi
Sr 90	700 µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/7/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetten Life # Q6004 Date 3-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49028

GENERAL INFORMATION Generator (print) Alan Dunford

Department/Division BDG 811 Box 227 Ext. ____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Dpod Soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	250 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dunford Date 3/7/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetten Life # Q6004 Date 3-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

Radioactive Waste Control Form RWCF# 49027

GENERAL INFORMATION Generator (print) Alan Dantzler

Department/Division BIDG 811 Box # 22C Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Dpad Soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/7/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<2 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # Q6004 Date 3-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49026

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division B1DG 811 Box # 225 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 35000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/7/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # Q6004 Date 3-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

#1

Radioactive Waste Control Form RWCF# 49025

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD 811 project Box # 224 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs^{137}	278 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr^{90}	1031 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurestan Life # Q6004 Date 3-4-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49024

GENERAL INFORMATION Generator (print) Alan Daniel

Department/Division ERD 811 Project Box # 223 Ext. _____ Life/Guest # X6043

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	1 %	soil	99 100 AD %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	631 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Daniel Date 3/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juostas Life # Q6004 Date 3-4-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49023

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD 811 project Box # 222 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	270 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	631 µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juneau Life # Q6007 Date 3-4-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#2

Radioactive Waste Control Form RWCF# 49022

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division 811 Yard Box #221 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: B PAD soil

Physical State (check only one): Solid ☐ Liquid ☑ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	278 µCi		µCi		µCi		µCi		µCi
Sr 90	1631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 3/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetan Life # Q6004 Date 3-4-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49021

GENERAL INFORMATION Generator (print) Kelly Epperson

Department/Division ERD BLDG 811 Phase II Ext. 2923 Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 105 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D-Pad Excavation

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	— %	plastic	— %	glass	— %	metal	— %	soil	100 %	rubber	— %
water	— %	sludge	— %	cloth	— %	concrete	— %	resin	— %	wood	— %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	278 µCi		µCi		µCi		µCi		µCi
Sr-90	631 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Epper Date 2/28/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jenkins Life # Q6004 Date 2-28-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49020

#2

GENERAL INFORMATION Generator (print) Kelly Epperson

Department/Division ERD Bldg 811 #219 Ext. _____ Life/Guest # G16961

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D Pad excavation

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	– %	plastic	– %	glass	– %	metal	– %	soil	100 %	rubber	– %
water	– %	sludge	– %	cloth	– %	concrete	– %	resin	– %	wood	– %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs-137	500 μCi		μCi		μCi		μCi		μCi
Sr 90	1140 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Epperson Date 2/26/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 2/26/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

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Radioactive Waste Control Form RWCF# 49018

GENERAL INFORMATION Generator (print) Kelly Epperson

Department/Division ERD Bldg 811 Phase II - 217 Ext. 2423 Life/Guest # 06961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll-Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D-Pad excavation

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	~ %	plastic	~ %	glass	~ %	metal	~ %	soil	100 %	rubber	~ %
water	~ %	sludge	~ %	cloth	~ %	concrete	~ %	resin	~ %	wood	~ %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs-137	~500 μCi		μCi		μCi		μCi		μCi
Sr-90	500 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/26/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22174 Date 2/26/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

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Radioactive Waste Control Form RWCF# 49019

GENERAL INFORMATION Generator (print) Kelly Epperson

Department/Division ERD BLDG 311 Phase II-218 Ext. 2423 Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL-OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil From D-Pad excavation

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	~ %	plastic	~ %	glass	~ %	metal	~ %	soil	100 %	rubber	~ %
water	~ %	sludge	~ %	cloth	~ %	concrete	~ %	resin	~ %	wood	~ %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	500 µCi		µCi		µCi		µCi		µCi
Sr-90	500 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Epp Date 2/26/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Fuel Life # 22144 Date 2/26/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49017

GENERAL INFORMATION Generator (print) Alan Dorfman

Department/Division ERD BLDG 811 Box # 216 Ext. 2423 Life/Guest # X[illegible]

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad Excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	500 μCi	μCi	μCi	μCi	μCi	μCi	μCi
Sr 90	500 μCi	μCi	μCi	μCi	μCi	μCi	μCi
	μCi	μCi	μCi	μCi	μCi	μCi	μCi
	μCi	μCi	μCi	μCi	μCi	μCi	μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 2/25/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 2/25/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49016

GENERAL INFORMATION Generator (print) Alan Danforth

Department/Division ERD BLDG 811 Box # 215 Ext. 2428 Life/Guest # XC023

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpond excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	500 µCi		µCi		µCi		µCi		µCi
Sr 90	500 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/25/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.02 @ contact	.01 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 32144 Date 2/25/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF# 49015

GENERAL INFORMATION Generator (print) Alan Darfler

Department/Division ERD BLDG 811 Box # 214 Ext. 2423 Life/Guest # X6013

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 30000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	500 µCi		µCi		µCi		µCi		µCi
Sr 90	500 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 2/25

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 23144 Date 2/25/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF# 49014

GENERAL INFORMATION Generator (print) Alan Danton

Department/Division ERD Bldg 811 Rm # 213 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 400 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs137	500 µCi		µCi		µCi		µCi
Sr90	500 µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/25/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 2/25/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

#4

Radioactive Waste Control Form

RWCF# 49013

GENERAL INFORMATION Generator (print) Alan Danfor

Department/Division ERD Bldg 51 Box # 212 Ext. 2423 Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 505 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation Drums # 8 + 5 where added phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	~~100~~ 97 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Radsorb	3 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1000 µCi		µCi		µCi		µCi		µCi
Sr 90	1000 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.02 @ contact	.01 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 22144 Date 2/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

Radioactive Waste Control Form

RWCF# 49012 #3

GENERAL INFORMATION Generator (print) Alan Dotford

Department/Division ERD B/DC 811 Box # 211 Ext. 2423 Life/Guest # x6043

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpod excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	~~100~~ 97 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	3 %	wood	%
RA0028	3 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	500 µCi		µCi		µCi		µCi		µCi
Sr-90	500 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dotford Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 02144 Date 2/24/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#2

Radioactive Waste Control Form RWCF# 49011

GENERAL INFORMATION Generator (print) Alan Dastel

Department/Division ERD Bldg 811 Box 210 Ext. 2423 Life/Guest # x6213

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 425 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpod excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs 137	500 μCi		μCi		μCi		μCi		μCi
Sr-90	500 μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dastel Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Fuller Life # 22464 Date 2/24/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 49010

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD Bldg 511 Box # 209 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38006 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpond excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	500 µCi		µCi		µCi		µCi		µCi
Sr 90	500 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☑
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.03 @ contact	.02 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 22144 Date 2/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

Radioactive Waste Control Form RWCF# 48997

#9

GENERAL INFORMATION Generator (print) Alan Dastoor

Department/Division ERD BLDG 811 Bldg # 208 Ext. 2423 Life/Guest # X6036

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	500 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr-90	500 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dastoor Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Keck Life # 22144 Date 2/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 48996 1 3

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD 811 project Box 2007 Ext. 2423 Life/Guest # X6003

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	500 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	500 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donna Knoll Life # 20144 Date 2/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF # 48995 #2

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD 811 project Box #206 Ext. 2423 Life/Guest # xxxx3

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Sr 90	500 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Cs 137	500 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Fink Life # 22144 Date 2/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF # 48993

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD 811 yard Box 205 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38020 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad excavation Phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs137	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/21/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zondy Life # V 8949 Date 2-22-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF # 48992

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD 811 Yard Box 204 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40⁵ (ft³) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: S.P. from D Pad excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/21/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	NA @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zomer Life # J 8949 Date 2-22-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF # 48991

GENERAL INFORMATION Generator (print) Alan Denton

Department/Division ERD 510C 911 Box 323 Ext. 2423 Life/Guest # 60063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpool Excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/21/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Fenster Life # Q6004 Date 2-22-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

GENERAL INFORMATION Generator (print) Alan Dantuvi

Department/Division ERD BLDG 811 Box 203 Ext. 2423 Life/Guest # [illegible]

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil from Dam excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	100 µCi		µCi		µCi		µCi		µCi
Sr 90	100 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/21/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.06 @ contact	.03 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. Carol Ann Jenstrom Life # Q6024 Date 2-22-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

BNL F 2975C 11 /01

Radioactive Waste Control Form

RWCF # 48989

GENERAL INFORMATION Generator (print) [illegible]

Department/Division [illegible] 901 Ext. ____ Life/Guest # [illegible]

Dept. Responsible for Waste: [illegible] Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type ____ Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid [illegible] (ft^3) WEIGHT OF WASTE: [illegible] lbs.

RAD WASTE CHARACTERIZATION Describe Waste: [illegible]

[illegible]

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐yes ☐no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	[illegible] %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
[illegible]	[illegible] %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs-137	[illegible] μCi		μCi		μCi		μCi		μCi		μCi
[illegible]	[illegible] μCi		μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/ /05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.5 @ contact	<1 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # Q6004 Date 2-2-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

Radioactive Waste Control Form RWCF# 48988

GENERAL INFORMATION Generator (print) _____

Department/Division _____ Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date _____

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 06054 Date 2-22-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible PathologicalWAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF # 48987

GENERAL INFORMATION Generator (print) Alan Dan...

Department/Division ERD BLDG ... Box 199 Ext. ____ Life/Guest # X6 ...

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dry ... A-2 63 ...

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	97 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
[illegible]	3 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1500 µCi		µCi		µCi		µCi		µCi
Sr 90	1000 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/21/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.8 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 06004 Date 2-22-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF# 48986

GENERAL INFORMATION Generator (print) Alan Dayton

Department/Division ERD BLDG 811 Ext. _____ Life/Guest # 16063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dig and Dump GT 3.1 - A-3 #2

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	97 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
moisture	3 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	.0006 µCi		µCi		µCi		µCi		µCi
Co 60	.0004 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dayton Date 2/21/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juesten Life # Q6004 Date 2-22-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 48985

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD BLDG 811 Box # 197 Ext. _____ Life/Guest # 26063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1050 µCi		µCi		µCi		µCi		µCi		µCi
Sr 90	1000 µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Swetman Life # 06014 Date 2-18-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#3

Radioactive Waste Control Form RWCF# 48984

GENERAL INFORMATION Generator (print) Alan Dantzl

Department/Division ERD BIDG 811 Box #196 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs^{137}	1000 µCi	µCi	µCi	µCi	µCi	µCi
Sr^{-90}	1000 µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dantzl Date 2/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurepan Life # 06004 Date 2-28-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#2

Radioactive Waste Control Form RWCF# 48983

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division BIDG ERD 811B0X# 195 Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<1 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurentas Life # Q6004 Date 2-18-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

#7

Radioactive Waste Control Form RWCF # 48982

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD BLDG Box # 1954 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpad excavation

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	1 %	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/17/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<.08 @ contact <.03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Tweten Life # 26004 Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#2

Radioactive Waste Control Form RWCF# 48981

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD BLG 811 Box 193 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 39060 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	1 %	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr 90	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/17/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Dwetan Life # Q6004 Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

2-18-05 / 0945

#6

Radioactive Waste Control Form RWCF # 48980

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD BLDG 811 Box #19a Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	2 %	glass	%	metal	%	soil	98 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
Sr-90	1000 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/17/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.06 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetten Life # Q6004 Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF# 48979

GENERAL INFORMATION Generator (print) Alan Danford
Department/Division ERD BLDG 811 Box #191 Ext. 2423 Life/Guest # X6063
Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll OFF Return Package? YES ☑ NO ☐
VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	2 %	glass	%	metal	%	soil	98 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1000 µCi		µCi		µCi		µCi		µCi
Sr-90	1000 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/17/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.15 @ contact .04 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Caroline Tinetra Life # Q6004 Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______
Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______
Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______
DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

Radioactive Waste Control Form RWCF # 48978

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division ERD Bldg 811 Rm 190 Ext. 2423 Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D-pad excavation

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	4 %	glass	%	metal	%	soil	96 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1000 µCi		µCi		µCi		µCi		µCi
Sr-90	1020 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 2/17/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	605 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jenkins Life # X6004 Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 48977

GENERAL INFORMATION Generator (print) Alan DANFORD

Department/Division ERD BLDG 811 Box 199 Ext. 2423 Life/Guest # X60063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL FROM D-PAD EXCAVATION

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1000 µCi		µCi		µCi		µCi		µCi
Sr-90	1000 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/17/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # Q6003 Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

Radioactive Waste Control Form   RWCF # 48863

GENERAL INFORMATION Generator (print) Alan Danforl

Department/Division Box #188 Ext. ____ Life/Guest # X606

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll Off   Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3)   WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D pad

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	5 %	glass	%	metal	%	soil	95 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

see Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature]   Date 2/17/05

FOR FACILITY SUPPORT USE ONLY   List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature]   Life # Q6004   Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11 /01

2-17-05 / 1115

Radioactive Waste Control Form RWCF # 48862

GENERAL INFORMATION Generator (print) Melinda Soest c/o WESKEM LLC

Department/Division EMD BOX 811-187 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date 2/9/2005

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 811 BA Project Upland Soil PHASE II

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See	µCi		µCi		µCi
	µCi		µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 2/10/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	nr @ contact nr @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 09746 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#4

Radioactive Waste Control Form RWCF # 48855

GENERAL INFORMATION Generator (print) WESKEM, LLC. C/o Melinda B. Sa

Department/Division ERD BOX 811-186 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 2/9/200

WASTE QUANTITY Package Type Gaylord Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Misc. Yard Debris (PHASE I)

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
yard debris	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 2/9/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	1 @ contact .5 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kuk Life # 02144 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#8

Radioactive Waste Control Form RWCF# 48854

GENERAL INFORMATION Generator (print) MESKEM, LLC. % Melinda Sorest

Department/Division EMD Box 811 - 185 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 2/9/2005

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil (PHASE II)

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☒ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sorest Date 2/9/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Diana Keil Life # 22144 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48853 #10

GENERAL INFORMATION Generator (print) Weskem, LLC c/o Melinda Soest
Department/Division EMD Box 84-184 Ext. ____ Life/Guest # QL550
Dept. Responsible for Waste: EMD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date 2/9/2005

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐
VOLUME OF WASTE: Liquid ____ (gal.) OR Solid ____ (ft^3) WEIGHT OF WASTE: 45000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Concrete Debris (PHASE II)

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	95 %	rubber	%
water	%	sludge	%	cloth	%	concrete	5 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 2/9/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.5 @ contact	.1 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 22144 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____
Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	2.47		5.05E+01	2.04E+07
Strontium-90	5.61	2.27	1.15E+02	
Nickel-59	0.00	0.00	5.36E-02	
Europium-152	0.01	0.01	3.02E-01	
Europium-154	0.01	0.00	2.34E-01	
Europium-155	0.00	0.00	1.19E-03	
Radium-226	0.02	0.01	3.31E-01	
Americium-241	0.47	0.19	9.57E+00	
Thorium-228	0.00	0.00	9.91E-03	
Thorium-232	0.00	0.00	4.33E-02	
Lead-210	0.00	0.00	1.36E-02	
Lead-212	0.00	0.00	2.55E-02	
Uranium-234	0.01	0.00	1.86E-01	
Uranium-235	0.00	0.00	7.89E-03	
Uranium-238	0.01	0.00	1.38E-01	
Plutonium-238	0.00	0.00	8.05E-02	
Plutonium-239/240	0.38	0.15	7.68E+00	
Plutonium-241	0.00	0.00	2.63E-03	
Potassium-40	0.01	0.01	2.96E-01	
Actinium-228	0.00	0.00	6.90E-02	
Bismuth-212	0.00	0.00	1.32E-02	
Bismuth-214	0.00	0.00	3.13E-02	
Technicium-99	0.00	0.00	1.39E-02	
Strontium-89	0.00	0.00	9.29E-03	
Cobalt-60	0.04	0.02	8.47E-01	
Thorium-234	0.00	0.00	1.35E-02	
Sodium-22	0.00	0.00	8.16E-02	
	0.00	0.00	0.00E+00	
			1.85E+02	

45000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48852

#1

GENERAL INFORMATION Generator (print) WESKEM, LLC. Melinda Soest

Department/Division EHD BDY 811-183 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EHD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 2/9/2005

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil (PHASE II)

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi	See	µCi		µCi
	µCi		µCi		µCi	Attached	µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 2/9/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.06 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kul Life # 22144 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#7

Radioactive Waste Control Form RWCF# 48851

GENERAL INFORMATION Generator (print) Wilson, CCC. Melinda Soest

Department/Division EBD Box 811-182 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 2/9/2005

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 48000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Concrete Debris (PHASE II)

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	50 %	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards: None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 2/9/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .04 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig: Laura Kell Life # 22144 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		7.54E+02	2.18E+07
Strontium-90	78.64	2.27	1.71E+03	
Nickel-59	0.04	0.00	8.00E-01	
Europium-152	0.21	0.01	4.51E+00	
Europium-154	0.16	0.00	3.49E+00	
Europium-155	0.00	0.00	1.79E-02	
Radium-226	0.23	0.01	4.95E+00	
Americium-241	6.56	0.19	1.43E+02	
Thorium-228	0.01	0.00	1.48E-01	
Thorium-232	0.03	0.00	6.48E-01	
Lead-210	0.01	0.00	2.04E-01	
Lead-212	0.02	0.00	3.82E-01	
Uranium-234	0.13	0.00	2.78E+00	
Uranium-235	0.01	0.00	1.18E-01	
Uranium-238	0.09	0.00	2.06E+00	
Plutonium-238	0.06	0.00	1.20E+00	
Plutonium-239/240	5.26	0.15	1.15E+02	
Plutonium-241	0.00	0.00	3.93E-02	
Potassium-40	0.20	0.01	4.42E+00	
Actinium-228	0.05	0.00	1.03E+00	
Bismuth-212	0.01	0.00	1.97E-01	
Bismuth-214	0.02	0.00	4.67E-01	
Technicium-99	0.01	0.00	2.08E-01	
Strontium-89	0.01	0.00	1.39E-01	
Cobalt-60	0.58	0.02	1.27E+01	
Thorium-234	0.01	0.00	2.01E-01	
Sodium-22	0.06	0.00	1.22E+00	
	0.00	0.00	0.00E+00	
			2.77E+03	

48000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48850

GENERAL INFORMATION Generator (print) Alan Danford

Department/Division 811 Yard Roll Box * 181 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 8000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Absestos ACM

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	5 %	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	95 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

454	Cs-137 µCi	µCi	µCi	µCi	µCi	µCi	µCi
10	Co-60 µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi
	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan J Danford Date 2/4/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	42 @ contact 15 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 22144 Date 2/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 48692

GENERAL INFORMATION Generator (print) Weston 811 Tank Project

Department/Division Environmental Restoration Div Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type 2-55 gallon drums Return Package? YES ☐ NO ☒

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 15 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Material removed from tanks in 811 yard, liquid solidified/absorbed with Rad Sorb

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Radsorb	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	200	µCi		µCi		µCi		µCi		µCi	
Sr 90	400	µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	
		µCi		µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards > 100 µR/hr

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 3/2/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	40 @ contact 15 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. CR Zondy Life # V8949 Date 3/2/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

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Page 1 of ____

Radioactive Waste Inventory

RWCF # 48850 - 181
48692

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
2/4/05	15 pieces of Asbestos			
3/1/05	B1 @ 55 gallon Drums	B1 @ 50/20 B1 @ 80/20		
↓	Valve large			
↓	1 Bag of Mastic from tanks			

Has any hazardous waste been introduced to this waste? _____
If Yes please complete the Hazardous Waste Inventory Table.

Hazardous Waste Inventory

Hazardous component	How much?

Comments : _____

Signature: _____ ___/___/___
Generator Date

*definitions on back

Radioactive Waste Control Form RWCF # 48849 #5

GENERAL INFORMATION Generator (print) WESTON - SII Project

Department/Division BLDG 811 TANK PROJECT Ext. ____ Life/Guest # 069161

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF 180 Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 200 (ft^3) WEIGHT OF WASTE: 5,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: ____

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	– %	plastic	– %	glass	– %	metal	– %	soil	10 %	rubber	– %
water	– %	sludge	– %	cloth	– %	concrete	– %	resin	– %	wood	90 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	50 µCi		µCi		µCi		µCi		µCi
Sr-90	50 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Sally Epp Date 1/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 1/18/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF# 48848

GENERAL INFORMATION Generator (print) WESTON - 811 PROJECT

Department/Division BLDG 811 TANK PROJECT Ext. ____ Life/Guest # Q69691

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF 179 Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 40,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Concrete Soil from CLEAN 811 Vaults

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	— %	plastic	— %	glass	— %	metal	— %	soil	50 %	rubber	— %
water	— %	sludge	— %	cloth	— %	concrete	50 %	resin	— %	wood	— %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Pu 239/240	10 µCi	—	µCi		µCi		µCi	—	µCi
Cs 137	500 µCi	—	µCi		µCi		µCi	—	µCi
Sr-90	500 µCi	—	µCi		µCi	—	µCi		µCi
—	— µCi	—	µCi		µCi	—	µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Egan Date 01/18/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<1 @ contact 0.5 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 1/18/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic ___ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

Radioactive Waste Control Form RWCF # 48846 #2

GENERAL INFORMATION Generator (print) WESKEM, LLC

Department/Division ERD BOX 81-177 Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-Yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.* 3 MBS 1/13/05

Generator's Signature Melinda B. Sloat Date 1/14/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. MLC Life # 05746 Date 1/13/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48845 #6

GENERAL INFORMATION Generator (print) Wisbey, LLC.

Department/Division EMD BDY 811-176 Ext. _____ Life/Guest # Gross

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	10 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	Attached	µCi		µCi		µCi		µCi
	µCi		56.8 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 1/14/2005 mds 1/13/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .05 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. MLK Life # 03746 Date 1/13/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF# 48844 #5

GENERAL INFORMATION Generator (print) Miller, LLC.

Department/Division EHD BCX 811-175 Ext. _____ Life/Guest # Q455

Dept. Responsible for Waste: EHD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Metcoff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	10 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.* 3 mos 1/13/05

Generator's Signature Melinda B. Sorot Date 1/14/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	12 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # US746 Date 1/13/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48805

GENERAL INFORMATION Generator (print) NYSERDA, LLC.

Department/Division CMD BOX 811-174 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bollorf Return Package? YES [X] NO [ ]

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Sand | Concrete from D-pad.

Physical State (check only one): Solid [ ] Liquid [ ] Gas [ ] Is waste eligible for Decay-In-Storage? (Halflife <90 days) [ ] yes [ ] no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	5 %	resin	%	wood	%
Sand	95 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy [X]
- Scintillation Counter [ ]

Indirect Method
- Dose Rate to Activity Conversion [X]
- Material Balance [ ]
- Scaling Factors [X]

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? [X] NO [ ] YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 1/12/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurtas Life # Q6004 Date 1-12-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

NOTE: PHASE II

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#3

Radioactive Waste Control Form RWCF# 48750

GENERAL INFORMATION Generator (print) URSGeo, LLC.

Department/Division EMD BIDG 811 Bay 173 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: EM Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 36000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil - Debris from D pad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi	See	µCi	As Noted	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 1/10/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 23144 Date 1/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

NCR ... by MBS 1/7/2004

Radioactive Waste Control Form

RWCF # 48747 #6

GENERAL INFORMATION Generator (print) WESKEM, LLC. MBS 1/7/2004

Department/Division EMO BOX 811-H09172 Ext. ______ Life/Guest # Q6550

Dept. Responsible for Waste: EMO Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type: HOLLOFF Return Package? YES ☒ NO ☐ 1/7/2004

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 45,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Concrete

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity:
(attach copies of all supporting documentation)

See Attached

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sisest Date 1/7/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.2 @ contact	.08 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 09746 Date 1-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

Ready to File

RWCF -48747.xls

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		7.07E+02	2.04E+07
Strontium-90	78.64	2.27	1.61E+03	
Nickel-59	0.04	0.00	7.50E-01	
Europium-152	0.21	0.01	4.23E+00	
Europium-154	0.16	0.00	3.27E+00	
Europium-155	0.00	0.00	1.67E-02	
Radium-226	0.23	0.01	4.64E+00	
Americium-241	6.56	0.19	1.34E+02	
Thorium-228	0.01	0.00	1.39E-01	
Thorium-232	0.03	0.00	6.07E-01	
Lead-210	0.01	0.00	1.91E-01	
Lead-212	0.02	0.00	3.58E-01	
Uranium-234	0.13	0.00	2.60E+00	
Uranium-235	0.01	0.00	1.11E-01	
Uranium-238	0.09	0.00	1.93E+00	
Plutonium-238	0.06	0.00	1.13E+00	
Plutonium-239/240	5.26	0.15	1.08E+02	
Plutonium-241	0.00	0.00	3.69E-02	
Potassium-40	0.20	0.01	4.14E+00	
Actinium-228	0.05	0.00	9.67E-01	
Bismuth-212	0.01	0.00	1.84E-01	
Bismuth-214	0.02	0.00	4.38E-01	
Technicium-99	0.01	0.00	1.95E-01	
Strontium-89	0.01	0.00	1.30E-01	
Cobalt-60	0.58	0.02	1.19E+01	
Thorium-234	0.01	0.00	1.89E-01	
Sodium-22	0.06	0.00	1.14E+00	
	0.00	0.00	0.00E+00	
			2.59E+03	

45000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48749 #10

GENERAL INFORMATION Generator (print) WESTON, LLC.

Department/Division EMD Box 81-171 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

See Attached

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sweet Date 1/7/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 09746 Date 1-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Original to File

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48748 #7

GENERAL INFORMATION Generator (print) WesHen, LLC.
Department/Division CMO BOX 811-170 Ext. ____ Life/Guest # ____
Dept. Responsible for Waste: CMO Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐
VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 403 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
See Attached

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Malinda B. Soust Date 1/7/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.18 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 1-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____
Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____
Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ____
DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

Approval to File

RWCF -48748.xls

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#9

Radioactive Waste Control Form RWCF# 48740

GENERAL INFORMATION Generator (print) Nexken LLC

Department/Division BIDG 811 Box 169 Ext. _____ Life/Guest # X40015

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 45060 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Concrete from Vaults Phase I

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi	see	µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alla Dyad Date 1/5/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	.3 Waste Container .2	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	N/A @ contact 2* @ 12"	N/A N/A @ contact N/A N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	
Surveyor's Sig. Paula Kirk Paula Kirk	Life # 22144 22144	Date 1/10/05 1/3/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 48746 #2

GENERAL INFORMATION Generator (print) WESKEM, LLC.

Department/Division EMD BLDG 811-1168 Ext. ____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type ROLLOFF Return Package? YES [X] NO [ ]

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL

Physical State (check only one): Solid [X] Liquid [ ] Gas [ ] Is waste eligible for Decay-In-Storage? (Halflife <90 days) [ ] yes [X] no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
See Attached

Direct Method
- Gamma Ray Spectroscopy [X]
- Scintillation Counter [ ]

Indirect Method
- Dose Rate to Activity Conversion [X]
- Material Balance [ ]
- Scaling Factors [X]

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? [X] NO [ ] YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 1/7/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9746 Date 1-7-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

Return To File

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#2

Radioactive Waste Control Form RWCF # 48745

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 Box 168 Ext. _____ Life/Guest # x6-065

Dept. Responsible for Waste: ESD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Debris D PAD phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		Scan	Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/4/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 1/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF # 48744

#10

GENERAL INFORMATION Generator (print) Wesker LLC

Department/Division BIDC 811 Box 167 Ext. _____ Life/Guest # x6043

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Debris Dpad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See	Attached		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dapal Date 12/4/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dawn Kuhl Life # 23144 Date 1/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 48743

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 Box 166 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 35000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Debris D Pad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	
	µCi	See	Attached		µCi		µCi	
	µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/4/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Kuk Life # 22144 Date 11/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#7

Radioactive Waste Control Form RWCF # 48742

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 Box 165 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Debris D pad phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☑
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/4/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 1/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#9

Radioactive Waste Control Form RWCF # 48741

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD Oil Project Box 164 Ext. _____ Life/Guest # X60653

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil/Debris Rd phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi	See	µCi	attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dorfman Date 12/4/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	4 @ contact 2 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 22144 Date 1/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 48864

GENERAL INFORMATION Generator (print) Alan Denford

Department/Division 811 yard Box 163 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Super Sacks of concrete and various soils

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	50 %	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi	See Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Denford Date 2/15/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	2 @ contact .8 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jaeton Life # Q6004 Date 2-15-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

2-15-05 / 1345

Radioactive Waste Control Form RWCF # 48704

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 '02 Ext. _____ Life/Guest # Q19161

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL FROM 811 TANK REMOVAL PROJECT - D PAD

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/08/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jousten Life # Q6004 Date 12-8-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	100.00		1.73E+03	1.73E+07
Strontium-90	227.27	2.27	3.92E+03	
Nickel-59	0.11	0.00	1.83E+00	
Europium-152	0.60	0.01	1.03E+01	
Europium-154	0.46	0.00	7.99E+00	
Europium-155	0.00	0.00	4.09E-02	
Radium-226	0.66	0.01	1.13E+01	
Americium-241	18.96	0.19	3.27E+02	
Thorium-228	0.02	0.00	3.39E-01	
Thorium-232	0.09	0.00	1.48E+00	
Lead-210	0.03	0.00	4.66E-01	
Lead-212	0.05	0.00	8.73E-01	
Uranium-234	0.37	0.00	6.35E+00	
Uranium-235	0.02	0.00	2.70E-01	
Uranium-238	0.27	0.00	4.71E+00	
Plutonium-238	0.16	0.00	2.75E+00	
Plutonium-239/240	15.21	0.15	2.62E+02	
Plutonium-241	0.01	0.00	9.00E-02	
Potassium-40	0.59	0.01	1.01E+01	
Actinium-228	0.14	0.00	2.36E+00	
Bismuth-212	0.03	0.00	4.50E-01	
Bismuth-214	0.06	0.00	1.07E+00	
Technicium-99	0.03	0.00	4.76E-01	
Strontium-89	0.02	0.00	3.18E-01	
Cobalt-60	1.68	0.02	2.89E+01	
Thorium-234	0.03	0.00	4.60E-01	
Sodium-22	0.16	0.00	2.79E+00	
	0.00	0.00	0.00E+00	
			6.33E+03	

38000 enter the weight in pounds

GLASS HOLE #4

Radioactive Waste Control Form RWCF # 48975

GENERAL INFORMATION Generator (print) Thomas Doyle

Department/Division ERD (ilei) Ext. 7576 Life/Guest # 20598

Dept. Responsible for Waste: EN Acct. # 07177 Accumulation Area Bldg. # Glass hole Placement Date 2/16/05

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 150 (ft³) WEIGHT OF WASTE: 5000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Sample Bottles, coolers, plastic, cardboard, sample tubing

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	2 %	plastic	20 %	glass	17 %	metal	1 %	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Thomas Doyle Date 2/16/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carl [illegible] Life # Q6004 Date 2-17-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

Radioactive Waste Control Form **RWCF#** 48994

GENERAL INFORMATION Generator (print) Alan Dantord

Department/Division ERD 811 Box #160 Ext. ______ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from Dpond excavation phase II

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1000 µCi		µCi		µCi		µCi		µCi
Sr 90	1000 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☑
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 2/23/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 2/23/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

#5

Radioactive Waste Control Form **RWCF #** 48739

GENERAL INFORMATION Generator (print) Weskem, LLC
Department/Division EMD BOX 711-158 Ext. ______ Life/Guest # OU55C
Dept. Responsible for Waste: EMD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Intermodal Return Package? YES ☒ NO ☐
VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 605 (ft³) WEIGHT OF WASTE: 38,380 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐yes ☒no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

See Attached

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.05 @ contact	.02 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 22144 Date 1/3/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______
Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______
Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______
DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

#3

Radioactive Waste Control Form

RWCF # 48738

GENERAL INFORMATION Generator (print) [illegible]

Department/Division EHD BCV 811-157 Ext. ______ Life/Guest # Q1550

Dept. Responsible for Waste: EHO Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type B-25 [illegible] Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Soil Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Scott Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 32144 Date 1/3/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

Radioactive Waste Control Form RWCF # 48737

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division SII TANK PROJECT - 156 Ext. _____ Life/Guest # 44961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 4123 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	SEE	μCi		μCi		μCi
	μCi		μCi	ATTACHED	μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/22/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.15 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jewtan Life # Q6004 Date 12-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF # 48736

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division 811 TANK PROJECT 155 Ext. _____ Life/Guest # 121961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 (ft³) WEIGHT OF WASTE: 35,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	SEE ATTACHED	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/22/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurtan Life # 26004 Date 12-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

10

Radioactive Waste Control Form RWCF # 48735

GENERAL INFORMATION Generator (print) Weskem

Department/Division BIDG 81 15 / 1584 MAS Ext. _____ Life/Guest # X6065

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 (ft³) WEIGHT OF WASTE: 36 000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Dbd soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi
	µCi	see	µCi	Attached	µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dafoe Date 12/22/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. David Ann Smeltzer Life # G6004 Date 12-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds .

Radioactive Waste Control Form

RWCF # 48734

#9

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division ERD BDX 811-153 Ext. _____ Life/Guest # Q6580

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi		μCi
	μCi		μCi	See Attached	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 12/21/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.008 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Lek Life # 22144 Date 12/21/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF # 48733

*8

GENERAL INFORMATION Generator (print) WesBeaL, LLC.

Department/Division ERO BOX 811-152 Ext. ______ Life/Guest # Q6550

Dept. Responsible for Waste: ERO Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 1103 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Scott Date 12/21/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.1 @ contact	.008 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 22144 Date 12/21/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

Radioactive Waste Control Form

RWCF # 48732 #7

GENERAL INFORMATION Generator (print) WESKEM, LLC.

Department/Division EMD BDY 811-150 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 12/21/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<1 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Raina Kirk Life # 22144 Date 12/21/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form

RWCF # 48731 #5

GENERAL INFORMATION Generator (print) WESKEM, LLC.

Department/Division EMD BOX 811-150 Ext. _____ Life/Guest # Q6555

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	

Cs Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 12/21/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 22144 Date 12/21/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#2

Radioactive Waste Control Form RWCF # 48730

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division EMD BOX 811-149 Ext. _____ Life/Guest # 106550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff 403 Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 12/21/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Hirt Life # 22144 Date 12/21/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF# 48729

GENERAL INFORMATION Generator (print) Weston & C-C

Department/Division BLDG 811 Box 148 Ext. _____ Life/Guest # X0063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Dpnd soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi	See	µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/17/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.3 @ contact .4 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 12/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48728 #5

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 Bay 147 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 3800 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	LR ~~100~~ %	rubber	%
water	%	sludge	%	cloth	%	concrete	100 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi	See	µCi Attached		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/17/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .006 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 12/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#8

Radioactive Waste Control Form RWCF # 48727

GENERAL INFORMATION Generator (print) Weskem

Department/Division BLDG 811 Box 146 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 3 (ft³) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Dpad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	50 %	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi	SEE	μCi	ATTached	μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☑
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/17/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	91 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 12/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.60E+02	1.91E+07
Strontium-90	78.64	2.27	1.50E+03	
Nickel-59	0.04	0.00	7.00E-01	
Europium-152	0.21	0.01	3.95E+00	
Europium-154	0.16	0.00	3.06E+00	
Europium-155	0.00	0.00	1.56E-02	
Radium-226	0.23	0.01	4.33E+00	
Americium-241	6.56	0.19	1.25E+02	
Thorium-228	0.01	0.00	1.30E-01	
Thorium-232	0.03	0.00	5.67E-01	
Lead-210	0.01	0.00	1.78E-01	
Lead-212	0.02	0.00	3.34E-01	
Uranium-234	0.13	0.00	2.43E+00	
Uranium-235	0.01	0.00	1.03E-01	
Uranium-238	0.09	0.00	1.80E+00	
Plutonium-238	0.06	0.00	1.05E+00	
Plutonium-239/240	5.26	0.15	1.00E+02	
Plutonium-241	0.00	0.00	3.44E-02	
Potassium-40	0.20	0.01	3.87E+00	
Actinium-228	0.05	0.00	9.03E-01	
Bismuth-212	0.01	0.00	1.72E-01	
Bismuth-214	0.02	0.00	4.09E-01	
Technicium-99	0.01	0.00	1.82E-01	
Strontium-89	0.01	0.00	1.21E-01	
Cobalt-60	0.58	0.02	1.11E+01	
Thorium-234	0.01	0.00	1.76E-01	
Sodium-22	0.06	0.00	1.07E+00	
	0.00	0.00	0.00E+00	
			2.42E+03	

42000 enter the weight in pounds

#5

Radioactive Waste Control Form RWCF# 48726

GENERAL INFORMATION Generator (print) Wesken, LLC.

Department/Division ERD BOX 811-145 Ext. _____ Life/Guest # Q6558

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D pAO Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda D. Wenst Date 12/16/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kuo Life # 22144 Date 12/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#7

Radioactive Waste Control Form RWCF # 48725

GENERAL INFORMATION Generator (print) WESKEM, LLC.

Department/Division EBD BOX - 811 - 144 Ext. _____ Life/Guest # QC55

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DP&D Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi		μCi
	μCi	See	μCi	Attached	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sleet Date 12/16/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Rana Kuli Life # 02144 Date 12/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48724

GENERAL INFORMATION Generator (print) Weskerna, CCC.

Department/Division ERD BLDG 811 - 143 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-RAD-Soil

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		Sr90 µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

A Hached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 12/16/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. John Kell Life # 22141 Date 12/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

8

Radioactive Waste Control Form RWCF # 48723

GENERAL INFORMATION Generator (print) WRSHEM, LLC.

Department/Division EMD BOX 311-142 Ext. _____ Life/Guest # G60550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-PAD Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☒ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

Cs-137	5.97E+02 μCi		μCi		μCi		μCi		μCi
Sr-90	1.36E+03 μCi		μCi	See Attached			μCi		μCi
Nickel-59	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sweet Date 12/16/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donna Sul Life # 22144 Date 12/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48722 2

GENERAL INFORMATION Generator (print) WESPHEM, LLC.

Department/Division EMD BOX 811-141 Ext. _____ Life/Guest # G6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-PAD SOIL

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☒ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Miranda B Soust Date 12/16/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kull Life # 22144 Date 12/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48721

#10

GENERAL INFORMATION Generator (print) WSHEM, LLC.

Department/Division EMD BOX 811-140 Ext. _____ Life/Guest # Q66550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) / OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D&D SOIL

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 12/16/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. James Kell Life # 22104 Date 12/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

Radioactive Waste Control Form RWCF# 48720 #6

GENERAL INFORMATION Generator (print) WSMS, LLC

Department/Division EMD BOX 811-139 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type BOBCAT Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-n-D Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

10 WBS 12/16/2004

paper	%	plastic	%	glass	%	metal	12/16/2004 %	soil	~~90~~ %	rubber	%
water	%	sludge	%	cloth	%	concrete	~~10~~ %	resin	%	wood	%
Hsphalt	90 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		~~µCi~~ See Attached		~~µCi~~		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 12/16/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<.1 @ contact <.1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Lisk Life # 22144 Date 12/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#6

Radioactive Waste Control Form RWCF# 48718

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 BOX 138 Ext. _____ Life/Guest # Q6961

Dept. Responsible for Waste: ERO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil & Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Ep Date 12/15/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Raina Kuk Life # 22144 Date 12/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#3

Radioactive Waste Control Form RWCF# 48719

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 BOX - 137 Ext. _____ Life/Guest # Q69961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 39000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Kelly Egan Date 12/15/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig: Steven Kuhl Life # 22144 Date 12/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF # 48717

GENERAL INFORMATION Generator (print) Nesken LLC

Department/Division BLDG 811 Box-136 Ext. _____ Life/Guest # X6003

Dept. Responsible for Waste: FRD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 36,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi	µCi	µCi	µCi	µCi		µCi
	µCi	µCi	See Attached		µCi		µCi
	µCi	µCi	µCi		µCi		µCi
	µCi	µCi	µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/15/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<1 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 12/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 48716

GENERAL INFORMATION Generator (print) Weskem

Department/Division BLDG 811 - 135 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 216 ~~613~~ (ft³) WEIGHT OF WASTE: 4490 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Pipes from UST in SuperSak

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	100 %	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 12/14/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 22144 Date 12/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

10

Radioactive Waste Control Form RWCF# 48715

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 Box-134 Ext. _____ Life/Guest # XGW53

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad + soil Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

µCi	µCi	Scale Attached	µCi	µCi	µCi	µCi
µCi	µCi	µCi	µCi	µCi	µCi	µCi
µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 12/14/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	1.5 @ contact 1.0 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig [signature] Life # 22144 Date 12/14/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 48714

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD Bldx 811 - 133 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 811 yard + Dpad soil Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
µCi	µCi	520 µCi	Attached	µCi	µCi	µCi	µCi
µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 12/13/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Kurt Life # 22144 Date 12/14/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF # 48713

GENERAL INFORMATION Generator (print) Weshen, LLC.

Department/Division EMO BLDG 811-12 Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off. Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 39000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 811 yard + Dpad soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached			µCi		µCi		µCi
	µCi		µCi				µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Ponfoot Date 12/13/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Lee Life # 22144 Date 12/14/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF# 48712

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division ERD - BOX 811 - 131 Ext. _____ Life/Guest # Q6552

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Metloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached			µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Forest Date 12/13/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	2 @ contact 1.5 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Zuretan Life # Q6004 Date 12-13-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.60E+02	1.91E+07
Strontium-90	78.64	2.27	1.50E+03	
Nickel-59	0.04	0.00	7.00E-01	
Europium-152	0.21	0.01	3.95E+00	
Europium-154	0.16	0.00	3.06E+00	
Europium-155	0.00	0.00	1.56E-02	
Radium-226	0.23	0.01	4.33E+00	
Americium-241	6.56	0.19	1.25E+02	
Thorium-228	0.01	0.00	1.30E-01	
Thorium-232	0.03	0.00	5.67E-01	
Lead-210	0.01	0.00	1.78E-01	
Lead-212	0.02	0.00	3.34E-01	
Uranium-234	0.13	0.00	2.43E+00	
Uranium-235	0.01	0.00	1.03E-01	
Uranium-238	0.09	0.00	1.80E+00	
Plutonium-238	0.06	0.00	1.05E+00	
Plutonium-239/240	5.26	0.15	1.00E+02	
Plutonium-241	0.00	0.00	3.44E-02	
Potassium-40	0.20	0.01	3.87E+00	
Actinium-228	0.05	0.00	9.03E-01	
Bismuth-212	0.01	0.00	1.72E-01	
Bismuth-214	0.02	0.00	4.09E-01	
Technicium-99	0.01	0.00	1.82E-01	
Strontium-89	0.01	0.00	1.21E-01	
Cobalt-60	0.58	0.02	1.11E+01	
Thorium-234	0.01	0.00	1.76E-01	
Sodium-22	0.06	0.00	1.07E+00	
	0.00	0.00	0.00E+00	
			2.42E+03	

42000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48711

GENERAL INFORMATION Generator (print) Tetra Tech, LLC.

Department/Division EHO BOX 811-130 Ext. _____ Life/Guest # Q6555

Dept. Responsible for Waste: EHO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLLOFF Return Package? YES [X] NO [ ]

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 403 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil & Debris From OPAD

Physical State (check only one): Solid [X] Liquid [ ] Gas [ ] Is waste eligible for Decay-In-Storage? (Halflife <90 days) [ ] yes [ ] no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	30 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy [ ]
- Scintillation Counter [ ]

Indirect Method
- Dose Rate to Activity Conversion [X]
- Material Balance [ ]
- Scaling Factors [X]

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? [X] NO [ ] YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saleet Date 12/13/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Tuetan Life # R6004 Date 12-13-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

7

Radioactive Waste Control Form RWCF # 48710

GENERAL INFORMATION Generator (print) WESKEM, LLC.

Department/Division EBD BCX 811-129 Ext. _____ Life/Guest # Q6556

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type BOILOFF Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D&D Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐yes ☐no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi	Attached	μCi		μCi
	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☑
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Siaest Date 12/13/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	3 @ contact 1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Serafin Life # Q6004 Date 12-13-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48709

#1 PPE

GENERAL INFORMATION Generator (print) INTERA, LLC. (Alan Danford)

Department/Division 811 TANK FA - 30yd ROLLOFF Ext. _____ Life/Guest # ~~Q6550~~ X1263

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type 30yd ROLLOFF Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: PPE BOX #128

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	25 %	glass	%	metal	1 %	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
PPE	94 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs 137	1902 µCi		µCi		µCi		µCi		µCi
Sr 90	4317 µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 4/5/05

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jewett Life # Q6004 Date 4-5-05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

PPE TRACKING LOG

35	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/4/2004	12/2/2004	47910
36	<1K	0.015	PPE	30 Yard Roll-Off	RMA	11/4/2004	12/2/2004	47910
37	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/4/2004	12/2/2004	47910
38	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/4/2004	12/2/2004	47910
39	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/4/2004	12/2/2004	47910
40	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/4/2004	12/2/2004	47910
41	<1K	0.012	PPE	30 Yard Roll-Off	RMA	11/4/2004	12/2/2004	47910
42	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
43	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
44	<1K	0.4	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
45	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
46	<1K	0.1	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
47	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
48	<1K	0.3	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
49	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
50	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
51	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
52	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
53	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
54	<1K	0.08	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
55	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
56	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
57	<1K	0.2	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
58	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
59	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
60	<1K	0.05	PPE	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
61	<1K	0.02	Hydraulic Fluid Rag	30 Yard Roll-Off	RMA	11/23/2004	12/2/2004	47910
62	<1K	0.04	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
63	<1K	0.05	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
64	<1K	0.02	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
65	<1K	0.08	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
66	<1K	0.01	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
67	<1K	0.02	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
68	<1K	0.02	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
69	<1K	0.01	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
70	<1K	5	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709
71	<1K	0.01	PPE	30 Yard Roll-Off	RMA	12/10/2004		48709

PPE TRACKING LOG

72	<1K	0.05	PPE	30 Yard Roll-Off	RMA	12/10/2004	48709
73	<1K	0.02	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
74	<1K	0.02	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
75	<1K	0.04	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
76	<1K	0.01	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
77	<1K	0.4	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
78	<1K	0.02	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
79	<1K	0.02	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
80	<1K	0.01	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
81	<1K	0.01	PPE	30 Yard Roll-Off	RMA	1/3/2005	48709
82	<1K	0.02	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
83	<1K	0.03	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
84	<1K	0.02	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
85	<1K	0.02	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
86	<1K	0.05	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
87	<1K	0.03	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
88	<1K	0.04	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
89	<1K	0.03	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
90	<1K	0.01	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
91	<1K	0.01	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
92	<1K	0.03	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
93	<1K	0.01	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
94	<1K	0.03	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
95	<1K	0.5	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
96	<1K	3	PPE	30 Yard Roll-Off	RMA	1/20/2005	48709
97	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
98	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
99	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
100	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
101	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
102	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
103	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
104	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
105	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
106	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
107	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
108	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709

PPE TRACKING LOG

109	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
110	<1K	<2	PPE	30 Yard Roll-Off	RMA	2/3/2005	48709
111	<1K	<2	Trash	30 Yard Roll-Off	RMA	2/3/2005	48709
112	<1K	<2	Trash	30 Yard Roll-Off	RMA	2/3/2005	48709
113	<1K	<2	Trash	30 Yard Roll-Off	RMA	2/3/2005	48709
114	<1K	<2	Pipe w/ends taped	30 Yard Roll-Off	RMA	2/3/2005	48709
115	<1K	<2	Pipe w/ends taped	30 Yard Roll-Off	RMA	2/3/2005	48709
116	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
117	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
118	<1K	0.01	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
119	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
120	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
121	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
122	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
123	<1K	0.05	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
124	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
125	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
126	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
127	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
128	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
129	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
130	<1K	0.02	PPE	30 Yard Roll-Off	RMA	2/16/2005	48709
131	<1K	0.2	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
132	<1K	0.01	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
133	<1K	0.01	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
134	<1K	0.2	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
135	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
136	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
137	<1K	0.3	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
138	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
139	<1K	0.1	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
140	<1K	0.03	PPE	30 Yard Roll-Off	RMA	3/1/2005	48709
141	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
142	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
143	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
144	<1K	1.5mrad	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
145	<1K	0.1	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709

PPE TRACKING LOG

146	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
147	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
148	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
149	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
150	<1K	0.2	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
151	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/10/2005	48709
152	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
153	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
154	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
155	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
156	<1K	0.2	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
157	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
158	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
159	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/17/2005	48709
160	<1K	0.02	Pre filter	30 Yard Roll-Off	RMA	3/17/2005	48709
161	<1K	0.02	Pre filter	30 Yard Roll-Off	RMA	3/17/2005	48709
162	<1K	0.4	Vault cement dust	30 Yard Roll-Off	RMA	3/17/2005	48709
163	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/23/2005	48709
164	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/23/2005	48709
165	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/23/2005	48709
166	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/23/2005	48709
167	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/23/2005	48709
168	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/23/2005	48709
169	<1K	0.02	PPE	30 Yard Roll-Off	RMA	3/23/2005	48709
170	<1K	0.01	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
171	<1K	0.02	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
172	<1K	0.02	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
173	<1K	0.02	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
174	<1K	0.01	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
175	<1K	0.02	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
176	<1K	0.02	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
177	<1K	0.03	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
178	<1K	0.02	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
179	<1K	0.03	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
180	<1K	0.02	PPE	30 Yard Roll-Off	RMA	4/5/2005	48709
181	<1K	0.02	Trash	30 Yard Roll-Off	RMA	4/5/2005	48709
182	<1K	0.03	Trash	30 Yard Roll-Off	RMA	4/5/2005	48709

PPE TRACKING LOG

183	<1K	0.02	Trash	30 Yard Roll-Off	RMA	4/5/2005	48709
184	<1K	0.04	Trash	30 Yard Roll-Off	RMA	4/5/2005	48709
185	<1K	,2Mrad	Hepa filter	30 Yard Roll-Off	RMA	4/5/2005	48709

#7

Radioactive Waste Control Form RWCF# 48707

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division Bldg 811 Box 811-127 Ext. _____ Life/Guest # Q655C

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from 811 Tank project

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 12/9/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jenekon Life # Q6004 Date 12-9-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#5

Radioactive Waste Control Form

RWCF # 48706

GENERAL INFORMATION Generator (print) WeSKeM, LLC.

Department/Division BLDG 811 Box 811-126 Ext. ______ Life/Guest # Q6550

Dept. Responsible for Waste: EBO Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil From 811 Tank project

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	40 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

See Attached

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 12/09/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.06 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Tuetan Life # Q6004 Date 12-9-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

#2

Radioactive Waste Control Form RWCF# 48705

GENERAL INFORMATION Generator (print) Weskem LLC

epartment/Division BLDG 811 BOX 125 Ext. _____ Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL FROM 811 TANK REMOVAL PROJECT

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/06/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22414 Date 12/6/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#6

Radioactive Waste Control Form RWCF# 48703

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 Ext. _____ Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL / DEBRIS FROM 811 TANK REMOVAL PROJECT - D PAD

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 ~~90~~ 10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/06/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	NIP @ contact NIP @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 2144 Date 12/6/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#:

Radioactive Waste Control Form   RWCF# 48702

GENERAL INFORMATION Generator (print) Weston LLC

Department/Division BLDG 811 Bor/123 Ext. ____ Life/Guest # X606

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☑ N/A

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 705 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	see	Attached µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 12/3/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.07 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetan Life # [illegible] Date 12-9-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

12.9.04 / 0940

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48701

#5

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG Box 122 Ext. _____ Life/Guest # [illegible]

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 12/3/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<.1 mR/HR @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9746 Date 12/3/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

12-8-04 / 1520

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#7 #5

Radioactive Waste Control Form RWCF # 48700

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BLDG 811 Box 121 Ext. _____ Life/Guest # X60

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ✓ (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Dried Soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 12/3/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	105 @ contact .01 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 09746 Date 12/3/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

12-8-04 / 1330

RWCF 48700

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48699

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division BIDG 811 Bx 120 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	see attached			µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dorfman Date 12/3/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Gill Life # 12/3/04 Date 22144

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48698

GENERAL INFORMATION Generator (print) Weston LLC

Department/Division B/DG 811 Box 119 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	~~µCi~~		Sc ~~µCi~~		Attached µCi		µCi		~~µCi~~
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dafford Date 12/3/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.15 @ contact .10 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Fell Life # 22144 Date 12/3/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48697

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division Bldg 811 Yard Box 118 Ext. _____ Life/Guest # X6003

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Bldg 811 Yard D Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See	µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 12/3/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Tel Life # 22144 Date 12/3/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48696 #8

GENERAL INFORMATION Generator (print) Wesker LLC

Department/Division Bat 811 117 Ext. _____ Life/Guest # V6063

Dept. Responsible for Waste: _____ Acct. # ERD Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 40000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil & Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	30 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	70 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
µCi	µCi	µCi	See Attached	µCi	µCi	µCi	µCi
µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi
µCi	µCi	µCi	µCi	µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/30/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 12/3/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.28E+02	1.82E+07
Strontium-90	78.64	2.27	1.43E+03	
Nickel-59	0.04	0.00	6.67E-01	
Europium-152	0.21	0.01	3.76E+00	
Europium-154	0.16	0.00	2.91E+00	
Europium-155	0.00	0.00	1.49E-02	
Radium-226	0.23	0.01	4.12E+00	
Americium-241	6.56	0.19	1.19E+02	
Thorium-228	0.01	0.00	1.23E-01	
Thorium-232	0.03	0.00	5.40E-01	
Lead-210	0.01	0.00	1.70E-01	
Lead-212	0.02	0.00	3.18E-01	
Uranium-234	0.13	0.00	2.31E+00	
Uranium-235	0.01	0.00	9.83E-02	
Uranium-238	0.09	0.00	1.72E+00	
Plutonium-238	0.06	0.00	1.00E+00	
Plutonium-239/240	5.26	0.15	9.56E+01	
Plutonium-241	0.00	0.00	3.28E-02	
Potassium-40	0.20	0.01	3.68E+00	
Actinium-228	0.05	0.00	8.60E-01	
Bismuth-212	0.01	0.00	1.64E-01	
Bismuth-214	0.02	0.00	3.89E-01	
Technicium-99	0.01	0.00	1.73E-01	
Strontium-89	0.01	0.00	1.16E-01	
Cobalt-60	0.58	0.02	1.05E+01	
Thorium-234	0.01	0.00	1.68E-01	
Sodium-22	0.06	0.00	1.02E+00	
	0.00	0.00	0.00E+00	
			2.31E+03	

40000 enter the weight in pounds

8 9

Radioactive Waste Control Form RWCF# 48695

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division Box 811 - 116 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # ERD Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi	µCi		µCi	µCi	µCi	µCi
	µCi	µCi	See Attached	µCi	µCi	µCi	µCi
	µCi	µCi		µCi	µCi	µCi	µCi
	µCi	µCi		µCi	µCi	µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/30/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.008 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig _____ Life # 22144 Date 11/30/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48694

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division Bat 811 - 115 Ext. _____ Life/Guest # X60063

Dept. Responsible for Waste: _____ Acct. # ERD Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	50 %	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/30/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig _____ Life # 22144 Date 11/30/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#10

Radioactive Waste Control Form RWCF# 48693

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division Box 811 114 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # ERD Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 32000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-pad soil + Deb.-3

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	100 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dahl Date 11/30/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Lurk Life # 22144 Date 11/30/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.03E+02	1.45E+07
Strontium-90	78.64	2.27	1.14E+03	
Nickel-59	0.04	0.00	5.34E-01	
Europium-152	0.21	0.01	3.01E+00	
Europium-154	0.16	0.00	2.33E+00	
Europium-155	0.00	0.00	1.19E-02	
Radium-226	0.23	0.01	3.30E+00	
Americium-241	6.56	0.19	9.53E+01	
Thorium-228	0.01	0.00	9.87E-02	
Thorium-232	0.03	0.00	4.32E-01	
Lead-210	0.01	0.00	1.36E-01	
Lead-212	0.02	0.00	2.54E-01	
Uranium-234	0.13	0.00	1.85E+00	
Uranium-235	0.01	0.00	7.86E-02	
Uranium-238	0.09	0.00	1.37E+00	
Plutonium-238	0.06	0.00	8.02E-01	
Plutonium-239/240	5.26	0.15	7.65E+01	
Plutonium-241	0.00	0.00	2.62E-02	
Potassium-40	0.20	0.01	2.95E+00	
Actinium-228	0.05	0.00	6.88E-01	
Bismuth-212	0.01	0.00	1.31E-01	
Bismuth-214	0.02	0.00	3.11E-01	
Technicium-99	0.01	0.00	1.39E-01	
Strontium-89	0.01	0.00	9.25E-02	
Cobalt-60	0.58	0.02	8.43E+00	
Thorium-234	0.01	0.00	1.34E-01	
Sodium-22	0.06	0.00	8.13E-01	
	0.00	0.00	0.00E+00	
			1.84E+03	

32000 enter the weight in pounds

#16

Radioactive Waste Control Form RWCF # 48601

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division ERD BOX 81C-113 Ext. _____ Life/Guest # 96550

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Metloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 74060 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD · Soil & Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	30 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	691 µCi	PU238	1.1 µCi		µCi		µCi		µCi		µCi
Sr-90	1570 µCi		µCi		µCi		µCi	U-238	1.9 µCi		
EU-152	4.1 µCi		µCi		µCi		µCi	AM-241	131 µCi		
	µCi		µCi		µCi	PU-239	105 µCi	EU-154	3.2 µCi		

See Attached MDS 11/22/04

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B Sidest Date 11/22/2002

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.16 @ contact .12 @ 12"	N/T @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Swetan Life # 26004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

4 7

Radioactive Waste Control Form

RWCF # 48600

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division EMO Box 811-112 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 41000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D&D Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	30 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

CS-137	691 µCi	PU238	1.1 µCi		µCi		µCi				µCi
Sr-90	1570 µCi		µCi	See Attached MBS 11/22/04	µCi		µCi	U-238	1.9	µCi	
EU-152	4.1 µCi		µCi		µCi		µCi	Am-241	13	µCi	
	µCi		µCi		µCi	PU-239	105 µCi	EU-154	3.2	µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B Soest Date 11/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	1.2 @ contact .2 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Trustan Life # Q6004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes:

Packaging Category: Compactible Non-Compactible Pathological WAC Designation:

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code:

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

#5

Radioactive Waste Control Form RWCF# 48599

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division ERD BOX 811-111 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D&D Soil & Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	691 µCi	Pu-238	1.1 µCi		µCi		µCi		µCi		µCi
Sr-90	1570 µCi		See µCi	Attached		01/24/05	µCi	U-238	1.9 µCi		
Eu-152	4.1 µCi		µCi		µCi		µCi	Am-241	13 µCi		
	µCi		µCi		µCi	Pu-239	105 µCi	Eu-154	3.2 µCi		

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 11/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.8 @ contact .2 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jenetos Life # Q6004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#5

Radioactive Waste Control Form RWCF# 48598

GENERAL INFORMATION Generator (print) WESKEM, LLC

Department/Division ERD BOX 81710 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLLOFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D pAD Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete AD 30	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi
	µCi	See	µCi	Attached	µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saust Date 11/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	6 @ contact .8 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetten Life # Q6004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#3

Radioactive Waste Control Form RWCF# 48597

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division ERD Box 811-109 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DPAD Soil & Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☒ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	691 µCi	Pu-238	1.1 µCi	See Attached	µCi	WBS 11-22-04	µCi				µCi
Sr-90	1570 µCi				µCi		µCi	U-238	1.9 µCi		
Eu-152	4.1 µCi		µCi		µCi		µCi	Am-241	131 µCi		
	µCi		µCi		µCi	Pu-239	105 µCi	Eu-154	3.2 µCi		

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saast Date 11/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<5 @ contact <0.12 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetan Life # Q6004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class: _____ Waste Profile Number: _____

BNL F 2975C 11 /01

#2

Radioactive Waste Control Form RWCF # 48596

GENERAL INFORMATION Generator (print) WesDem, LLC.

Department/Division EMD BOX 84-108 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 4600 ± lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DPAD - Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	50 %	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi) RWS 11/22/04

Cs-137	691 µCi	Pu-238	1.1 µCi		µCi		µCi		µCi
Sr-90	1570 µCi		See Attached		µCi		µCi	U-238	1.9 µCi
Eu-152	4.1 µCi		µCi		µCi		µCi	Am-241	131 µCi
	µCi		µCi		µCi	Pu-239	105 µCi	Eu-154	3.2 µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 11/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetten Life # Q6004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

#6

Radioactive Waste Control Form RWCF# 48595

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD Box 811 107 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: ~~38000~~ AD 44000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	30 %	rubber	%
water	%	sludge	%	cloth	%	concrete	70 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

µCi	µCi	µCi	µCi		µCi		µCi
µCi	µCi	µCi	µCi		µCi		µCi
µCi	µCi	µCi	µCi		µCi		µCi
µCi	µCi	µCi	µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/18/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	2 @ contact 1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 23144 Date 11/19/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.91E+02	2.00E+07
Strontium-90	78.64	2.27	1.57E+03	
Nickel-59	0.04	0.00	7.34E-01	
Europium-152	0.21	0.01	4.13E+00	
Europium-154	0.16	0.00	3.20E+00	
Europium-155	0.00	0.00	1.64E-02	
Radium-226	0.23	0.01	4.54E+00	
Americium-241	6.56	0.19	1.31E+02	
Thorium-228	0.01	0.00	1.36E-01	
Thorium-232	0.03	0.00	5.94E-01	
Lead-210	0.01	0.00	1.87E-01	
Lead-212	0.02	0.00	3.50E-01	
Uranium-234	0.13	0.00	2.54E+00	
Uranium-235	0.01	0.00	1.08E-01	
Uranium-238	0.09	0.00	1.89E+00	
Plutonium-238	0.06	0.00	1.10E+00	
Plutonium-239/240	5.26	0.15	1.05E+02	
Plutonium-241	0.00	0.00	3.60E-02	
Potassium-40	0.20	0.01	4.05E+00	
Actinium-228	0.05	0.00	9.46E-01	
Bismuth-212	0.01	0.00	1.80E-01	
Bismuth-214	0.02	0.00	4.28E-01	
Technicium-99	0.01	0.00	1.91E-01	
Strontium-89	0.01	0.00	1.27E-01	
Cobalt-60	0.58	0.02	1.16E+01	
Thorium-234	0.01	0.00	1.84E-01	
Sodium-22	0.06	0.00	1.12E+00	
	0.00	0.00	0.00E+00	
			2.54E+03	

44000 enter the weight in pounds

#7

Radioactive Waste Control Form

RWCF # 48594

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD Box 811 - 106 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Waste Soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

μCi	μCi	μCi	μCi	μCi	μCi	μCi	μCi
μCi		See Attached					
μCi		μCi		μCi		μCi	
μCi		μCi		μCi		μCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/18/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	< 2 @ contact < 1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 11/18/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#10

Radioactive Waste Control Form RWCF# 48593

GENERAL INFORMATION Generator (print) Wesken LLC

Department/Division ERD Box 811 105 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐ N/A

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dorfman Date 11/18/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .008 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Kuhl Life # 22144 Date 11/18/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48592 #5

GENERAL INFORMATION Generator (print) Wesken LLC

Department/Division ERD Box 811 104 Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%	Asphalt	30 %		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi	
	µCi		See Attached		µCi		µCi	
	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dalpad Date 11/18/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Lull Life # 22144 Date 11/18/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48591 #6

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD Box 811 103 Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	See Attached	μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Binford Date 11/18/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .08 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Hild Life # 32144 Date 11/18/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form

RWCF # 48590 #3

GENERAL INFORMATION Generator (print) Wesken LLC

Department/Division ERD Bat 811 - 102 Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

µCi		µCi		µCi	µCi		µCi
µCi	see Attached			µCi	µCi		µCi
µCi		µCi		µCi	µCi		µCi
µCi		µCi		µCi	µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dorford Date 11/18/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.4 @ contact .07 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donna Kirk Life # 22144 Date 11/18/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

#2

Radioactive Waste Control Form RWCF # 48589

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD 811 101 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DPad Soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi	
	µCi		µCi	See Attached	µCi		µCi	
	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danford Date 11/08/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.04 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kirk Life # 22144 Date 11/18/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

10

Radioactive Waste Control Form RWCF # 48588

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD Box 811-105 Ext. _____ Life/Guest # X6005

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: [illegible] lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D pad soil + Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	30 %	rubber	%
water	%	sludge	%	cloth	%	concrete	70 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	see attached			µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/12/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	13 @ contact 11 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9246 Date 11/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.91E+02	2.00E+07
Strontium-90	78.64	2.27	1.57E+03	
Nickel-59	0.04	0.00	7.34E-01	
Europium-152	0.21	0.01	4.13E+00	
Europium-154	0.16	0.00	3.20E+00	
Europium-155	0.00	0.00	1.64E-02	
Radium-226	0.23	0.01	4.54E+00	
Americium-241	6.56	0.19	1.31E+02	
Thorium-228	0.01	0.00	1.36E-01	
Thorium-232	0.03	0.00	5.94E-01	
Lead-210	0.01	0.00	1.87E-01	
Lead-212	0.02	0.00	3.50E-01	
Uranium-234	0.13	0.00	2.54E+00	
Uranium-235	0.01	0.00	1.08E-01	
Uranium-238	0.09	0.00	1.89E+00	
Plutonium-238	0.06	0.00	1.10E+00	
Plutonium-239/240	5.26	0.15	1.05E+02	
Plutonium-241	0.00	0.00	3.60E-02	
Potassium-40	0.20	0.01	4.05E+00	
Actinium-228	0.05	0.00	9.46E-01	
Bismuth-212	0.01	0.00	1.80E-01	
Bismuth-214	0.02	0.00	4.28E-01	
Technicium-99	0.01	0.00	1.91E-01	
Strontium-89	0.01	0.00	1.27E-01	
Cobalt-60	0.58	0.02	1.16E+01	
Thorium-234	0.01	0.00	1.84E-01	
Sodium-22	0.06	0.00	1.12E+00	
	0.00	0.00	0.00E+00	
			2.54E+03	

44000 enter the weight in pounds

#7

Radioactive Waste Control Form RWCF# 48587

GENERAL INFORMATION Generator (print) Wesken

Department/Division ERD Bldg 811 99 Ext. _____ Life/Guest # 16003

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: [illegible] lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D pad soil & Debris

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	30 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		see attached		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☑	Dose Rate to Activity Conversion	☑
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/17/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.3 @ contact .05 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 11/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.44E+02	1.86E+07
Strontium-90	78.64	2.27	1.46E+03	
Nickel-59	0.04	0.00	6.84E-01	
Europium-152	0.21	0.01	3.85E+00	
Europium-154	0.16	0.00	2.98E+00	
Europium-155	0.00	0.00	1.53E-02	
Radium-226	0.23	0.01	4.23E+00	
Americium-241	6.56	0.19	1.22E+02	
Thorium-228	0.01	0.00	1.26E-01	
Thorium-232	0.03	0.00	5.53E-01	
Lead-210	0.01	0.00	1.74E-01	
Lead-212	0.02	0.00	3.26E-01	
Uranium-234	0.13	0.00	2.37E+00	
Uranium-235	0.01	0.00	1.01E-01	
Uranium-238	0.09	0.00	1.76E+00	
Plutonium-238	0.06	0.00	1.03E+00	
Plutonium-239/240	5.26	0.15	9.80E+01	
Plutonium-241	0.00	0.00	3.36E-02	
Potassium-40	0.20	0.01	3.77E+00	
Actinium-228	0.05	0.00	8.81E-01	
Bismuth-212	0.01	0.00	1.68E-01	
Bismuth-214	0.02	0.00	3.99E-01	
Technicium-99	0.01	0.00	1.78E-01	
Strontium-89	0.01	0.00	1.19E-01	
Cobalt-60	0.58	0.02	1.08E+01	
Thorium-234	0.01	0.00	1.72E-01	
Sodium-22	0.06	0.00	1.04E+00	
	0.00	0.00	0.00E+00	
			2.36E+03	

41000 enter the weight in pounds

#3

Radioactive Waste Control Form RWCF # 48586

GENERAL INFORMATION Generator (print) AMSHEM, LLC.

Department/Division EMO BOX 811-98 Ext. _____ Life/Guest # QLeSSO

Dept. Responsible for Waste: EMO Acct. # _____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 44,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	30 %	rubber	%
water	%	sludge	%	cloth	%	concrete	70 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See	µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B Sorest Date 11-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .1 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. MLR Life # U9746 Date 11/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.91E+02	2.00E+07
Strontium-90	78.64	2.27	1.57E+03	
Nickel-59	0.04	0.00	7.34E-01	
Europium-152	0.21	0.01	4.13E+00	
Europium-154	0.16	0.00	3.20E+00	
Europium-155	0.00	0.00	1.64E-02	
Radium-226	0.23	0.01	4.54E+00	
Americium-241	6.56	0.19	1.31E+02	
Thorium-228	0.01	0.00	1.36E-01	
Thorium-232	0.03	0.00	5.94E-01	
Lead-210	0.01	0.00	1.87E-01	
Lead-212	0.02	0.00	3.50E-01	
Uranium-234	0.13	0.00	2.54E+00	
Uranium-235	0.01	0.00	1.08E-01	
Uranium-238	0.09	0.00	1.89E+00	
Plutonium-238	0.06	0.00	1.10E+00	
Plutonium-239/240	5.26	0.15	1.05E+02	
Plutonium-241	0.00	0.00	3.60E-02	
Potassium-40	0.20	0.01	4.05E+00	
Actinium-228	0.05	0.00	9.46E-01	
Bismuth-212	0.01	0.00	1.80E-01	
Bismuth-214	0.02	0.00	4.28E-01	
Technicium-99	0.01	0.00	1.91E-01	
Strontium-89	0.01	0.00	1.27E-01	
Cobalt-60	0.58	0.02	1.16E+01	
Thorium-234	0.01	0.00	1.84E-01	
Sodium-22	0.06	0.00	1.12E+00	
	0.00	0.00	0.00E+00	
			2.54E+03	

44000 enter the weight in pounds

#9

Radioactive Waste Control Form

RWCF # 48585

GENERAL INFORMATION Generator (print) WESKEM, LLC.

Department/Division EHD BCY 811-97 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EHD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40S (ft^3) WEIGHT OF WASTE: 44,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D pad Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	30 %	rubber	%
water	%	sludge	%	cloth	%	concrete	70 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saast Date 11-12-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .2 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U5746 Date 11/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.91E+02	2.00E+07
Strontium-90	78.64	2.27	1.57E+03	
Nickel-59	0.04	0.00	7.34E-01	
Europium-152	0.21	0.01	4.13E+00	
Europium-154	0.16	0.00	3.20E+00	
Europium-155	0.00	0.00	1.64E-02	
Radium-226	0.23	0.01	4.54E+00	
Americium-241	6.56	0.19	1.31E+02	
Thorium-228	0.01	0.00	1.36E-01	
Thorium-232	0.03	0.00	5.94E-01	
Lead-210	0.01	0.00	1.87E-01	
Lead-212	0.02	0.00	3.50E-01	
Uranium-234	0.13	0.00	2.54E+00	
Uranium-235	0.01	0.00	1.08E-01	
Uranium-238	0.09	0.00	1.89E+00	
Plutonium-238	0.06	0.00	1.10E+00	
Plutonium-239/240	5.26	0.15	1.05E+02	
Plutonium-241	0.00	0.00	3.60E-02	
Potassium-40	0.20	0.01	4.05E+00	
Actinium-228	0.05	0.00	9.46E-01	
Bismuth-212	0.01	0.00	1.80E-01	
Bismuth-214	0.02	0.00	4.28E-01	
Technicium-99	0.01	0.00	1.91E-01	
Strontium-89	0.01	0.00	1.27E-01	
Cobalt-60	0.58	0.02	1.16E+01	
Thorium-234	0.01	0.00	1.84E-01	
Sodium-22	0.06	0.00	1.12E+00	
	0.00	0.00	0.00E+00	
			2.54E+03	

44000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48584

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division EMD BLDG 811-96 Ext. _____ Life/Guest # Glosso

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Boxcar Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 114,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DPAO Soil & Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Yolanda B. Soust Date 11-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	1 mR/HR .02 mR @ contact .5 mR/HR .01 mR @ 12"	n/a @ contact n/a @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9746 Date 11/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

11/16/04 1045

Radioactive Waste Control Form

RWCF # 48583

GENERAL INFORMATION Generator (print) WeSKem, LLC. Q6961

Department/Division EMD Box 8 Tust# 8 IL-95 Ext. ____ Life/Guest # Q655

Dept. Responsible for Waste: ____ Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type ____ Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 44000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-PAD Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
As: mat	100%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/16/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.02 @ contact	.01 @ 12"	NA @ contact	NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 05746 Date 11/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

Radioactive Waste Control Form RWCF# 48582 #9

GENERAL INFORMATION Generator (print) Weshem, LLC.

Department/Division EMD BOX 811-94 Ext. _____ Life/Guest # ~~Guest~~ CAP #63063

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attachment	µCi		µCi	µCi
	µCi		µCi		µCi		µCi	µCi
	µCi		µCi		µCi		µCi	µCi
	µCi		µCi		µCi		µCi	µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Dorf Date 11/16/

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	< 3 @ contact < 1 @ 12"	N/A @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. C R Kamel Life # V 8949 Date 11/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48581

#7

GENERAL INFORMATION Generator (print) WESKem, LLC.
Department/Division EMO BOX # 811-93 Ext. ____ Life/Guest # 46556
Dept. Responsible for Waste: EMO Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Moilcff Return Package? YES ☑ NO ☐
VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 10 pad Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/16/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.06 @ contact	.03 @ 12"	N/A @ contact	@ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # U8949 Date 11/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____
Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____
Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ____
DOT Hazard Class ____ Waste Profile Number ____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48580

GENERAL INFORMATION Generator (print) Weskem, LLC.
Department/Division EMD BOX # 811-93 Ext. ____ Life/Guest # QL55D
Dept. Responsible for Waste: EMD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐
VOLUME OF WASTE: Liquid ____ (gal.) OR Solid ____ (ft^3) WEIGHT OF WASTE: ____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D&D Soil + Debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	40 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity:
(attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/15/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.85 @ contact	.2 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 22144 Date 11/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____
Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____
Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ____
DOT Hazard Class ____ Waste Profile Number ____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	1448.00		2.63E+04	1.82E+07
Strontium-90	3290.91	2.27	5.98E+04	
Nickel-59	1.54	0.00	2.79E+01	
Europium-152	8.66	0.01	1.57E+02	
Europium-154	6.71	0.00	1.22E+02	
Europium-155	0.03	0.00	6.23E-01	
Radium-226	9.51	0.01	1.73E+02	
Americium-241	274.50	0.19	4.98E+03	
Thorium-228	0.28	0.00	5.16E+00	
Thorium-232	1.24	0.00	2.26E+01	
Lead-210	0.39	0.00	7.10E+00	
Lead-212	0.73	0.00	1.33E+01	
Uranium-234	5.33	0.00	9.68E+01	
Uranium-235	0.23	0.00	4.11E+00	
Uranium-238	3.95	0.00	7.18E+01	
Plutonium-238	2.31	0.00	4.19E+01	
Plutonium-239/240	220.31	0.15	4.00E+03	
Plutonium-241	0.08	0.00	1.37E+00	
Potassium-40	8.48	0.01	1.54E+02	
Actinium-228	1.98	0.00	3.60E+01	
Bismuth-212	0.38	0.00	6.86E+00	
Bismuth-214	0.90	0.00	1.63E+01	
Technicium-99	0.40	0.00	7.26E+00	
Strontium-89	0.27	0.00	4.84E+00	
Cobalt-60	24.30	0.02	4.41E+02	
Thorium-234	0.39	0.00	7.02E+00	
Sodium-22	2.34	0.00	4.25E+01	
	0.00	0.00	0.00E+00	
			9.65E+04	

40000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48579

#2

GENERAL INFORMATION Generator (print) WESTON - 811 TANK PROJECT

Department/Division 811 TANKS PROJECT box 81191 Ext. _____ Life/Guest # Q09161

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 40,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad soil & debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	70 %	rubber	%
water	%	sludge	%	cloth	%	concrete	30 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	SEE ATTACHED	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/15/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 11/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	1448.00		2.63E+04	1.82E+07
Strontium-90	3290.91	2.27	5.98E+04	
Nickel-59	1.54	0.00	2.79E+01	
Europium-152	8.66	0.01	1.57E+02	
Europium-154	6.71	0.00	1.22E+02	
Europium-155	0.03	0.00	6.23E-01	
Radium-226	9.51	0.01	1.73E+02	
Americium-241	274.50	0.19	4.98E+03	
Thorium-228	0.28	0.00	5.16E+00	
Thorium-232	1.24	0.00	2.26E+01	
Lead-210	0.39	0.00	7.10E+00	
Lead-212	0.73	0.00	1.33E+01	
Uranium-234	5.33	0.00	9.68E+01	
Uranium-235	0.23	0.00	4.11E+00	
Uranium-238	3.95	0.00	7.18E+01	
Plutonium-238	2.31	0.00	4.19E+01	
Plutonium-239/240	220.31	0.15	4.00E+03	
Plutonium-241	0.08	0.00	1.37E+00	
Potassium-40	8.48	0.01	1.54E+02	
Actinium-228	1.98	0.00	3.60E+01	
Bismuth-212	0.38	0.00	6.86E+00	
Bismuth-214	0.90	0.00	1.63E+01	
Technicium-99	0.40	0.00	7.26E+00	
Strontium-89	0.27	0.00	4.84E+00	
Cobalt-60	24.30	0.02	4.41E+02	
Thorium-234	0.39	0.00	7.02E+00	
Sodium-22	2.34	0.00	4.25E+01	
	0.00	0.00	0.00E+00	
			9.65E+04	

40000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48577

GENERAL INFORMATION Generator (print) Weskem, LLC.
Department/Division BOV-811-90 Ext. ____ Life/Guest # Q6961 / Q6550
Dept. Responsible for Waste: ____ Acct. # ____ Accumulation Area Bldg. # ____ Placement Date 11/15

WASTE QUANTITY Package Type Rolloff Return Package? YES [X] NO [ ]
VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 40,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-PAD

Physical State (check only one): Solid [X] Liquid [ ] Gas [ ] Is waste eligible for Decay-In-Storage? (Halflife <90 days) [ ] yes [X] no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

See Attached

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy [X]
- Scintillation Counter [ ]

Indirect Method
- Dose Rate to Activity Conversion [X]
- Material Balance [ ]
- Scaling Factors [X]

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? [X] NO [ ] YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/15/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	2 mR/HR @ contact	1 mR/HR @ 12"	n/A @ contact	n/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # U9746 Date 11/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____
Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____
Hazard Class: Ignitable Corrosive Reactive Toxic ____ Waste Stream Code: ____
DOT Hazard Class ____ Waste Profile Number ____

#9

Radioactive Waste Control Form RWCF# 48576

GENERAL INFORMATION Generator (print) Weskem - 811 Project (096)

Department/Division BCV 811-89 Ext. _____ Life/Guest # Q655

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / / 11/15

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 40,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-PAO

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/15/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	5 mR/hr @ contact 1.2 mR/hr @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # US746 Date 11/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible PathologicalWAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 48575

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division BNL 811-88 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EAD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLLOFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-RAD soil + concrete

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	50 %	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Linda Saest Date 11/18/2004

15MR

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	15 mR/hr @ contact 4 mR/hr @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # N9746 Date 11/18/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	5415.00		1.03E+05	1.91E+07
Strontium-90	12306.82	2.27	2.35E+05	
Nickel-59	5.75	0.00	1.10E+02	
Europium-152	32.39	0.01	6.18E+02	
Europium-154	25.08	0.00	4.78E+02	
Europium-155	0.13	0.00	2.45E+00	
Radium-226	35.55	0.01	6.78E+02	
Americium-241	1026.52	0.19	1.96E+04	
Thorium-228	1.06	0.00	2.03E+01	
Thorium-232	4.65	0.00	8.87E+01	
Lead-210	1.46	0.00	2.79E+01	
Lead-212	2.74	0.00	5.23E+01	
Uranium-234	19.93	0.00	3.80E+02	
Uranium-235	0.85	0.00	1.62E+01	
Uranium-238	14.78	0.00	2.82E+02	
Plutonium-238	8.64	0.00	1.65E+02	
Plutonium-239/240	823.88	0.15	1.57E+04	
Plutonium-241	0.28	0.00	5.38E+00	
Potassium-40	31.73	0.01	6.05E+02	
Actinium-228	7.41	0.00	1.41E+02	
Bismuth-212	1.41	0.00	2.69E+01	
Bismuth-214	3.36	0.00	6.40E+01	
Technicium-99	1.49	0.00	2.85E+01	
Strontium-89	1.00	0.00	1.90E+01	
Cobalt-60	90.86	0.02	1.73E+03	
Thorium-234	1.45	0.00	2.76E+01	
Sodium-22	8.75	0.00	1.67E+02	
	0.00	0.00	0.00E+00	
			3.79E+05	

42000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48574

GENERAL INFORMATION Generator (print) Wilshem, LLC.

Department/Division 804 811-87 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D. pad soil + concrete

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	40 %	rubber	%
water	%	sludge	%	cloth	%	concrete	60 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date _____

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .07 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U9946 Date 11/2/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.60E+02	1.91E+07
Strontium-90	78.64	2.27	1.50E+03	
Nickel-59	0.04	0.00	7.00E-01	
Europium-152	0.21	0.01	3.95E+00	
Europium-154	0.16	0.00	3.06E+00	
Europium-155	0.00	0.00	1.56E-02	
Radium-226	0.23	0.01	4.33E+00	
Americium-241	6.56	0.19	1.25E+02	
Thorium-228	0.01	0.00	1.30E-01	
Thorium-232	0.03	0.00	5.67E-01	
Lead-210	0.01	0.00	1.78E-01	
Lead-212	0.02	0.00	3.34E-01	
Uranium-234	0.13	0.00	2.43E+00	
Uranium-235	0.01	0.00	1.03E-01	
Uranium-238	0.09	0.00	1.80E+00	
Plutonium-238	0.06	0.00	1.05E+00	
Plutonium-239/240	5.26	0.15	1.00E+02	
Plutonium-241	0.00	0.00	3.44E-02	
Potassium-40	0.20	0.01	3.87E+00	
Actinium-228	0.05	0.00	9.03E-01	
Bismuth-212	0.01	0.00	1.72E-01	
Bismuth-214	0.02	0.00	4.09E-01	
Technicium-99	0.01	0.00	1.82E-01	
Strontium-89	0.01	0.00	1.21E-01	
Cobalt-60	0.58	0.02	1.11E+01	
Thorium-234	0.01	0.00	1.76E-01	
Sodium-22	0.06	0.00	1.07E+00	
	0.00	0.00	0.00E+00	
			2.42E+03	

42000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48573

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division ERD Bll Box 86 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil + concrete

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	40 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi
	µCi		See µCi	Attached	µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/12/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	X 1 @ contact .5 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 11/12/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.60E+02	1.91E+07
Strontium-90	78.64	2.27	1.50E+03	
Nickel-59	0.04	0.00	7.00E-01	
Europium-152	0.21	0.01	3.95E+00	
Europium-154	0.16	0.00	3.06E+00	
Europium-155	0.00	0.00	1.56E-02	
Radium-226	0.23	0.01	4.33E+00	
Americium-241	6.56	0.19	1.25E+02	
Thorium-228	0.01	0.00	1.30E-01	
Thorium-232	0.03	0.00	5.67E-01	
Lead-210	0.01	0.00	1.78E-01	
Lead-212	0.02	0.00	3.34E-01	
Uranium-234	0.13	0.00	2.43E+00	
Uranium-235	0.01	0.00	1.03E-01	
Uranium-238	0.09	0.00	1.80E+00	
Plutonium-238	0.06	0.00	1.05E+00	
Plutonium-239/240	5.26	0.15	1.00E+00	
Plutonium-241	0.00	0.00	3.44E-02	
Potassium-40	0.20	0.01	3.87E+00	
Actinium-228	0.05	0.00	9.03E-01	
Bismuth-212	0.01	0.00	1.72E-01	
Bismuth-214	0.02	0.00	4.09E-01	
Technicium-99	0.01	0.00	1.82E-01	
Strontium-89	0.01	0.00	1.21E-01	
Cobalt-60	0.58	0.02	1.11E+01	
Thorium-234	0.01	0.00	1.76E-01	
Sodium-22	0.06	0.00	1.07E+00	
	0.00	0.00	0.00E+00	
			2.42E+03	

42000 enter the weight in pounds

Radioactive Waste Control Form   RWCF # 48572

GENERAL INFORMATION Generator (print) Weskem, LLC

Department/Division ERD 811 Box 85 Ext. ______ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD Soil + concrete

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	50 %	rubber	%
water	%	sludge	%	cloth	%	concrete	50 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		see µCi	Attach	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ______

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Danforth Date 11/12/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .05 @ 12"	______ @ contact ______ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Tuetan Life # 26004 Date 11-12-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.60E+02	1.91E+07
Strontium-90	78.64	2.27	1.50E+03	
Nickel-59	0.04	0.00	7.00E-01	
Europium-152	0.21	0.01	3.95E+00	
Europium-154	0.16	0.00	3.06E+00	
Europium-155	0.00	0.00	1.56E-02	
Radium-226	0.23	0.01	4.33E+00	
Americium-241	6.56	0.19	1.25E+02	
Thorium-228	0.01	0.00	1.30E-01	
Thorium-232	0.03	0.00	5.67E-01	
Lead-210	0.01	0.00	1.78E-01	
Lead-212	0.02	0.00	3.34E-01	
Uranium-234	0.13	0.00	2.43E+00	
Uranium-235	0.01	0.00	1.03E-01	
Uranium-238	0.09	0.00	1.80E+00	
Plutonium-238	0.06	0.00	1.05E+00	
Plutonium-239/240	5.26	0.15	1.00E+02	
Plutonium-241	0.00	0.00	3.44E-02	
Potassium-40	0.20	0.01	3.87E+00	
Actinium-228	0.05	0.00	9.03E-01	
Bismuth-212	0.01	0.00	1.72E-01	
Bismuth-214	0.02	0.00	4.09E-01	
Technicium-99	0.01	0.00	1.82E-01	
Strontium-89	0.01	0.00	1.21E-01	
Cobalt-60	0.58	0.02	1.11E+01	
Thorium-234	0.01	0.00	1.76E-01	
Sodium-22	0.06	0.00	1.07E+00	
	0.00	0.00	0.00E+00	
			2.42E+03	

42000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48571 #8

GENERAL INFORMATION Generator (print) Weskem, LLC

Department/Division ERD Box 811-84 Ext. ______ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi	see Attached	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/11/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.05 @ contact	.01 @ 12"	n/a @ contact	n/a @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # U9746 Date 11/11/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

11-11-04 / 1125

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48570 #10

GENERAL INFORMATION Generator (print) Weskem, LLC

Department/Division ERD Box 811 - 83 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DPAD

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/11/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	11/11/04 mr/hr contact .102 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U5746 Date 11/11/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

RWCF 48570

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48569 #6

GENERAL INFORMATION Generator (print) Weskem, LLC

Department/Division ERD Box 811 82 Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 39000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi	See attached	μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/10/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .1 @ 12"	1112 @ contact 1112 @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U5746 Date 11/10/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form **RWCF #** 48568

GENERAL INFORMATION Generator (print) [illegible]

Department/Division [illegible] Ext. ______ Life/Guest # [illegible]

Dept. Responsible for Waste: [illegible] Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type [illegible] Return Package? YES ☒ NO ☑

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 30,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: [illegible]

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date [illegible]

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.4 @ contact	.2 @ 12"	[illegible] @ contact	[illegible] @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # [illegible] Date [illegible]

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48567

#2

GENERAL INFORMATION Generator (print) Weskem LLC.

Department/Division [illegible] Ext. _____ Life/Guest # [illegible]

Dept. Responsible for Waste: [illegible] Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bulk-F Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 46,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-1.(1)

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%	Asphalt 100	%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11-10-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 11/11/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48567

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		7.23E+02	2.09E+07
Strontium-90	78.64	2.27	1.64E+03	
Nickel-59	0.04	0.00	7.67E-01	
Europium-152	0.21	0.01	4.32E+00	
Europium-154	0.16	0.00	3.35E+00	
Europium-155	0.00	0.00	1.71E-02	
Radium-226	0.23	0.01	4.74E+00	
Americium-241	6.56	0.19	1.37E+02	
Thorium-228	0.01	0.00	1.42E-01	
Thorium-232	0.03	0.00	6.21E-01	
Lead-210	0.01	0.00	1.95E-01	
Lead-212	0.02	0.00	3.66E-01	
Uranium-234	0.13	0.00	2.66E+00	
Uranium-235	0.01	0.00	1.13E-01	
Uranium-238	0.09	0.00	1.97E+00	
Plutonium-238	0.06	0.00	1.15E+00	
Plutonium-239/240	5.26	0.15	1.10E+02	
Plutonium-241	0.00	0.00	3.77E-02	
Potassium-40	0.20	0.01	4.23E+00	
Actinium-228	0.05	0.00	9.89E-01	
Bismuth-212	0.01	0.00	1.88E-01	
Bismuth-214	0.02	0.00	4.48E-01	
Technicium-99	0.01	0.00	1.99E-01	
Strontium-89	0.01	0.00	1.33E-01	
Cobalt-60	0.58	0.02	1.21E+01	
Thorium-234	0.01	0.00	1.93E-01	
Sodium-22	0.06	0.00	1.17E+00	
	0.00	0.00	0.00E+00	
			2.65E+03	

46000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48566

GENERAL INFORMATION Generator (print) [illegible]

Department/Division [illegible] Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: [illegible] Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type [illegible] Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: [illegible]

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11-10-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	4 mR/HR @ contact .2 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 11/11/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	1448.00		2.50E+04	1.73E+07
Strontium-90	3290.91	2.27	5.68E+04	
Nickel-59	1.54	0.00	2.65E+01	
Europium-152	8.66	0.01	1.49E+02	
Europium-154	6.71	0.00	1.16E+02	
Europium-155	0.03	0.00	5.92E-01	
Radium-226	9.51	0.01	1.64E+02	
Americium-241	274.50	0.19	4.74E+03	
Thorium-228	0.28	0.00	4.90E+00	
Thorium-232	1.24	0.00	2.15E+01	
Lead-210	0.39	0.00	6.74E+00	
Lead-212	0.73	0.00	1.26E+01	
Uranium-234	5.33	0.00	9.20E+01	
Uranium-235	0.23	0.00	3.91E+00	
Uranium-238	3.95	0.00	6.82E+01	
Plutonium-238	2.31	0.00	3.98E+01	
Plutonium-239/240	220.31	0.15	3.80E+03	
Plutonium-241	0.08	0.00	1.30E+00	
Potassium-40	8.48	0.01	1.46E+02	
Actinium-228	1.98	0.00	3.42E+01	
Bismuth-212	0.38	0.00	6.51E+00	
Bismuth-214	0.90	0.00	1.55E+01	
Technicium-99	0.40	0.00	6.90E+00	
Strontium-89	0.27	0.00	4.60E+00	
Cobalt-60	24.30	0.02	4.19E+02	
Thorium-234	0.39	0.00	6.67E+00	
Sodium-22	2.34	0.00	4.04E+01	
	0.00	0.00	0.00E+00	
			9.17E+04	

38000 enter the weight in pounds

****
***** I S O C S S P E C T R A L A N A L Y S I S *****
****

ISOCS Report Generator : +++ ISOCSHDR.TPL 01 JAN 2004 +++
Report Generated On : 11/10/04 1:24:31 PM

Spectrum File Name : DET01
Sample Title : BNL-135
Sample Identification :
Sample Type :
Desc. 1 : 811 Various Soil
Desc. 2 :
Desc. 3 :
Desc. 4 :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 100 - 8000
Peak Area Range (in channels) : 100 - 8000
Identification Energy Tolerance : 1.000 FWHM

Sample Size : 1.000E+000 gram

Sample Collected :
Acquisition Started : 11/10/04 1:18:08 PM

Live Time : 300.0 seconds
Real Time : 350.2 seconds

Energy Calibration Performed : 8/9/04 1:08:58 PM
Efficiency / Geometry ID : _133-N_MARINELLI
Efficiency Calibration File Created : 10/11/04 11:26:32 AM

****
***** PEAK EFFICIENCY REPORT *****
****

Detector Name: DET01
Sample Title: BNL-135
Peak Analysis Performed on: 11/10/2004 1:24:31 PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	75.06	9.60E+002	888.99	3.17E+001	2.77E+000
2	644.11	1.68E+002	184.97	2.70E+001	1.56E+000
3	661.07	7.23E+005	1734.80	2.67E+001	1.52E+000
4	732.56	4.17E+001	52.05	2.53E+001	1.37E+000
5	1058.33	3.18E+001	27.64	2.08E+001	8.27E-001
6	1172.65	4.81E+001	31.05	1.97E+001	7.24E-001
7	1237.46	2.95E+001	20.69	1.91E+001	6.88E-001
8	1273.61	1.26E+002	34.53	1.88E+001	6.74E-001
9	1322.39	9.76E+002	68.85	1.84E+001	6.61E-001
10	1331.71	7.37E+001	21.67	1.83E+001	6.60E-001
11	1460.14	3.26E+002	40.63	1.73E+001	6.48E-001
12	1764.01	3.48E+001	12.98	1.54E+001	6.26E-001
13	2615.48	4.34E+001	16.29	1.18E+001	8.16E-001

M = First peak in a multiplet region
= Other peak in a multiplet region
= Fitted singlet

Errors quoted at 2.000 sigma

****
*** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: BNL-135
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/gram)	Activity Uncertainty
K-40	0.983	1460.75*	10.67	1.58998E+001	2.06913E+000
Co-60	0.979	1173.22*	100.00	2.20459E-001	1.42435E-001
		1332.49*	100.00	3.62933E-001	1.07537E-001
Cs-137	0.985	661.65*	85.12	2.86910E+003	1.64303E+002

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 FWHM
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/gram)	Wt mean Activity Uncertainty
K-40	0.983	1.589985E+001	2.069132E+000
Co-60	0.979	3.112063E-001	8.582357E-002
Cs-137	0.985	2.869102E+003	1.643034E+002

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 11/10/2004 1:24:31 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 8000

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	75.06	3.1994E+000	92.62
2	644.11	5.6007E-001	110.09
4	732.56	1.3913E-001	124.71
5	1058.33	1.0602E-001	86.91
7	1237.46	9.8267E-002	70.20
8	1273.61	4.1968E-001	27.43
9	1322.39	3.2543E+000	7.05
12	1764.01	1.1592E-001	37.32
13	2615.48	1.4480E-001	37.49

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****

** N U C L I D E M D A R E P O R T *****

****

Detector Name: DET01
Sample Geometry:
Sample Title: BNL-135
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
+	K-40	1460.75*	10.67	1.6261E+000	1.63E+000	1.5900E+001
	Cr-51	320.08	9.83	1.1056E+001	1.11E+001	-1.7238E+000
	Mn-54	834.83	99.97	2.0649E-001	2.06E-001	8.2597E-003
	Co-57	122.06	85.51	1.1307E+000	1.13E+000	-5.7520E-001
		136.48	10.60	8.8319E+000		-3.0476E+000
	Co-58	810.76	99.40	2.1084E-001	2.11E-001	-5.8830E-002
	Fe-59	1099.22	56.50	3.3412E-001	2.25E-001	5.0824E-002
		1291.56	43.20	2.2532E-001		-2.0003E-002
+	Co-60	1173.22*	100.00	2.2166E-001	1.20E-001	2.2046E-001
		1332.49*	100.00	1.2045E-001		3.6293E-001
	Zn-65	1115.52	50.75	3.7265E-001	3.73E-001	-6.2459E-002
	Sr-85	513.99	99.27	1.0732E+000	1.07E+000	-2.3476E-002
	Y-88	898.02	93.40	2.1954E-001	1.64E-002	-4.8427E-002
		1836.01	99.38	1.6375E-002		0.0000E+000
	Nb-95	765.79	99.81	2.0608E-001	2.06E-001	-1.8693E-002
	Zr-95	724.18	43.70	4.7006E-001	3.63E-001	-3.1937E-001
		756.72	55.30	3.6295E-001		2.5821E-002
	Ru-103	497.08	89.00	1.2907E+000	1.29E+000	1.9802E-001
	Ru-106	621.84	9.80	7.6163E+000	7.62E+000	6.3387E-001
	Cd-109	88.03	3.72	2.7764E+001	2.78E+001	-1.0558E+001
	Sn-113	391.69	64.90	1.9061E+000	1.91E+000	9.7719E-001
	I-131	284.30	6.05	1.7631E+001	1.45E+000	7.6159E+000
		364.48	81.20	1.4503E+000		5.1120E-001
		636.97	7.26	1.1137E+001		-9.8519E+000
	Cs-134	569.32	15.43	5.3897E+000	2.47E-001	9.5912E-002
		604.70	97.60	7.8027E-001		-1.8059E-001
		795.84	85.40	2.4744E-001		9.7350E-003
+	Cs-137	661.65*	85.12	2.2634E+000	2.26E+000	2.8691E+003
	Ce-139	165.85	80.35	1.1439E+000	1.14E+000	-1.3951E-001
	Ba-140	162.64	6.70	1.3754E+001	3.82E+000	1.3607E+000
		537.32	25.00	3.8237E+000		8.7859E-001
	La-140	328.77	20.50	5.3907E+000	7.55E-002	8.3323E-001
		487.03	45.50	2.6892E+000		1.4930E+000
		815.85	23.50	7.7870E-001		-6.0974E-001
		1596.49	95.49	7.5503E-002		-1.4590E-002
	Ce-141	145.44	48.40	1.9143E+000	1.91E+000	3.6961E-001
	Ce-144	133.54	10.80	8.7362E+000	8.74E+000	-1.0541E+000
	Eu-152	121.78	28.40	3.4085E+000	4.77E-001	-2.0752E+000
		244.70	7.51	1.3991E+001		1.9776E-002
		344.28	26.60	4.2145E+000		6.2693E-001
		778.90	12.98	1.5102E+000		-1.3479E+000
		964.10	14.50	1.3642E+000		1.0294E-001

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
Eu-152	1085.90	9.92	1.7141E+000	4.77E-001	-6.2560E-001
	1112.10	13.55	1.3664E+000		5.4480E-001
	1408.00	20.80	4.7687E-001		1.1737E-001
Hg-203	279.19	77.30	1.3692E+000	1.37E+000	6.2054E-001
Tl-208	583.19	84.50	9.5752E-001	2.58E-001	1.5721E-001
	860.56	12.42	1.7529E+000		5.8416E-001
	2614.50	99.16	2.5806E-001		2.3784E-001
Pb-212	238.63	44.60	2.3984E+000	2.40E+000	-1.9865E-001
Bi-214	609.31	46.30	1.6682E+000	1.14E+000	3.7373E-001
	1120.29	15.10	1.4279E+000		3.3755E-001
	1764.49	15.80	1.1359E+000		1.2426E+000
Pb-214	295.21	18.50	5.7862E+000	3.18E+000	2.4866E+000
	351.92	35.80	3.1816E+000		1.0881E+000
Ac-228	338.32	11.40	9.8234E+000	8.91E-001	5.1189E+000
	911.60	27.70	8.9063E-001		4.7131E-001
	969.11	16.60	1.2243E+000		1.0954E+000
Pa-234m	1001.30	0.85	2.2535E+001	2.25E+001	-6.7090E+000
Th-234	63.29	3.81	5.4559E+001	1.81E+001	2.1678E+001
	92.60	5.40	1.8078E+001		1.0585E+001
U-235	143.76	10.90	8.5511E+000	1.81E+000	8.1313E-001
	185.71	57.50	1.8112E+000		8.9574E-001
AM-241	59.54	35.90	7.1048E+000	7.10E+000	-2.2664E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

Radioactive Waste Control Form

RWCF # 48565

GENERAL INFORMATION Generator (print) _____

Department/Division _____ Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: 2151 Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Metal Box Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: ~~44,000~~ AD 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	AD 10 %	soil	40 AD ~~90~~ %	rubber	%
water	%	sludge	%	cloth	%	~~concrete~~	AD ~~90~~ %	resin	%	wood	%
	%		%		%	concrete	60 %		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11-10-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 32144 Date 11/11/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

11.1.04 / 0910

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 48564

GENERAL INFORMATION Generator (print) [illegible]

Department/Division [illegible] Ext. _____ Life/Guest # [illegible]

Dept. Responsible for Waste: [illegible] Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type [illegible] Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 42,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: [illegible]

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	30 %	rubber	%
water	%	sludge	%	cloth	%	concrete	70 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11-10-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .003 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 06746 Date 11/10/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.60E+02	1.91E+07
Strontium-90	78.64	2.27	1.50E+03	
Nickel-59	0.04	0.00	7.00E-01	
Europium-152	0.21	0.01	3.95E+00	
Europium-154	0.16	0.00	3.06E+00	
Europium-155	0.00	0.00	1.56E-02	
Radium-226	0.23	0.01	4.33E+00	
Americium-241	6.56	0.19	1.25E+02	
Thorium-228	0.01	0.00	1.30E-01	
Thorium-232	0.03	0.00	5.67E-01	
Lead-210	0.01	0.00	1.78E-01	
Lead-212	0.02	0.00	3.34E-01	
Uranium-234	0.13	0.00	2.43E+00	
Uranium-235	0.01	0.00	1.03E-01	
Uranium-238	0.09	0.00	1.80E+00	
Plutonium-238	0.06	0.00	1.05E+00	
Plutonium-239/240	5.26	0.15	1.00E+02	
Plutonium-241	0.00	0.00	3.44E-02	
Potassium-40	0.20	0.01	3.87E+00	
Actinium-228	0.05	0.00	9.03E-01	
Bismuth-212	0.01	0.00	1.72E-01	
Bismuth-214	0.02	0.00	4.09E-01	
Technicium-99	0.01	0.00	1.82E-01	
Strontium-89	0.01	0.00	1.21E-01	
Cobalt-60	0.58	0.02	1.11E+01	
Thorium-234	0.01	0.00	1.76E-01	
Sodium-22	0.06	0.00	1.07E+00	
	0.00	0.00	0.00E+00	
			2.42E+03	

42000 enter the weight in pounds

Radioactive Waste Control Form **RWCF #** 48563

GENERAL INFORMATION Generator (print) [illegible] Department/Division [illegible] Ext. ______ Life/Guest # [illegible]
Dept. Responsible for Waste: [illegible] Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type [illegible] Return Package? YES ☒ NO ☐
VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 41,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: [illegible] Concrete + Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	~~40~~ 10 %	rubber	%		
water	%	sludge	%	cloth	%	concrete	~~15~~ 90 %	resin	%	wood	%		
	%		%		%		%		%		%		

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	[illegible]	μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards [illegible]

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11-10-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9746 Date 11/10/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______
Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______
Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______
DOT Hazard Class ______ Waste Profile Number ______

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.91E+02	2.00E+07
Strontium-90	78.64	2.27	1.57E+03	
Nickel-59	0.04	0.00	7.34E-01	
Europium-152	0.21	0.01	4.13E+00	
Europium-154	0.16	0.00	3.20E+00	
Europium-155	0.00	0.00	1.64E-02	
Radium-226	0.23	0.01	4.54E+00	
Americium-241	6.56	0.19	1.31E+02	
Thorium-228	0.01	0.00	1.36E-01	
Thorium-232	0.03	0.00	5.94E-01	
Lead-210	0.01	0.00	1.87E-01	
Lead-212	0.02	0.00	3.50E-01	
Uranium-234	0.13	0.00	2.54E+00	
Uranium-235	0.01	0.00	1.08E-01	
Uranium-238	0.09	0.00	1.89E+00	
Plutonium-238	0.06	0.00	1.10E+00	
Plutonium-239/240	5.26	0.15	1.05E+02	
Plutonium-241	0.00	0.00	3.60E-02	
Potassium-40	0.20	0.01	4.05E+00	
Actinium-228	0.05	0.00	9.46E-01	
Bismuth-212	0.01	0.00	1.80E-01	
Bismuth-214	0.02	0.00	4.28E-01	
Technicium-99	0.01	0.00	1.91E-01	
Strontium-89	0.01	0.00	1.27E-01	
Cobalt-60	0.58	0.02	1.16E+01	
Thorium-234	0.01	0.00	1.84E-01	
Sodium-22	0.06	0.00	1.12E+00	
	0.00	0.00	0.00E+00	
			2.54E+03	

44000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 48562

GENERAL INFORMATION Generator (print) KeySpan LLC.
Department/Division EBO MLX X 3-75 Ext. ______ Life/Guest # 04550
Dept. Responsible for Waste: EBO Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Pocket
Return Package? YES ☒ NO ☐
VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 400 (ft^3) WEIGHT OF WASTE: 44,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-pad Concrete + Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	Attached	μCi		μCi		μCi
	μCi		See μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11-10-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.03 @ contact	.005 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 05746 Date 11/10/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______
Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______
Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______
DOT Hazard Class ______ Waste Profile Number ______

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.91E+02	2.00E+07
Strontium-90	78.64	2.27	1.57E+03	
Nickel-59	0.04	0.00	7.34E-01	
Europium-152	0.21	0.01	4.13E+00	
Europium-154	0.16	0.00	3.20E+00	
Europium-155	0.00	0.00	1.64E-02	
Radium-226	0.23	0.01	4.54E+00	
Americium-241	6.56	0.19	1.31E+02	
Thorium-228	0.01	0.00	1.36E-01	
Thorium-232	0.03	0.00	5.94E-01	
Lead-210	0.01	0.00	1.87E-01	
Lead-212	0.02	0.00	3.50E-01	
Uranium-234	0.13	0.00	2.54E+00	
Uranium-235	0.01	0.00	1.08E-01	
Uranium-238	0.09	0.00	1.89E+00	
Plutonium-238	0.06	0.00	1.10E+00	
Plutonium-239/240	5.26	0.15	1.05E+02	
Plutonium-241	0.00	0.00	3.60E-02	
Potassium-40	0.20	0.01	4.05E+00	
Actinium-228	0.05	0.00	9.46E-01	
Bismuth-212	0.01	0.00	1.80E-01	
Bismuth-214	0.02	0.00	4.28E-01	
Technicium-99	0.01	0.00	1.91E-01	
Strontium-89	0.01	0.00	1.27E-01	
Cobalt-60	0.58	0.02	1.16E+01	
Thorium-234	0.01	0.00	1.84E-01	
Sodium-22	0.06	0.00	1.12E+00	
	0.00	0.00	0.00E+00	
			2.54E+03	

44000 enter the weight in pounds

ⵜ5

Radioactive Waste Control Form

RWCF # 48561

GENERAL INFORMATION Generator (print) Weston LLC

Department/Division FRD Bx 911-74 Ext. ______ Life/Guest # XL013

Dept. Responsible for Waste: FRD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: ~~38000~~ 49000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DPAD SOIL

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100%	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	see Attached	μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☑ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ______

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/10/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.15 @ contact	.010 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 32144 Date 11/10/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		6.91E+02	2.00E+07
Strontium-90	78.64	2.27	1.57E+03	
Nickel-59	0.04	0.00	7.34E-01	
Europium-152	0.21	0.01	4.13E+00	
Europium-154	0.16	0.00	3.20E+00	
Europium-155	0.00	0.00	1.64E-02	
Radium-226	0.23	0.01	4.54E+00	
Americium-241	6.56	0.19	1.31E+02	
Thorium-228	0.01	0.00	1.36E-01	
Thorium-232	0.03	0.00	5.94E-01	
Lead-210	0.01	0.00	1.87E-01	
Lead-212	0.02	0.00	3.50E-01	
Uranium-234	0.13	0.00	2.54E+00	
Uranium-235	0.01	0.00	1.08E-01	
Uranium-238	0.09	0.00	1.89E+00	
Plutonium-238	0.06	0.00	1.10E+00	
Plutonium-239/240	5.26	0.15	1.05E+02	
Plutonium-241	0.00	0.00	3.60E-02	
Potassium-40	0.20	0.01	4.05E+00	
Actinium-228	0.05	0.00	9.46E-01	
Bismuth-212	0.01	0.00	1.80E-01	
Bismuth-214	0.02	0.00	4.28E-01	
Technicium-99	0.01	0.00	1.91E-01	
Strontium-89	0.01	0.00	1.27E-01	
Cobalt-60	0.58	0.02	1.16E+01	
Thorium-234	0.01	0.00	1.84E-01	
Sodium-22	0.06	0.00	1.12E+00	
	0.00	0.00	0.00E+00	
			2.54E+03	

44000 enter the weight in pounds

#7

Radioactive Waste Control Form RWCF # 48462

GENERAL INFORMATION Generator (print) Weston LLC

Department/Division BQY - 811 - 73 Ext. _____ Life/Guest # X6V63

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad Soil

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☑ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/10/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 11/10/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47967

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division BOV-811-72 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EHO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type MODOFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-PAD Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached Melinda B. Soust

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 11-9-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dave Kuhl Life # 32144 Date 11/9/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47966

#10

GENERAL INFORMATION Generator (print) Wilshell, LLC.

Department/Division BOX 811-71 Ext. ______ Life/Guest # QL550

Dept. Responsible for Waste: EMO Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Intermodal Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil / D-PAD

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	Attached	μCi		μCi		μCi
	μCi		See μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11-9-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.05 @ contact	.03 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 22174 Date 11/9/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

Radioactive Waste Control Form RWCF# 47965

GENERAL INFORMATION Generator (print) INSPIRA, LLC.

Department/Division BOX 811 - 70 Ext. _____ Life/Guest # 04550

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bucket Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saint Date 11-9-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 11/9/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47964

GENERAL INFORMATION Generator (print) LOCKheed, LLC.

Department/Division Box 811-09 Ext. _____ Life/Guest # Guest

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 48000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-D&D Soil/concrete

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	30 %	rubber	%
water	%	sludge	%	cloth	%	concrete	70 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Milinda B Sweet Date 11-9-2001

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.1 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. M L Life # 05746 Date 11/9/01

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		7.54E+02	2.18E+07
Strontium-90	78.64	2.27	1.71E+03	
Nickel-59	0.04	0.00	8.00E-01	
Europium-152	0.21	0.01	4.51E+00	
Europium-154	0.16	0.00	3.49E+00	
Europium-155	0.00	0.00	1.79E-02	
Radium-226	0.23	0.01	4.95E+00	
Americium-241	6.56	0.19	1.43E+02	
Thorium-228	0.01	0.00	1.48E-01	
Thorium-232	0.03	0.00	6.48E-01	
Lead-210	0.01	0.00	2.04E-01	
Lead-212	0.02	0.00	3.82E-01	
Uranium-234	0.13	0.00	2.78E+00	
Uranium-235	0.01	0.00	1.18E-01	
Uranium-238	0.09	0.00	2.06E+00	
Plutonium-238	0.06	0.00	1.20E+00	
Plutonium-239/240	5.26	0.15	1.15E+02	
Plutonium-241	0.00	0.00	3.93E-02	
Potassium-40	0.20	0.01	4.42E+00	
Actinium-228	0.05	0.00	1.03E+00	
Bismuth-212	0.01	0.00	1.97E-01	
Bismuth-214	0.02	0.00	4.67E-01	
Technicium-99	0.01	0.00	2.08E-01	
Strontium-89	0.01	0.00	1.39E-01	
Cobalt-60	0.58	0.02	1.27E+01	
Thorium-234	0.01	0.00	2.01E-01	
Sodium-22	0.06	0.00	1.22E+00	
	0.00	0.00	0.00E+00	
			2.77E+03	

48000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47963

GENERAL INFORMATION Generator (print) [illegible] LLC
Department/Division BOX 811-68 Ext. ____ Life/Guest # G 6556
Dept. Responsible for Waste: [illegible] Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type [illegible] Return Package? YES ☒ NO ☐
VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 465 (ft³) WEIGHT OF WASTE: ~~[illegible]~~ 38000 lbs. MBS 11/9/04

RAD WASTE CHARACTERIZATION Describe Waste: ~~Concrete~~ + Soil from D-PAD MBS 11/9/04

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil MBS 11/9/04	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	~~[illegible]~~ MBS %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11-9-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9746 Date 11/9/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____
Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____
Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ____
DOT Hazard Class ____ Waste Profile Number ____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47962

GENERAL INFORMATION Generator (print) WESKEM, LLC.

Department/Division BOY 811-607 Ext. ______ Life/Guest # 09551

Dept. Responsible for Waste: EPD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type IP-1 ______ Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: ~~4YEEE~~ 38000 MBS 11/9 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: ~~CONCRETE~~ / SOIL FROM A-PAD MBS 11/9/04

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil MBS 11/9/04	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	~~90~~ %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda M. Scott Date 11-9-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 09746 Date 11/9/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

RWCF 47962

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47961

#2

GENERAL INFORMATION Generator (print) Wesken

Department/Division BOX 811-416 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	Attached	µCi		µCi		µCi
	µCi		See µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/9/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 11/9/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST. DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

#5

Radioactive Waste Control Form RWCF# 47960

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division Bldg 811 - 65 Ext. _____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 48,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D PAD C

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		SEE µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/9/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<.015 @ contact <.015 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 3294 Date 11/9/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible PathologicalWAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 47960

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 47959 #10

GENERAL INFORMATION Generator (print) Weskem, LLC

Department/Division Box 811-64 Ext. ____ Life/Guest # x6063

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # ____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid ____ (ft^3) WEIGHT OF WASTE: 48,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: ____

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/8/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.3 @ contact	.2 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # U5746 Date 11/8/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: ____

DOT Hazard Class ____ Waste Profile Number ____

BNL F 2975C 11/01

RWCF 47959

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47958 #8

GENERAL INFORMATION Generator (print) Wilskem, LLC.

Department/Division BOX 811-03 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: EHO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 48,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	see Attached			µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☑

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☒ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/8/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 09746 Date 11/8/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWC 58 961 M83

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47957

GENERAL INFORMATION Generator (print) Wesphem, LLC.

Department/Division BGV 811-02 Ext. _____ Life/Guest # X6003

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 40,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D Pad concrete

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	5 %	rubber	%
water	%	sludge	%	cloth	%	concrete	95 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/8/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.103 @ contact .015 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 05746 Date 11/5/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

Radioactive Waste Control Form RWCF# 47956

GENERAL INFORMATION Generator (print) Wilskem, LLC.

Department/Division Bldg 811-61 Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: EAD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLLOFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-pad Soil + concrete

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	5 %	rubber	%
water	%	sludge	%	cloth	%	concrete	95 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	See Attached	μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sobst Date 11/4/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 11/5/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

#2

Radioactive Waste Control Form RWCF# 47955

GENERAL INFORMATION Generator (print) ~~Melinda B. Soust~~ NESKEN, LLC.

Department/Division BGN 811-00 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-pAD Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%	Asphalt	10 %		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi) ~See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 11/4/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Kenneth Life # 3144 Date 11/5/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 47955

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

#5

Radioactive Waste Control Form RWCF# 47954

GENERAL INFORMATION Generator (print) Tesher, LLC.

Department/Division BOX 811-59 Ext. _____ Life/Guest # G6550

Dept. Responsible for Waste: EBO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40 (ft³) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-pad soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi) - See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Rolinda B. Scott Date 11/4/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<2 @ contact <1 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47953 #6

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division BOX-811-58 Ext. _____ Life/Guest # Q0550

Dept. Responsible for Waste: EMO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLLOFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL FROM D-PAD

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 11/8/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kuk Life # 22144 Date 11/4/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible PathologicalWAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47952

GENERAL INFORMATION Generator (print) WSHEM, LLC

Department/Division Box 811-57 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 40S (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D-PAD

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi	See Attached		µCi		µCi		µCi		µCi	
	µCi			µCi		µCi		µCi		µCi	
	µCi			µCi		µCi		µCi		µCi	
	µCi			µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saest Date 11/26/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Hull Life # 22144 Date 11/4/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

#8

Radioactive Waste Control Form RWCF # 47951

GENERAL INFORMATION Generator (print) Weskem, LLC.

Department/Division EMO 811 Tank Box #56 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type BOXOFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Material From D-Pad Tank Cover

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 11/3/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.08 @ contact .05 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 32424 Date 11/4/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47950

GENERAL INFORMATION Generator (print) Intrepid LLC

Department/Division EHD 811 Tank BCY #55 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EHD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + material from D-Tank pad cover

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil/6	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soust Date 11/3/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.4 @ contact 0.4 @ 12"	0.4 @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 47950

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47949

GENERAL INFORMATION Generator (print) Weslien LLC

Department/Division EBO Oil Tank Project #34 Ext. _____ Life/Guest # 06550

Dept. Responsible for Waste: EBO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bailoff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Material from D-Tank PAD Cover

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards Nail

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soost Date 11/3/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47948

GENERAL INFORMATION Generator (print) WESKEM, L.L.C.

Department/Division ERD 811 TANK PROJECT #53 Ext. _____ Life/Guest # QUSSO

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL AND MATERIAL FROM D TANK PAD COVER

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		See µCi Attached		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Yolanda B. Sousa Date 11/3/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 47948

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 47947

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD 811 Tank Project # 52 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil and Material from D Tank Pad Cover

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Claude B. Sweet Date 11/3/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47946

GENERAL INFORMATION Generator (print) WESKEM LLC

Department/Division ERD 811 TANK PROJECT #51 Ext. _____ Life/Guest # X60163

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL AND MATERIAL FROM D TANK PAD COVER

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	~~@ 100~~ 60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	40 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi) SEE ATTACHED

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Alan Sanford Date 11/2/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. David Kell Life # 22144 Date 11/2/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47945

GENERAL INFORMATION Generator (print) WESKEM LLC

Department/Division ERD 811 TANK PROJECT #50 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL AND MATERIAL FROM D-TANK PAD COVER.

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi) – SEE ATTACHED

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/2/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 11/2/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

7

Radioactive Waste Control Form RWCF# 47944

GENERAL INFORMATION Generator (print) NESKEM LLC

Department/Division ERD 811 TANK PROJECT # 49 Ext. _____ Life/Guest # X10063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38 000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL AND MATERIAL FROM D-TANK PAD COVER

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ~~☐~~ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	~~100~~ %	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi) - SEE ATTACHED

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/3/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.008 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 11/2/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47943

GENERAL INFORMATION Generator (print) WESKEM LLC

Department/Division ERD 811 TANK PROJECT #46 Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date _____

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 05746 Date 11/1/01

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

RWCF 47943

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF# 47941

GENERAL INFORMATION Generator (print) Weskem LLC

Department/Division ERD 811 Tank Project #47 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38006 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D Pad

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

SEE ATTACHED

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 11/1/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 11/1/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

11-1-04 1010

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47940

GENERAL INFORMATION Generator (print) Western LLC

Department/Division 811 Tank Project #46 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D Pad

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	see Attach	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 11/1/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 23745 Date 11/1/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

6

Radioactive Waste Control Form   RWCF # 47939

GENERAL INFORMATION Generator (print) [illegible]

Department/Division [illegible] Ext. ______ Life/Guest # [illegible]

Dept. Responsible for Waste: [illegible] Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type [illegible] Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid [illegible] (ft³) WEIGHT OF WASTE: [illegible] lbs.

RAD WASTE CHARACTERIZATION Describe Waste: [illegible]

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	ATTACHED	µCi		µCi		µCi
	µCi		SEE µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.* 12/13/2004

Generator's Signature [signature] Date [illegible]

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	1 @ contact .5 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetan Life # 06004 Date 12-13-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	34.60		5.97E+02	1.73E+07
Strontium-90	78.64	2.27	1.36E+03	
Nickel-59	0.04	0.00	6.34E-01	
Europium-152	0.21	0.01	3.57E+00	
Europium-154	0.16	0.00	2.76E+00	
Europium-155	0.00	0.00	1.41E-02	
Radium-226	0.23	0.01	3.92E+00	
Americium-241	6.56	0.19	1.13E+02	
Thorium-228	0.01	0.00	1.17E-01	
Thorium-232	0.03	0.00	5.13E-01	
Lead-210	0.01	0.00	1.61E-01	
Lead-212	0.02	0.00	3.02E-01	
Uranium-234	0.13	0.00	2.20E+00	
Uranium-235	0.01	0.00	9.34E-02	
Uranium-238	0.09	0.00	1.63E+00	
Plutonium-238	0.06	0.00	9.52E-01	
Plutonium-239/240	5.26	0.15	9.08E+01	
Plutonium-241	0.00	0.00	3.11E-02	
Potassium-40	0.20	0.01	3.50E+00	
Actinium-228	0.05	0.00	8.17E-01	
Bismuth-212	0.01	0.00	1.56E-01	
Bismuth-214	0.02	0.00	3.70E-01	
Technicium-99	0.01	0.00	1.65E-01	
Strontium-89	0.01	0.00	1.10E-01	
Cobalt-60	0.58	0.02	1.00E+01	
Thorium-234	0.01	0.00	1.59E-01	
Sodium-22	0.06	0.00	9.65E-01	
	0.00	0.00	0.00E+00	
			2.19E+03	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47938

GENERAL INFORMATION Generator (print) [illegible]

Department/Division [illegible] Ext. _____ Life/Guest # [illegible]

Dept. Responsible for Waste: EWD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type [illegible] Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 4.5 (ft^3) WEIGHT OF WASTE: 22,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: D-PAD Soil Small amount of Asphalt

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Asphalt	10 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 10/29/2007

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.4 @ contact .2 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 10/29/07

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

W05 ft3 38,000 lbs.

Radioactive Waste Control Form

RWCF # 47937

GENERAL INFORMATION Generator (print) Weskem 811 Tank Project

Department/Division ERD Box 811 - 43 Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D Pad

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi	SEE	µCi	Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I ~~am minimizing~~ all waste generated to the best of my ability.*

Generator's Signature [signature] Date 10/29/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 27946 Date 10/29/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.32		1.61E+02	1.73E+07
Strontium-90	21.18	2.27	3.65E+02	
Nickel-59	0.01	0.00	1.71E-01	
Europium-152	0.06	0.01	9.62E-01	
Europium-154	0.04	0.00	7.45E-01	
Europium-155	0.00	0.00	3.81E-03	
Radium-226	0.06	0.01	1.06E+00	
Americium-241	1.77	0.19	3.05E+01	
Thorium-228	0.00	0.00	3.16E-02	
Thorium-232	0.01	0.00	1.38E-01	
Lead-210	0.00	0.00	4.34E-02	
Lead-212	0.00	0.00	8.14E-02	
Uranium-234	0.03	0.00	5.92E-01	
Uranium-235	0.00	0.00	2.52E-02	
Uranium-238	0.03	0.00	4.39E-01	
Plutonium-238	0.01	0.00	2.56E-01	
Plutonium-239/240	1.42	0.15	2.45E+01	
Plutonium-241	0.00	0.00	8.38E-03	
Potassium-40	0.05	0.01	9.42E-01	
Actinium-228	0.01	0.00	2.20E-01	
Bismuth-212	0.00	0.00	4.19E-02	
Bismuth-214	0.01	0.00	9.96E-02	
Technicium-99	0.00	0.00	4.44E-02	
Strontium-89	0.00	0.00	2.96E-02	
Cobalt-60	0.16	0.02	2.70E+00	
Thorium-234	0.00	0.00	4.29E-02	
Sodium-22	0.02	0.00	2.60E-01	
	0.00	0.00	0.00E+00	
			5.90E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 48409

GENERAL INFORMATION Generator (print) Weskem 811 Tank Project

Department/Division ERD Box 811 - 42 Ext. _____ Life/Guest # X6063

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from D Pad

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi	SEE		ATTACHED			µCi				µCi
	µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 10/29/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.009 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 03746 Date 10/29/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.32		1.61E+02	1.73E+07
Strontium-90	21.18	2.27	3.65E+02	
Nickel-59	0.01	0.00	1.71E-01	
Europium-152	0.06	0.01	9.62E-01	
Europium-154	0.04	0.00	7.45E-01	
Europium-155	0.00	0.00	3.81E-03	
Radium-226	0.06	0.01	1.06E+00	
Americium-241	1.77	0.19	3.05E+01	
Thorium-228	0.00	0.00	3.16E-02	
Thorium-232	0.01	0.00	1.38E-01	
Lead-210	0.00	0.00	4.34E-02	
Lead-212	0.00	0.00	8.14E-02	
Uranium-234	0.03	0.00	5.92E-01	
Uranium-235	0.00	0.00	2.52E-02	
Uranium-238	0.03	0.00	4.39E-01	
Plutonium-238	0.01	0.00	2.56E-01	
Plutonium-239/240	1.42	0.15	2.45E+01	
Plutonium-241	0.00	0.00	8.38E-03	
Potassium-40	0.05	0.01	9.42E-01	
Actinium-228	0.01	0.00	2.20E-01	
Bismuth-212	0.00	0.00	4.19E-02	
Bismuth-214	0.01	0.00	9.96E-02	
Technicium-99	0.00	0.00	4.44E-02	
Strontium-89	0.00	0.00	2.96E-02	
Cobalt-60	0.16	0.02	2.70E+00	
Thorium-234	0.00	0.00	4.29E-02	
Sodium-22	0.02	0.00	2.60E-01	
	0.00	0.00	0.00E+00	
			5.90E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47913

GENERAL INFORMATION Generator (print) WESKEM - 811 Tank Project

Department/Division ERD BGY 811-41 Ext. _____ Life/Guest # Q6SSO

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type _____ Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: 38,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil - DPAD

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saest Date 10/28/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 05746 Date 10/28/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47912

GENERAL INFORMATION Generator (print) Weskem - 811 Tank Project X6-yr 3

Department/Division ERD Box 811 - 40 Ext. _____ Life/Guest # ~~Q6550~~ Q

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil D Pad

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	ATTACHED	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 10/28/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Caroline Thurtan Life # Q6004 Date 10-28-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	COC pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form

RWCF # 47911

GENERAL INFORMATION Generator (print) Wilsken - 811 TANK PROJECT

Department/Division EMD BOX 811-39 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bailoff Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: ~38 kg lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil - D PAD

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda Soest Date 10/28/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. M P Li Life # 03046 Date 10/28/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 47911

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

Radioactive Waste Control Form RWCF # 47910

GENERAL INFORMATION Generator (print) Weskem - Oil Tank Project

Department/Division ERD BOX 811-38 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Holloff Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ✓ (ft^3) WEIGHT OF WASTE: ~2400 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: PPE

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
PPE	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda Saest Date 4/23/04 10/28/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .03 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Jurston Life # Q6004 Date 10-28-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

ID No.	dpm	mR/hr	Contents	Container	Location	Collection Date	Ship Date	RWCF #
1	<1K	0.005	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
2	<1K	0.005	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
3	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
4	<1K	0.005	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
5	<1K	0.01	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
6	<1K	80uR/hr	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
7	<1K	0.005	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
8	<1K	0.05	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
9	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
10	<1K	0.03	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
11	<1K	0.05	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
12	<1K	0.005	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
13	<1K	0.2	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
14	<1K	0.09	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
15	<1K	0.03	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
16	<1K	0.005	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
17	<1K	0.1	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
18	<1K	0.01	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
19	<1K	0.01	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
20	<1K	0.01	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
21	<1K	0.01	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
22	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
23	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
24	<1K	0.05	PPE	30 Yard Roll-Off	RMA	10/13/2004		47910
25	<1K	0.01	PPE	30 Yard Roll-Off	RMA	10/21/2004		47910
26	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/21/2004		47910
27	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/21/2004		47910
28	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/21/2004		47910
29	<1K	0.02	PPE	30 Yard Roll-Off	RMA	10/21/2004		47910
30	<1K	0.03	Trash	30 Yard Roll-Off	RMA	10/21/2004		47910
31	<1K	0.5	Geotex Tile	30 Yard Roll-Off	RMA	10/21/2004		47910
32	<1K	0.5	Geotex Tile	30 Yard Roll-Off	RMA	10/21/2004		47910
33	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/4/2004		47910
34	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/4/2004		47910

35	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/4/2004	47910
36	<1K	0.015	PPE	30 Yard Roll-Off	RMA	11/4/2004	47910
37	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/4/2004	47910
38	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/4/2004	47910
39	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/4/2004	47910
40	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/4/2004	47910
41	<1K	0.012	PPE	30 Yard Roll-Off	RMA	11/4/2004	47910
42	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
43	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
44	<1K	0.4	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
45	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
46	<1K	0.1	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
47	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
48	<1K	0.3	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
49	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
50	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
51	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
52	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
53	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
54	<1K	0.08	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
55	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
56	<1K	0.03	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
57	<1K	0.2	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
58	<1K	0.01	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
59	<1K	0.02	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
60	<1K	0.05	PPE	30 Yard Roll-Off	RMA	11/23/2004	47910
61	<1K	0.02	Hydraulic Fluid Rag	30 Yard Roll-Off	RMA	11/23/2004	47910

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	10.00		1.09E+01	1.09E+06
Strontium-90	22.73	2.27	2.48E+01	
Nickel-59	0.01	0.00	1.16E-02	
Europium-152	0.06	0.01	6.52E-02	
Europium-154	0.05	0.00	5.05E-02	
Europium-155	0.00	0.00	2.58E-04	
Radium-226	0.07	0.01	7.15E-02	
Americium-241	1.90	0.19	2.07E+00	
Thorium-228	0.00	0.00	2.14E-03	
Thorium-232	0.01	0.00	9.36E-03	
Lead-210	0.00	0.00	2.94E-03	
Lead-212	0.01	0.00	5.51E-03	
Uranium-234	0.04	0.00	4.01E-02	
Uranium-235	0.00	0.00	1.70E-03	
Uranium-238	0.03	0.00	2.97E-02	
Plutonium-238	0.02	0.00	1.74E-02	
Plutonium-239/240	1.52	0.15	1.66E+00	
Plutonium-241	0.00	0.00	5.68E-04	
Potassium-40	0.06	0.01	6.38E-02	
Actinium-228	0.01	0.00	1.49E-02	
Bismuth-212	0.00	0.00	2.84E-03	
Bismuth-214	0.01	0.00	6.75E-03	
Technicium-99	0.00	0.00	3.01E-03	
Strontium-89	0.00	0.00	2.01E-03	
Cobalt-60	0.17	0.02	1.83E-01	
Thorium-234	0.00	0.00	2.91E-03	
Sodium-22	0.02	0.00	1.76E-02	
	0.00	0.00	0.00E+00	
			4.00E+01	

2400 enter the weight in pounds

Estimated Concentration Based On PPE Use.

ISOCS #63

Radioactive Waste Control Form RWCF# 47909

GENERAL INFORMATION Generator (print) WELSKEN - 811 TANK PROJECT

Department/Division EAD BOX 811-37 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EAD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type BOX-DOE Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: ~ 38 K lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL - D pad

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	SEE ATTACHED	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda Soust Date 10/28/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 09746 Date 10/28/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight
Cesium-137	9.42		1.63E+02	1.73E+07
Strontium-90	21.41	2.27	3.69E+02	
Nickel-59	0.01	0.00	1.72E-01	
Europium-152	0.06	0.01	9.72E-01	
Europium-154	0.04	0.00	7.53E-01	
Europium-155	0.00	0.00	3.85E-03	
Radium-226	0.06	0.01	1.07E+00	
Americium-241	1.79	0.19	3.08E+01	
Thorium-228	0.00	0.00	3.19E-02	
Thorium-232	0.01	0.00	1.40E-01	
Lead-210	0.00	0.00	4.39E-02	
Lead-212	0.00	0.00	8.23E-02	
Uranium-234	0.03	0.00	5.98E-01	
Uranium-235	0.00	0.00	2.54E-02	
Uranium-238	0.03	0.00	4.44E-01	
Plutonium-238	0.02	0.00	2.59E-01	
Plutonium-239/240	1.43	0.15	2.47E+01	
Plutonium-241	0.00	0.00	8.47E-03	
Potassium-40	0.06	0.01	9.52E-01	
Actinium-228	0.01	0.00	2.22E-01	
Bismuth-212	0.00	0.00	4.24E-02	
Bismuth-214	0.01	0.00	1.01E-01	
Technicium-99	0.00	0.00	4.49E-02	
Strontium-89	0.00	0.00	2.99E-02	
Cobalt-60	0.16	0.02	2.73E+00	
Thorium-234	0.00	0.00	4.34E-02	
Sodium-22	0.02	0.00	2.63E-01	
	0.00	0.00	0.00E+00	
			5.96E+02	

38000 enter the weight in pounds

BOX 811 - 36 Corrected

Radioactive Waste Control Form RWCF# 47916

GENERAL INFORMATION Generator (print) WESKEM - 811 tank project

Department/Division ERD Box 811-35 Ext. _____ Life/Guest # Q6961

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~405 (ft³) WEIGHT OF WASTE: ~38K lbs.

RAD WASTE CHARACTERIZATION Describe Waste: SOIL - D pad cover

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	SEE ATTACHED	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 10/27/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U9746 Date 10/27/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

MIXED WASTE CHARACTERIZATION

Complete this section if the waste contains or has come in contact with hazardous chemical substances:

List CHEMICAL CONSTITUENTS with their percentages by volume

	%		%		%
	%		%		%

		YES	NO
CORROSIVITY	Is the pH less than or equal to 2.0 or greater than or equal to 12.5?	☐	☐
GENERAL	Is the waste an unused chemical or spill clean-up?	☐	☐
	Was the waste used as a solvent or degreaser? If so which?	☐	☐
IGNITABILITY	Is the flashpoint less than 140 F (60 C)?	☐	☐
	Is the waste an oxidizer or pyrophoric?	☐	☐
REACTIVITY	Is the waste unstable, water reactive, or explosive? If so which?	☐	☐
	Does the waste contain cyanide or sulfide? If so which?	☐	☐
TOXICITY	Based on your knowledge, does the waste contain any of the following?	YES ☐ (If yes, check all that apply)	NO ☐

State Regulated Materials	
Asbestos	
Carcinogens	
Chelating Cmpds	
Infectious Agents	
Halogenated Organics	
Oils	
Organic Solvents	
PCB's	
Polycyclic Aromatics	

RCRA Regulated Materials							
Arsenic		m-Cresol		Hexachlorobenzene		Pyridine	
Barium		p-Cresol		Hexachlorobutadiene		Selenium	
Benzene		Cresol		Hexachloroethane		Silver	
Cadmium		2,4-D		Lead		Tetrachloroethylene	
Carbon Tetrachloride		1,4-Dichlorobenzene		Lindane		Toxaphene	
Chlordane		1,2-Dichloroethane		Mercury		Trichloroethylene	
Chlorobenzene		1,1-Dichloroethylene		Methoxychlor		2,4,5-Trichlorophenol	
Chloroform		2,4-Dinitrotoluene		Methyl Ethyl Ketone		2,4,6- Trichlorophenol	
Chromium		Endrin		Nitrobenzene		2,4,5-TP (Silvex)	
o-Cresol		Heptachlor		Pentachlorophenol		Vinyl Chloride	

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date _____

Copy_of_RWCF_~~49433~~[1]
47916

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	38.54		6.65E+02	1.73E+07	1.43E-01	2.41E-06	4.16E-05
Strontium-90	87.49	2.27	3.92E+01		3.24E-02	1.08E-05	4.83E-06
Nickel-59	2.05	0.05	9.18E-01		7.60E-06		
Europium-152	11.56	0.30	5.18E+00		4.28E-03	4.28E-07	1.92E-07
Europium-154	8.95	0.23	4.01E+00		3.32E-02	8.95E-06	4.01E-06
Europium-155	0.05	0.00	2.05E-02		1.70E-05	2.86E-09	1.28E-09
Radium-226	12.69	0.33	5.68E+00		4.70E-02	1.57E-04	7.01E-05
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.38	0.01	1.70E-01		1.41E-02	2.71E-07	1.21E-07
Thorium-232	1.66	0.04	7.43E-01		6.15E-03		
Lead-210	0.52	0.01	2.34E-01		1.93E-03	5.02E-07	2.25E-07
Lead-212	0.98	0.03	4.38E-01		3.62E-03	1.81E-07	8.11E-08
Uranium-234	7.12	0.18	3.18E+00		2.64E-02	4.45E-05	1.99E-05
Uranium-235	0.30	0.01	1.35E-01		1.12E-03		
Uranium-238	5.28	0.14	2.36E+00		1.95E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	11.32	0.29	5.07E+00		4.19E-03	4.72E-07	2.11E-07
Actinium-228	2.64	0.07	1.18E+00		9.79E-03	1.89E-07	8.46E-08
Bismuth-212	0.50	0.01	2.26E-01		1.87E-03	3.15E-08	1.41E-08
Bismuth-214	1.20	0.03	5.36E-01				
Technicium-99	0.53	0.01	2.39E-01		1.98E-03	2.22E-08	9.95E-09
Strontium-89	0.36	0.01	1.59E-01		1.32E-05	2.22E-08	9.95E-09
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.59	0.02	2.65E-01		2.20E-03	5.39E-08	2.41E-08
Thorium-234	0.52	0.01	2.31E-01		1.91E-05	6.37E-08	2.85E-08
Sodium-22	3.12	0.08	1.40E+00		1.16E-02	2.23E-07	9.99E-08
			7.36E+02				

Radioactive Waste Control Form RWCF # 48438

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Box 811-35 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ~~416~~ (ft³) WEIGHT OF WASTE: 14280 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Concrete Cover from A-Vault

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	100 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

See Attached

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity:
(attach copies of all supporting documentation)
Pending Analytical WS04CT04
See attached for Isocs/calcs

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Saust Qlesso for Anne M. White Date 10/15/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.008 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [illegible] Life # [illegible] Date [illegible]

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

Copy of RWCF 48438

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.70		3.98E-02	1.68E+03	8.78E-02	1.48E-06	2.49E-09
Strontium-90	53.80	2.27	3.81E-03		1.99E-02	6.64E-06	4.71E-10
Nickel-59	1.26	0.05	8.94E-05		4.67E-06		
Europium-152	7.11	0.30	5.04E-04		2.63E-03	2.63E-07	1.87E-11
Europium-154	5.51	0.23	3.90E-04		2.04E-02	5.51E-06	3.90E-10
Europium-155	0.03	0.00	2.00E-06		1.04E-05	1.76E-09	1.25E-13
Radium-226	7.80	0.33	5.53E-04		2.89E-02	9.63E-05	6.83E-09
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.23	0.01	1.65E-05		8.64E-03	1.67E-07	1.18E-11
Thorium-232	1.02	0.04	7.24E-05		3.78E-03		
Lead-210	0.32	0.01	2.27E-05		1.19E-03	3.09E-07	2.19E-11
Lead-212	0.60	0.03	4.26E-05		2.23E-03	1.11E-07	7.90E-12
Uranium-234	4.38	0.18	3.10E-04		1.62E-02	2.73E-05	1.94E-09
Uranium-235	0.19	0.01	1.32E-05		6.89E-04		
Uranium-238	3.25	0.14	2.30E-04		1.20E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	6.96	0.29	4.94E-04		2.58E-03	2.90E-07	2.06E-11
Actinium-228	1.63	0.07	1.15E-04		6.02E-03	1.16E-07	8.23E-12
Bismuth-212	0.31	0.01	2.20E-05		1.15E-03	1.94E-08	1.37E-12
Bismuth-214	0.74	0.03	5.22E-05				
Technicium-99	0.33	0.01	2.33E-05		1.22E-03	1.37E-08	9.69E-13
Strontium-89	0.22	0.01	1.55E-05		8.10E-06	1.37E-08	9.69E-13
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.36	0.02	2.58E-05		1.35E-03	3.31E-08	2.35E-12
Thorium-234	0.32	0.01	2.25E-05		1.17E-05	3.92E-08	2.78E-12
Sodium-22	1.92	0.08	1.36E-04		7.12E-03	1.37E-07	9.73E-12
			4.68E-02				

Radioactive Waste Control Form

RWCF # 47915

GENERAL INFORMATION Generator (print) [illegible]

Department/Division ERD Box [illegible] Ext. ______ Life/Guest # [illegible]

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 216 (ft³) WEIGHT OF WASTE: ______ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 80% soil [illegible] and 20% concrete [illegible]

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity:
(attach copies of all supporting documentation)
Pending Analytical
WS [illegible]

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ______

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 10-13-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	~~.05~~ .01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9746 Date 10/13/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on weighted average	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	76.61		7.66E-01	1.00E+04	2.84E-01	4.79E-06	4.79E-08
Strontium-90	174.11	2.273	1.74E+00		6.45E-02	2.15E-05	2.15E-07
Nickel-59	0.08	0.001	8.13E-04				
Europium-152	0.46	0.006	4.58E-03		1.70E-04	1.70E-08	1.70E-10
Europium-154	0.35	0.005	3.55E-03		1.31E-03	3.55E-07	3.55E-09
Europium-155	0.00	0.000	1.81E-05		6.72E-07	1.13E-10	1.13E-12
Radium-226	0.50	0.007	5.03E-03		1.86E-03	6.21E-06	6.21E-08
Americium-241	14.52	0.190	1.45E-01		5.38E-01	5.38E-04	5.38E-06
Thorium-228	0.02	0.000	1.50E-04		5.57E-04	1.07E-08	1.07E-10
Thorium-232	0.07	0.001	6.58E-04		2.44E-04		
Lead-210	0.02	0.000	2.07E-04		7.66E-05	1.99E-08	1.99E-10
Lead-212	0.04	0.001	3.88E-04		1.44E-04	7.18E-09	7.18E-11
Uranium-234	0.28	0.004	2.82E-03		1.04E-03	1.76E-06	1.76E-08
Uranium-235	0.01	0.000	1.20E-04		4.44E-05		
Uranium-238	0.21	0.003	2.09E-03		7.75E-04		
Plutonium-238	0.12	0.002	1.22E-03		4.53E-03	4.53E-06	4.53E-08
Plutonium-239/240	11.66	0.152	1.17E-01		4.32E-01	4.32E-04	4.32E-06
Plutonium-241	0.00	0.000	3.99E-05		1.48E-06	2.50E-09	2.50E-11
Potassium-40	0.45	0.006	4.49E-03		1.66E-04	1.87E-08	1.87E-10
Actinium-228	0.10	0.001	1.05E-03		3.88E-04	7.49E-09	7.49E-11
Bismuth-212	0.02	0.000	2.00E-04		7.40E-05	1.25E-09	1.25E-11
Bismuth-214	0.05	0.001	4.75E-04				
Technicium-99	0.02	0.000	2.11E-04		7.83E-05	8.81E-10	8.81E-12
Strontium-89	0.01	0.000	1.41E-04		5.22E-07	8.81E-10	8.81E-12
Cobalt-60	1.29	0.017	1.29E-02		4.76E-03	1.17E-07	1.17E-09
Thorium-234	0.02	0.000	2.04E-04		7.57E-07	2.52E-09	2.52E-11
Sodium-22	0.12	0.002	1.24E-03		4.59E-04	8.85E-09	8.85E-11
					1.33E+00		1.01E-05

Radioactive Waste Control Form RWCF # 47914

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Box 811-33 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 13 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: 60% soil from general area mixed w/ 40% concrete debris, some rebar

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	60 %	rubber	%
water	%	sludge	%	cloth	%	concrete	40 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

attached

all

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WS04CT03

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☐	Dose Rate to Activity Conversion	☒
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature M Lane for Anne White 0192C Date 10/12/04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. M L Pan Life # U5746 Date 10/12/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

	RWCF pCi/gm	RATIO based on weighted average	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	58.62		3.20E+02	5.46E+06	2.17E-01	3.66E-06	2.00E-05
Strontium-90	133.22	2.273	7.27E+02		4.93E-02	1.64E-05	8.97E-05
Nickel-59	0.06	0.001	3.39E-01				
Europium-152	0.35	0.006	1.91E+00		1.30E-04	1.30E-08	7.08E-08
Europium-154	0.27	0.005	1.48E+00		1.01E-03	2.72E-07	1.48E-06
Europium-155	0.00	0.000	7.57E-03		5.14E-07	8.68E-11	4.73E-10
Radium-226	0.38	0.007	2.10E+00		1.43E-03	4.75E-06	2.59E-05
Americium-241	11.11	0.190	6.06E+01		4.12E-01	4.12E-04	2.25E-03
Thorium-228	0.01	0.000	6.28E-02		4.26E-04	8.22E-09	4.48E-08
Thorium-232	0.05	0.001	2.75E-01		1.86E-04		
Lead-210	0.02	0.000	8.63E-02		5.86E-05	1.52E-08	8.30E-08
Lead-212	0.03	0.001	1.62E-01		1.10E-04	5.49E-09	3.00E-08
Uranium-234	0.22	0.004	1.18E+00		7.99E-04	1.35E-06	7.36E-06
Uranium-235	0.01	0.000	5.00E-02		3.40E-05		
Uranium-238	0.16	0.003	8.73E-01		5.93E-04		
Plutonium-238	0.09	0.002	5.10E-01		3.46E-03	3.46E-06	1.89E-05
Plutonium-239/240	8.92	0.152	4.87E+01		3.30E-01	3.30E-04	1.80E-03
Plutonium-241	0.00	0.000	1.67E-02		1.13E-06	1.91E-09	1.04E-08
Potassium-40	0.34	0.006	1.87E+00		1.27E-04	1.43E-08	7.81E-08
Actinium-228	0.08	0.001	4.37E-01		2.97E-04	5.73E-09	3.12E-08
Bismuth-212	0.02	0.000	8.34E-02		5.66E-05	9.55E-10	5.21E-09
Bismuth-214	0.04	0.001	1.98E-01				
Technicium-99	0.02	0.000	8.83E-02		5.99E-05	6.74E-10	3.68E-09
Strontium-89	0.01	0.000	5.89E-02		4.00E-07	6.74E-10	3.68E-09
Cobalt-60	0.98	0.017	5.37E+00		3.64E-03	8.94E-08	4.88E-07
Thorium-234	0.02	0.000	8.53E-02		5.79E-07	1.93E-09	1.05E-08
Sodium-22	0.09	0.002	5.17E-01		3.51E-04	6.77E-09	3.69E-08
					1.02E+00		4.21E-03

Basis. 60 % general area soils
40 % concrete

Radioactive Waste Control Form RWCF # 48461

GENERAL INFORMATION Generator (print) Anne White

Department/Division EMD BOX 811-32 Ext. _____ Life/Guest # Q60258

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bulloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 1650 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Concrete + soil from 811 yard. Small amount of rebar.

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi		µCi

See attached

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WS-04-ET-02

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sorset for Anne White Q65550 Date 10/11/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kush Life # 22144 Date 10/12/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48461

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	4.64		7.80E-03	1.68E+03	1.72E-02	2.90E-07	4.87E-10
Strontium-90	10.53	2.27	3.81E-03		3.90E-03	1.30E-06	4.71E-10
Nickel-59	0.25	0.05	8.94E-05		9.15E-07		
Europium-152	1.39	0.30	5.04E-04		5.16E-04	5.16E-08	1.87E-11
Europium-154	1.08	0.23	3.90E-04		3.99E-03	1.08E-06	3.90E-10
Europium-155	0.01	0.00	2.00E-06		2.04E-06	3.44E-10	1.25E-13
Radium-226	1.53	0.33	5.53E-04		5.66E-03	1.89E-05	6.83E-09
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.05	0.01	1.65E-05		1.69E-03	3.26E-08	1.18E-11
Thorium-232	0.20	0.04	7.24E-05		7.40E-04		
Lead-210	0.06	0.01	2.27E-05		2.33E-04	6.04E-08	2.19E-11
Lead-212	0.12	0.03	4.26E-05		4.36E-04	2.18E-08	7.90E-12
Uranium-234	0.86	0.18	3.10E-04		3.17E-03	5.35E-06	1.94E-09
Uranium-235	0.04	0.01	1.32E-05		1.35E-04		
Uranium-238	0.64	0.14	2.30E-04		2.35E-03		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	1.36	0.29	4.94E-04		5.05E-04	5.68E-08	2.06E-11
Actinium-228	0.32	0.07	1.15E-04		1.18E-03	2.27E-08	8.23E-12
Bismuth-212	0.06	0.01	2.20E-05		2.25E-04	3.79E-09	1.37E-12
Bismuth-214	0.14	0.03	5.22E-05				
Technicium-99	0.06	0.01	2.33E-05		2.38E-04	2.68E-09	9.69E-13
Strontium-89	0.04	0.01	1.55E-05		1.59E-06	2.68E-09	9.69E-13
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.07	0.02	2.58E-05		2.64E-04	6.49E-09	2.35E-12
Thorium-234	0.06	0.01	2.25E-05		2.30E-06	7.67E-09	2.78E-12
Sodium-22	0.38	0.08	1.36E-04		1.39E-03	2.69E-08	9.73E-12
			1.48E-02				

Radioactive Waste Control Form RWCF# 48460

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD BOX 811-31 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Metal Roll off Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 16080 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Concrete + soil from 811 yard small amount of rebar.

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	10 %	rubber	%
water	%	sludge	%	cloth	%	concrete	90 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		See Attached µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WS-04CT-01

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Silvest for Anne White Q6550 Date 10/11/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Anne Pitt Life # 22414 Date 10.11.04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48460

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	4.64		7.80E-03	1.68E+03	1.72E-02	2.90E-07	4.87E-10
Strontium-90	10.53	2.27	3.81E-03		3.90E-03	1.30E-06	4.71E-10
Nickel-59	0.25	0.05	8.94E-05		9.15E-07		
Europium-152	1.39	0.30	5.04E-04		5.16E-04	5.16E-08	1.87E-11
Europium-154	1.08	0.23	3.90E-04		3.99E-03	1.08E-06	3.90E-10
Europium-155	0.01	0.00	2.00E-06		2.04E-06	3.44E-10	1.25E-13
Radium-226	1.53	0.33	5.53E-04		5.66E-03	1.89E-05	6.83E-09
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.05	0.01	1.65E-05		1.69E-03	3.26E-08	1.18E-11
Thorium-232	0.20	0.04	7.24E-05		7.40E-04		
Lead-210	0.06	0.01	2.27E-05		2.33E-04	6.04E-08	2.19E-11
Lead-212	0.12	0.03	4.26E-05		4.36E-04	2.18E-08	7.90E-12
Uranium-234	0.86	0.18	3.10E-04		3.17E-03	5.35E-06	1.94E-09
Uranium-235	0.04	0.01	1.32E-05		1.35E-04		
Uranium-238	0.64	0.14	2.30E-04		2.35E-03		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	1.36	0.29	4.94E-04		5.05E-04	5.68E-08	2.06E-11
Actinium-228	0.32	0.07	1.15E-04		1.18E-03	2.27E-08	8.23E-12
Bismuth-212	0.06	0.01	2.20E-05		2.25E-04	3.79E-09	1.37E-12
Bismuth-214	0.14	0.03	5.22E-05				
Technicium-99	0.06	0.01	2.33E-05		2.38E-04	2.68E-09	9.69E-13
Strontium-89	0.04	0.01	1.55E-05		1.59E-06	2.68E-09	9.69E-13
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.07	0.02	2.58E-05		2.64E-04	6.49E-09	2.35E-12
Thorium-234	0.06	0.01	2.25E-05		2.30E-06	7.67E-09	2.78E-12
Sodium-22	0.38	0.08	1.36E-04		1.39E-03	2.69E-08	9.73E-12
			1.48E-02				

Radioactive Waste Control Form RWCF # 48437

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Bldg 811-30 Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See attached

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WSO4ASO1

Direct Method: Gamma Ray Spectroscopy ☐ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☒ Material Balance ☐ Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards none

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 10-7-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	<0.01 @ contact <0.01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. M J Pe Life # 09746 Date 10/7/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48437

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.70		6.16E+02	2.60E+07	8.78E-02	1.48E-06	3.85E-05
Strontium-90	53.80	2.27	5.90E+01		1.99E-02	6.64E-06	7.29E-06
Nickel-59	1.26	0.05	1.38E+00		4.67E-06		
Europium-152	7.11	0.30	7.80E+00		2.63E-03	2.63E-07	2.89E-07
Europium-154	5.51	0.23	6.04E+00		2.04E-02	5.51E-06	6.04E-06
Europium-155	0.03	0.00	3.09E-02		1.04E-05	1.76E-09	1.93E-09
Radium-226	7.80	0.33	8.56E+00		2.89E-02	9.63E-05	1.06E-04
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.23	0.01	2.56E-01		8.64E-03	1.67E-07	1.83E-07
Thorium-232	1.02	0.04	1.12E+00		3.78E-03		
Lead-210	0.32	0.01	3.52E-01		1.19E-03	3.09E-07	3.38E-07
Lead-212	0.60	0.03	6.60E-01		2.23E-03	1.11E-07	1.22E-07
Uranium-234	4.38	0.18	4.80E+00		1.62E-02	2.73E-05	3.00E-05
Uranium-235	0.19	0.01	2.04E-01		6.89E-04		
Uranium-238	3.25	0.14	3.56E+00		1.20E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	6.96	0.29	7.64E+00		2.58E-03	2.90E-07	3.18E-07
Actinium-228	1.63	0.07	1.78E+00		6.02E-03	1.16E-07	1.27E-07
Bismuth-212	0.31	0.01	3.40E-01		1.15E-03	1.94E-08	2.13E-08
Bismuth-214	0.74	0.03	8.08E-01				
Technicium-99	0.33	0.01	3.60E-01		1.22E-03	1.37E-08	1.50E-08
Strontium-89	0.22	0.01	2.40E-01		8.10E-06	1.37E-08	1.50E-08
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.36	0.02	4.00E-01		1.35E-03	3.31E-08	3.64E-08
Thorium-234	0.32	0.01	3.48E-01		1.17E-05	3.92E-08	4.30E-08
Sodium-22	1.92	0.08	2.11E+00		7.12E-03	1.37E-07	1.51E-07
			7.24E+02				

Radioactive Waste Control Form RWCF# 48436

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Box 811-29 Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil, asphalt from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%	asphalt	1 %		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WS04-A501

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards none

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 10-7-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Lelia Keil Life # 22144 Date 10/7/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48436

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.70		6.16E+02	2.60E+07	8.78E-02	1.48E-06	3.85E-05
Strontium-90	53.80	2.27	5.90E+01		1.99E-02	6.64E-06	7.29E-06
Nickel-59	1.26	0.05	1.38E+00		4.67E-06		
Europium-152	7.11	0.30	7.80E+00		2.63E-03	2.63E-07	2.89E-07
Europium-154	5.51	0.23	6.04E+00		2.04E-02	5.51E-06	6.04E-06
Europium-155	0.03	0.00	3.09E-02		1.04E-05	1.76E-09	1.93E-09
Radium-226	7.80	0.33	8.56E+00		2.89E-02	9.63E-05	1.06E-04
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.23	0.01	2.56E-01		8.64E-03	1.67E-07	1.83E-07
Thorium-232	1.02	0.04	1.12E+00		3.78E-03		
Lead-210	0.32	0.01	3.52E-01		1.19E-03	3.09E-07	3.38E-07
Lead-212	0.60	0.03	6.60E-01		2.23E-03	1.11E-07	1.22E-07
Uranium-234	4.38	0.18	4.80E+00		1.62E-02	2.73E-05	3.00E-05
Uranium-235	0.19	0.01	2.04E-01		6.89E-04		
Uranium-238	3.25	0.14	3.56E+00		1.20E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	6.96	0.29	7.64E+00		2.58E-03	2.90E-07	3.18E-07
Actinium-228	1.63	0.07	1.78E+00		6.02E-03	1.16E-07	1.27E-07
Bismuth-212	0.31	0.01	3.40E-01		1.15E-03	1.94E-08	2.13E-08
Bismuth-214	0.74	0.03	8.08E-01				
Technicium-99	0.33	0.01	3.60E-01		1.22E-03	1.37E-08	1.50E-08
Strontium-89	0.22	0.01	2.40E-01		8.10E-06	1.37E-08	1.50E-08
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.36	0.02	4.00E-01		1.35E-03	3.31E-08	3.64E-08
Thorium-234	0.32	0.01	3.48E-01		1.17E-05	3.92E-08	4.30E-08
Sodium-22	1.92	0.08	2.11E+00		7.12E-03	1.37E-07	1.51E-07
			7.24E+02				

Based upon weighted average and ISOCS.

Radioactive Waste Control Form

RWCF # 48435

GENERAL INFORMATION Generator (print) Anne White / T Baker

Department/Division ERD BOX 811-28 Ext. ______ Life/Guest # ______

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type ______ Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ______ (ft^3) WEIGHT OF WASTE: ______ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: ______

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

See attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Actual BOCS data used. Pending Analytical WSO4EP01

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ______

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 10-6-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.005 @ contact	.005 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # 32144 Date 10/7/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

RWCF 48434

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	4.62		1.56E+03	2.60E+07	1.71E-02	2.89E-07	9.75E-05
Strontium-90	10.49	2.27	2.64E+02		3.88E-03	1.29E-06	3.26E-05
Nickel-59	0.25	0.05	8.30E+01		9.11E-07		
Europium-152	1.39	0.30	4.68E+02		5.13E-04	5.13E-08	1.73E-05
Europium-154	1.07	0.23	3.62E+02		3.98E-03	1.07E-06	3.62E-04
Europium-155	0.01	0.00	1.85E+00		2.03E-06	3.43E-10	1.16E-07
Radium-226	1.52	0.33	5.14E+02		5.63E-03	1.88E-05	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.05	0.01	1.54E+01		1.68E-03	3.25E-08	1.10E-05
Thorium-232	0.20	0.04	6.72E+01		7.37E-04		
Lead-210	0.06	0.01	2.11E+01		2.32E-04	6.01E-08	2.03E-05
Lead-212	0.12	0.03	3.96E+01		4.34E-04	2.17E-08	7.33E-06
Uranium-234	0.85	0.18	2.88E+02		3.16E-03	5.33E-06	1.80E-03
Uranium-235	0.04	0.01	1.22E+01		1.34E-04		
Uranium-238	0.63	0.14	2.14E+02		2.34E-03		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	1.36	0.29	4.58E+02		5.03E-04	5.66E-08	1.91E-05
Actinium-228	0.32	0.07	1.07E+02		1.17E-03	2.26E-08	7.65E-06
Bismuth-212	0.06	0.01	2.04E+01		2.24E-04	3.78E-09	1.28E-06
Bismuth-214	0.14	0.03	4.85E+01				
Technicium-99	0.06	0.01	2.16E+01		2.37E-04	2.67E-09	9.00E-07
Strontium-89	0.04	0.01	1.44E+01		1.58E-06	2.67E-09	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.07	0.02	2.40E+01		2.63E-04	6.46E-09	2.18E-06
Thorium-234	0.06	0.01	2.09E+01		2.29E-06	7.63E-09	2.58E-06
Sodium-22	0.37	0.08	1.26E+02		1.39E-03	2.68E-08	9.03E-06
					4.36E-02	2.71E-05	8.73E-03

Based on weighted average ISOCS and PK.

Radioactive Waste Control Form

RWCF # 48434

GENERATOR INFORMATION Generator (print) Anne Marie T. Baker

Department/Division ERD BOX 811-2B Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll066 Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: _____

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

All attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

Pending Analytical i0504EP01. Actual ISOCS data used.

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards none

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 10-6-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.0005 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 27144 Date 10/6/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48434

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	4.62		1.56E+03	2.60E+07	1.71E-02	2.89E-07	9.75E-05
Strontium-90	10.49	2.27	2.64E+02		3.88E-03	1.29E-06	3.26E-05
Nickel-59	0.25	0.05	8.30E+01		9.11E-07		
Europium-152	1.39	0.30	4.68E+02		5.13E-04	5.13E-08	1.73E-05
Europium-154	1.07	0.23	3.62E+02		3.98E-03	1.07E-06	3.62E-04
Europium-155	0.01	0.00	1.85E+00		2.03E-06	3.43E-10	1.16E-07
Radium-226	1.52	0.33	5.14E+02		5.63E-03	1.88E-05	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.05	0.01	1.54E+01		1.68E-03	3.25E-08	1.10E-05
Thorium-232	0.20	0.04	6.72E+01		7.37E-04		
Lead-210	0.06	0.01	2.11E+01		2.32E-04	6.01E-08	2.03E-05
Lead-212	0.12	0.03	3.96E+01		4.34E-04	2.17E-08	7.33E-06
Uranium-234	0.85	0.18	2.88E+02		3.16E-03	5.33E-06	1.80E-03
Uranium-235	0.04	0.01	1.22E+01		1.34E-04		
Uranium-238	0.63	0.14	2.14E+02		2.34E-03		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	1.36	0.29	4.58E+02		5.03E-04	5.66E-08	1.91E-05
Actinium-228	0.32	0.07	1.07E+02		1.17E-03	2.26E-08	7.65E-06
Bismuth-212	0.06	0.01	2.04E+01		2.24E-04	3.78E-09	1.28E-06
Bismuth-214	0.14	0.03	4.85E+01				
Technicium-99	0.06	0.01	2.16E+01		2.37E-04	2.67E-09	9.00E-07
Strontium-89	0.04	0.01	1.44E+01		1.58E-06	2.67E-09	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.07	0.02	2.40E+01		2.63E-04	6.46E-09	2.18E-06
Thorium-234	0.06	0.01	2.09E+01		2.29E-06	7.63E-09	2.58E-06
Sodium-22	0.37	0.08	1.26E+02		1.39E-03	2.68E-08	9.03E-06
					4.36E-02	2.71E-05	8.73E-03

Based on weighted average ISOCS and PK.

Radioactive Waste Control Form

RWCF # 48433

GENERAL INFORMATION Generator (print) Ann White / T. Baker

Department/Division EM&W ERD (8-11-26) Ext. _____ Life/Guest # _____

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid 0 (gal.) OR Solid ~370 (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil w/ small portion of VCP. Maslin indicated no activity

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi	See attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Pending analysis
See attached ISOCS + Cales

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Ann Z. White Date 9-30-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form RWCF # 48432

GENERAL INFORMATION Generator (print) Anne White

Department/Division EMD Bldg 811-25 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, Concrete from 811 Land

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	~1 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WSO4 A304

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.* AW 9/24/2004

Generator's Signature Anne White Date 9/25/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U5746 Date 9/24/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

Radioactive Waste Control Form

RWCF # 48431

GENERAL INFORMATION Generator (print) Anne White

Department/Division EMD BOX 811-2A Ext. _____ Life/Guest # Q40258

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type ROLL OFF Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from 811 yard ~1 concrete, ~1 wood

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	~ %	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	~1 %	resin	%	wood	~1 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Periodic Analytical See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation) Periodic Analytical WSQA304

Direct Method: Gamma Ray Spectroscopy ☐ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☒ Material Balance ☐ Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.* 24 hr 9/24/2004

Generator's Signature Anne White Date 9/23/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. MD Life # UG746 Date 9/24/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL BLDG 811 U.S.T. REMEDIATION PROJECT

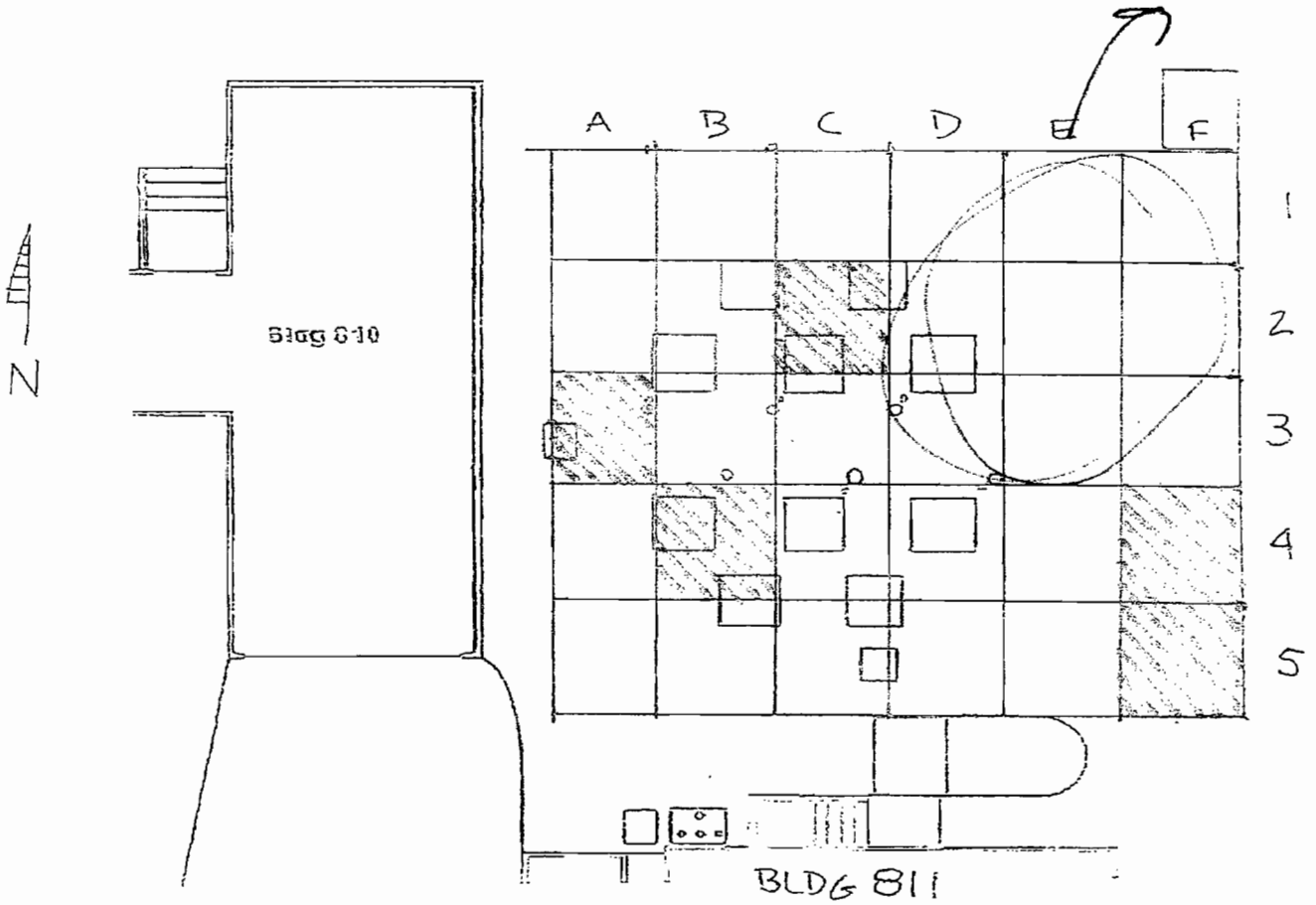
ISOCS OVERBURDEN SURVEY GRID MAP

RWCF # 48431

Location - See Map

Contents - 100% Soil, 24 - 1 Concrete, 1 Wood

BOX 811



D. Griswell

9-10-04

HWCF # 48431

	RWCF pCi/gm	RATIO based on weighted average	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	94.60		8.60E+02	9.09E+06	3.50E-01	5.91E-06	5.38E-05
Strontium-90	215.00	2.27	1.95E+03		7.96E-02	2.65E-05	2.41E-04
Nickel-59	0.10	0.00	9.13E-01				
Europium-152	0.57	0.01	5.14E+00		2.10E-04	2.10E-08	1.91E-07
Europium-154	0.44	0.00	3.98E+00		1.62E-03	4.38E-07	3.98E-06
Europium-155	0.00	0.00	2.04E-02		8.30E-07	1.40E-10	1.27E-09
Radium-226	0.62	0.01	5.65E+00		2.30E-03	7.67E-06	6.97E-05
Americium-241	17.93	0.19	1.63E+02		6.64E-01	6.64E-04	6.04E-03
Thorium-228	0.02	0.00	1.69E-01		6.88E-04	1.33E-08	1.21E-07
Thorium-232	0.08	0.00	7.39E-01		3.01E-04		
Lead-210	0.03	0.00	2.32E-01		9.46E-05	2.46E-08	2.23E-07
Lead-212	0.05	0.00	4.35E-01		1.77E-04	8.87E-09	8.06E-08
Uranium-234	0.35	0.00	3.17E+00		1.29E-03	2.18E-06	1.98E-05
Uranium-235	0.01	0.00	1.35E-01		5.48E-05		
Uranium-238	0.26	0.00	2.35E+00		9.57E-04		
Plutonium-238	0.15	0.00	1.37E+00		5.59E-03	5.59E-06	5.08E-05
Plutonium-239/240	14.39	0.15	1.31E+02		5.33E-01	5.33E-04	4.85E-03
Plutonium-241	0.00	0.00	4.48E-02		1.83E-06	3.08E-09	2.80E-08
Potassium-40	0.55	0.01	5.04E+00		2.05E-04	2.31E-08	2.10E-07
Actinium-228	0.13	0.00	1.18E+00		4.79E-04	9.24E-09	8.40E-08
Bismuth-212	0.02	0.00	2.24E-01		9.14E-05	1.54E-09	1.40E-08
Bismuth-214	0.06	0.00	5.33E-01				
Technicium-99	0.03	0.00	2.37E-01		9.67E-05	1.09E-09	9.89E-09
Strontium-89	0.02	0.00	1.58E-01		6.45E-07	1.09E-09	9.89E-09
Cobalt-60	1.59	0.02	1.44E+01		5.88E-03	1.44E-07	1.31E-06
Thorium-234	0.03	0.00	2.30E-01		9.35E-07	3.12E-09	2.83E-08
Sodium-22	0.15	0.00	1.39E+00		5.66E-04	1.09E-08	9.93E-08
					1.65E+00		1.13E-02

Based on Average ISOCS Value and Site PK

Radioactive Waste Control Form RWCF# 48430

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD BOX 811-23 Ext. _____ Life/Guest # Q6252

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WSDHA304

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne L. White Date 9-23-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

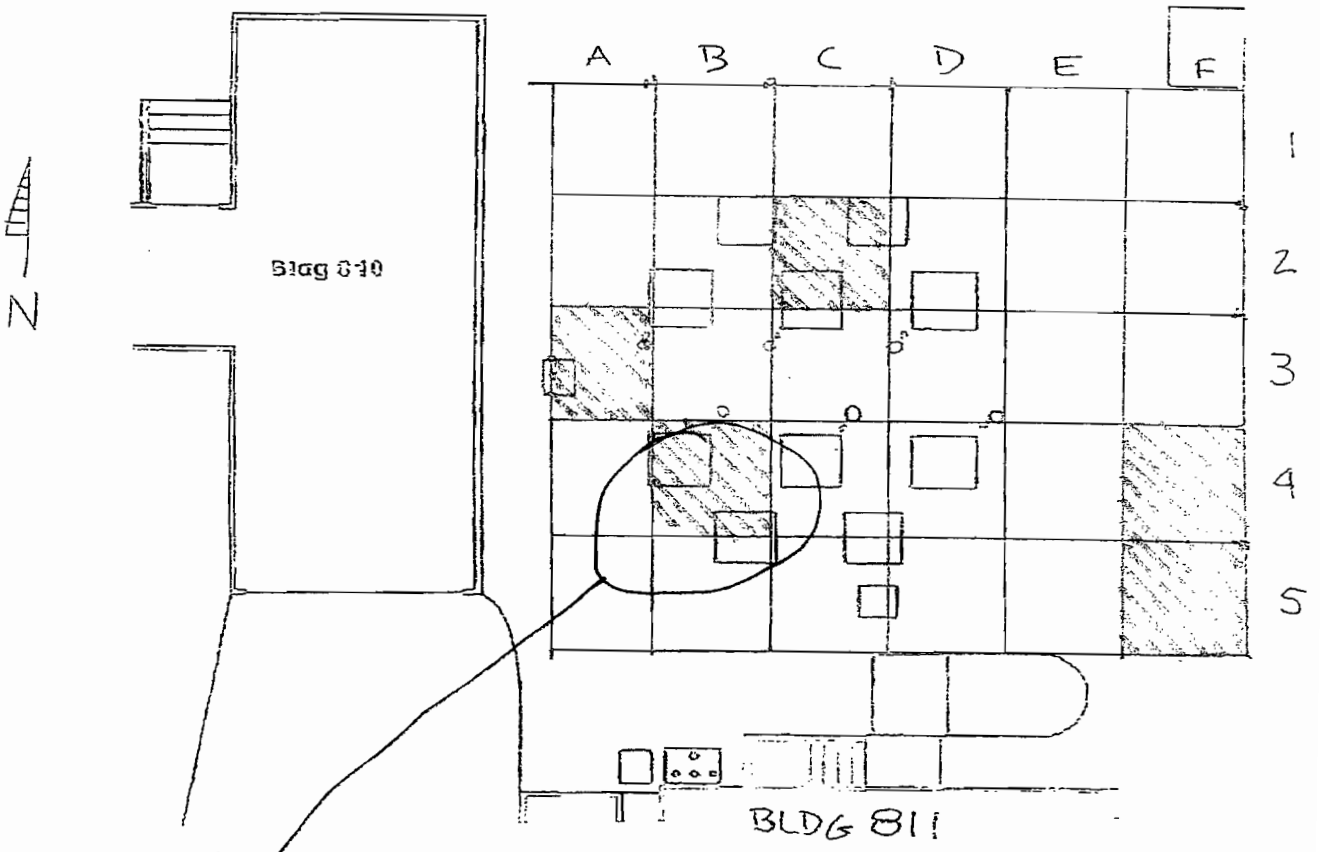
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL BLDG 811 U.S.T. REMEDIATION PROJECT
ISOCS OVERBURDEN SURVEY GRID MAP

RWCF # 48430
Contents -
Location



Weighted average Isocs Samples from area

Max 582 pCi/gm

min 47 pCi/gm

D. Griswell
9-10-04

	RWCF pCi/gm	RATIO based on weighted average	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	94.60		8.60E+02	9.09E+06	3.50E-01	5.91E-06	5.38E-05
Strontium-90	215.00	2.27	1.95E+03		7.96E-02	2.65E-05	2.41E-04
Nickel-59	0.10	0.00	9.13E-01				
Europium-152	0.57	0.01	5.14E+00		2.10E-04	2.10E-08	1.91E-07
Europium-154	0.44	0.00	3.98E+00		1.62E-03	4.38E-07	3.98E-06
Europium-155	0.00	0.00	2.04E-02		8.30E-07	1.40E-10	1.27E-09
Radium-226	0.62	0.01	5.65E+00		2.30E-03	7.67E-06	6.97E-05
Americium-241	17.93	0.19	1.63E+02		6.64E-01	6.64E-04	6.04E-03
Thorium-228	0.02	0.00	1.69E-01		6.88E-04	1.33E-08	1.21E-07
Thorium-232	0.08	0.00	7.39E-01		3.01E-04		
Lead-210	0.03	0.00	2.32E-01		9.46E-05	2.46E-08	2.23E-07
Lead-212	0.05	0.00	4.35E-01		1.77E-04	8.87E-09	8.06E-08
Uranium-234	0.35	0.00	3.17E+00		1.29E-03	2.18E-06	1.98E-05
Uranium-235	0.01	0.00	1.35E-01		5.48E-05		
Uranium-238	0.26	0.00	2.35E+00		9.57E-04		
Plutonium-238	0.15	0.00	1.37E+00		5.59E-03	5.59E-06	5.08E-05
Plutonium-239/240	14.39	0.15	1.31E+02		5.33E-01	5.33E-04	4.85E-03
Plutonium-241	0.00	0.00	4.48E-02		1.83E-06	3.08E-09	2.80E-08
Potassium-40	0.55	0.01	5.04E+00		2.05E-04	2.31E-08	2.10E-07
Actinium-228	0.13	0.00	1.18E+00		4.79E-04	9.24E-09	8.40E-08
Bismuth-212	0.02	0.00	2.24E-01		9.14E-05	1.54E-09	1.40E-08
Bismuth-214	0.06	0.00	5.33E-01				
Technicium-99	0.03	0.00	2.37E-01		9.67E-05	1.09E-09	9.89E-09
Strontium-89	0.02	0.00	1.58E-01		6.45E-07	1.09E-09	9.89E-09
Cobalt-60	1.59	0.02	1.44E+01		5.88E-03	1.44E-07	1.31E-06
Thorium-234	0.03	0.00	2.30E-01		9.35E-07	3.12E-09	2.83E-08
Sodium-22	0.15	0.00	1.39E+00		5.66E-04	1.09E-08	9.93E-08
					1.65E+00		1.13E-02

Radioactive Waste Control Form RWCF # 48429

GENERAL INFORMATION Generator (print) Anne White

Department/Division EBD/BOX 811 - 22 Ext. _____ Life/Guest # Q16258

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Soil, Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + plastic from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	<1 %	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See Attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation) Perking Analytical WS04A304

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9/23/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.068 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Fink Life # 9244 Date 9/23/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF48429

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	1550.00		1.41E+04	9.09E+06	5.74E+00	9.69E-05	8.81E-04
Strontium-90	3522.73	2.27	3.20E+04		1.30E+00	4.35E-04	3.95E-03
Nickel-59	1.65	0.00	1.50E+01				
Europium-152	9.27	0.01	8.43E+01		3.43E-03	3.43E-07	3 12E-06
Europium-154	7.18	0.00	6.53E+01		2.66E-02	7.18E-06	6.53E-05
Europium-155	0.04	0.00	3.34E-01		1.36E-05	2.29E-09	2.09E-08
Radium-226	10.17	0.01	9.25E+01		3.77E-02	1.26E-04	1.14E-03
Americium-241	293.83	0.19	2.67E+03		1.09E+01	1.09E-02	9.89E-02
Thorium-228	0.30	0.00	2.77E+00		1.13E-02	2.17E-07	1.98E-06
Thorium-232	1.33	0.00	1.21E+01		4.93E-03		
Lead-210	0.42	0.00	3.80E+00		1.55E-03	4.02E-07	3.66E-06
Lead-212	0.78	0.00	7.13E+00		2.91E-03	1.45E-07	1.32E-06
Uranium-234	5.71	0.00	5.19E+01		2.11E-02	3.57E-05	3.24E-04
Uranium-235	0.24	0.00	2.20E+00		8.98E-04		
Uranium-238	4.23	0.00	3.85E+01		1.57E-02		
Plutonium-238	2.47	0.00	2.25E+01		9.16E-02	9.16E-05	8.32E-04
Plutonium-239/240	235.83	0.15	2.14E+03		8.73E+00	8.73E-03	7.94E-02
Plutonium-241	0.08	0.00	7.35E-01		2.99E-05	5.05E-08	4.59E-07
Potassium-40	9.08	0.01	8.26E+01		3.36E-03	3.78E-07	3.44E-06
Actinium-228	2.12	0.00	1.93E+01		7.85E-03	1.51E-07	1.38E-06
Bismuth-212	0.40	0.00	3.67E+00		1.50E-03	2.53E-08	2.30E-07
Bismuth-214	0.96	0.00	8.73E+00				
Technicium-99	0.43	0.00	3.89E+00		1.58E-03	1.78E-08	1.62E-07
Strontium-89	0.29	0.00	2.59E+00		1.06E-05	1.78E-08	1.62E-07
Cobalt-60	26.01	0.02	2.36E+02		9.63E-02	2.36E-06	2.15E-05
Thorium-234	0.41	0.00	3.76E+00		1.53E-05	5.11E-08	4.64E-07
Sodium-22	2.51	0.00	2.28E+01		9.28E-03	1.79E-07	1.63E-06
	0.00	0.00	0.00E+00				
			5.17E+04		2.70E+01		1.86E-01

Radioactive Waste Control Form   RWCF # 48428

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD BOX 811-~~Bot~~ 21 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ______ (ft^3) WEIGHT OF WASTE: ______ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, Piping, Plastic, Wood from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	<1 %	glass	%	metal	3 % (pipe, rizzlon)	soil	97 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	<1 %
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See Attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Pending Analytical W3D4A3C4

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☒
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 9/23/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	______ @ contact ______ @ 12"	______ @ contact ______ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. ______ Life # ______ Date ______

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

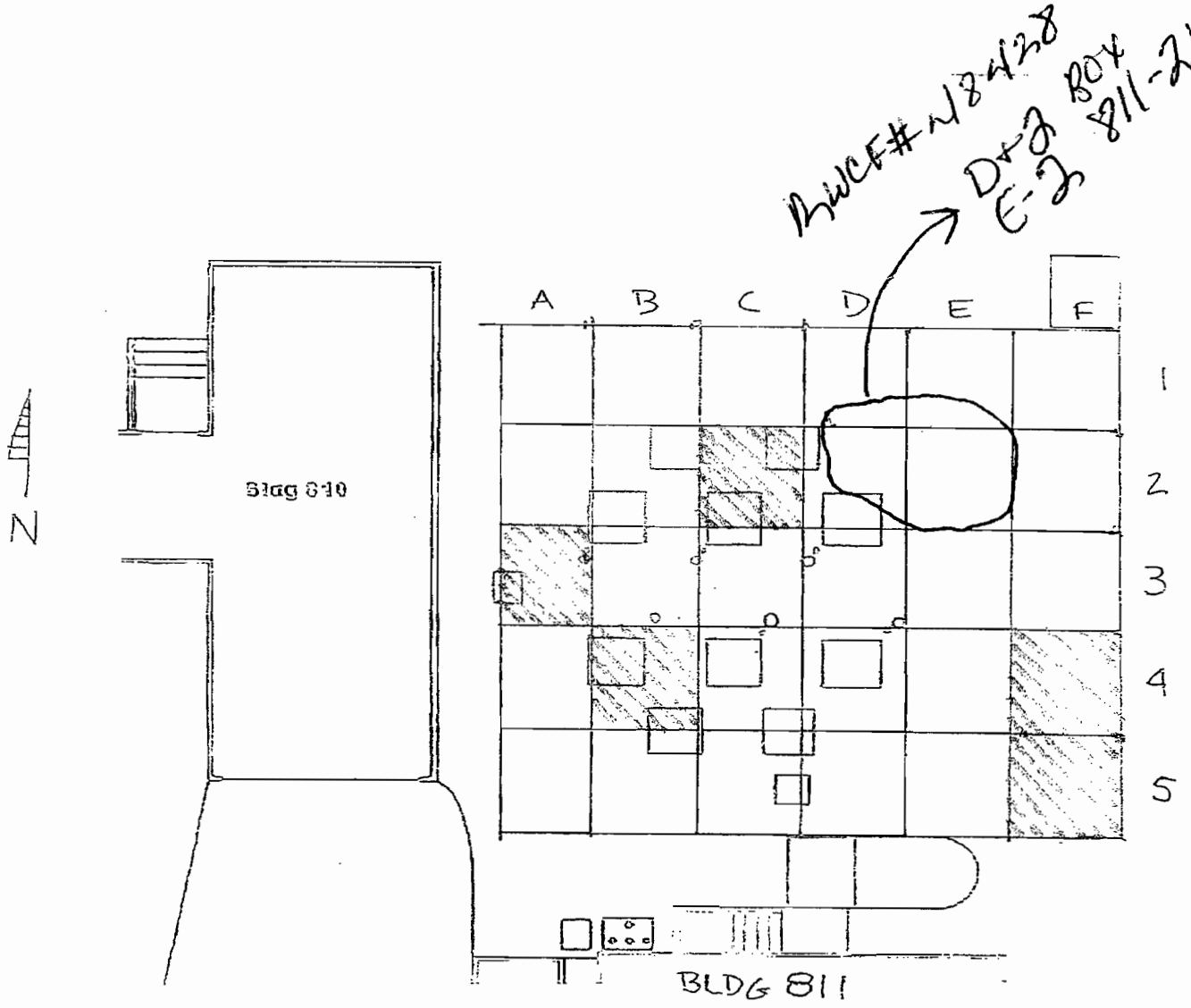
Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL BLDG 811 U.S.T. REMEDIATION PROJECT

ISOCS OVERBURDEN SURVEY GRID MAP



D. Griswell
9-10-04

locations - D2, E2

BOX 84-21

BWCF # 48428

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	50.00		4.55E+02	9.09E+06	1.85E-01	3.13E-06	2.84E-05
Strontium-90	113.64	2.27	1.03E+03		4.21E-02	1.40E-05	1.28E-04
Nickel-59	0.05	0.00	4.82E-01				
Europium-152	0.30	0.01	2.72E+00		1.11E-04	1.11E-08	1.01E-07
Europium-154	0.23	0.00	2.11E+00		8.58E-04	2.32E-07	2.11E-06
Europium-155	0.00	0.00	1.08E-02		4.39E-07	7.40E-11	6.73E-10
Radium-226	0.33	0.01	2.98E+00		1.22E-03	4.05E-06	3.68E-05
Americium-241	9.48	0.19	8.62E+01		3.51E-01	3.51E-04	3.19E-03
Thorium-228	0.01	0.00	8.92E-02		3.64E-04	7.01E-09	6.37E-08
Thorium-232	0.04	0.00	3.90E-01		1.59E-04		
Lead-210	0.01	0.00	1.23E-01		5.00E-05	1.30E-08	1.18E-07
Lead-212	0.03	0.00	2.30E-01		9.37E-05	4.69E-09	4.26E-08
Uranium-234	0.18	0.00	1.67E+00		6.82E-04	1.15E-06	1.05E-05
Uranium-235	0.01	0.00	7.11E-02		2.90E-05		
Uranium-238	0.14	0.00	1.24E+00		5.06E-04		
Plutonium-238	0.08	0.00	7.25E-01		2.95E-03	2.95E-06	2.69E-05
Plutonium-239/240	7.61	0.15	6.92E+01		2.82E-01	2.82E-04	2.56E-03
Plutonium-241	0.00	0.00	2.37E-02		9.66E-07	1.63E-09	1.48E-08
Potassium-40	0.29	0.01	2.66E+00		1.08E-04	1.22E-08	1.11E-07
Actinium-228	0.07	0.00	6.22E-01		2.53E-04	4.89E-09	4.44E-08
Bismuth-212	0.01	0.00	1.19E-01		4.83E-05	8.15E-10	7.41E-09
Bismuth-214	0.03	0.00	2.82E-01				
Technicium-99	0.01	0.00	1.25E-01		5.11E-05	5.75E-10	5.23E-09
Strontium-89	0.01	0.00	8.37E-02		3.41E-07	5.75E-10	5.23E-09
Cobalt-60	0.84	0.02	7.63E+00		3.11E-03	7.63E-08	6.93E-07
Thorium-234	0.01	0.00	1.21E-01		4.94E-07	1.65E-09	1.50E-08
Sodium-22	0.08	0.00	7.35E-01		2.99E-04	5.77E-09	5.25E-08
	0.00	0.00	0.00E+00				
			1.67E+03		8.71E-01		5.99E-03

Radioactive Waste Control Form RWCF # 48427

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Box 811-20 Ext. _____ Life/Guest # Q16[illegible]

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, plastic, piping from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	<1 %	glass	%	metal	3 %	soil	97 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation) PENDING Analytical WSO4A302

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne Z White Date 9/23/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF48427

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	200.00		1.82E+03	9.09E+06	7.41E-01	1.25E-05	1.14E-04
Strontium-90	454.55	2.27	4.13E+03		1.68E-01	5.61E-05	5.10E-04
Nickel-59	0.21	0.00	1.93E+00				
Europium-152	1.20	0.01	1.09E+01		4.43E-04	4.43E-08	4.03E-07
Europium-154	0.93	0.00	8.42E+00		3.43E-03	9.26E-07	8.42E-06
Europium-155	0.00	0.00	4.31E-02		1.75E-06	2.96E-10	2.69E-09
Radium-226	1.31	0.01	1.19E+01		4.86E-03	1.62E-05	1.47E-04
Americium-241	37.91	0.19	3.45E+02		1.40E+00	1.40E-03	1.28E-02
Thorium-228	0.04	0.00	3.57E-01		1.45E-03	2.80E-08	2.55E-07
Thorium-232	0.17	0.00	1.56E+00		6.36E-04		
Lead-210	0.05	0.00	4.91E-01		2.00E-04	5.19E-08	4.72E-07
Lead-212	0.10	0.00	9.20E-01		3.75E-04	1.87E-08	1.70E-07
Uranium-234	0.74	0.00	6.69E+00		2.73E-03	4.60E-06	4.18E-05
Uranium-235	0.03	0.00	2.84E-01		1.16E-04		
Uranium-238	0.55	0.00	4.96E+00		2.02E-03		
Plutonium-238	0.32	0.00	2.90E+00		1.18E-02	1.18E-05	1.07E-04
Plutonium-239/240	30.43	0.15	2.77E+02		1.13E+00	1.13E-03	1.02E-02
Plutonium-241	0.01	0.00	9.48E-02		3.86E-06	6.52E-09	5.93E-08
Potassium-40	1.17	0.01	1.07E+01		4.34E-04	4.88E-08	4.44E-07
Actinium-228	0.27	0.00	2.49E+00		1.01E-03	1.95E-08	1.78E-07
Bismuth-212	0.05	0.00	4.74E-01		1.93E-04	3.26E-09	2.96E-08
Bismuth-214	0.12	0.00	1.13E+00				
Technicium-99	0.06	0.00	5.02E-01		2.04E-04	2.30E-09	2.09E-08
Strontium-89	0.04	0.00	3.35E-01		1.36E-06	2.30E-09	2.09E-08
Cobalt-60	3.36	0.02	3.05E+01		1.24E-02	3.05E-07	2.77E-06
Thorium-234	0.05	0.00	4.85E-01		1.98E-06	6.59E-09	5.99E-08
Sodium-22	0.32	0.00	2.94E+00		1.20E-03	2.31E-08	2.10E-07
	0.00	0.00	0.00E+00				
			6.67E+03		3.48E+00		2.39E-02

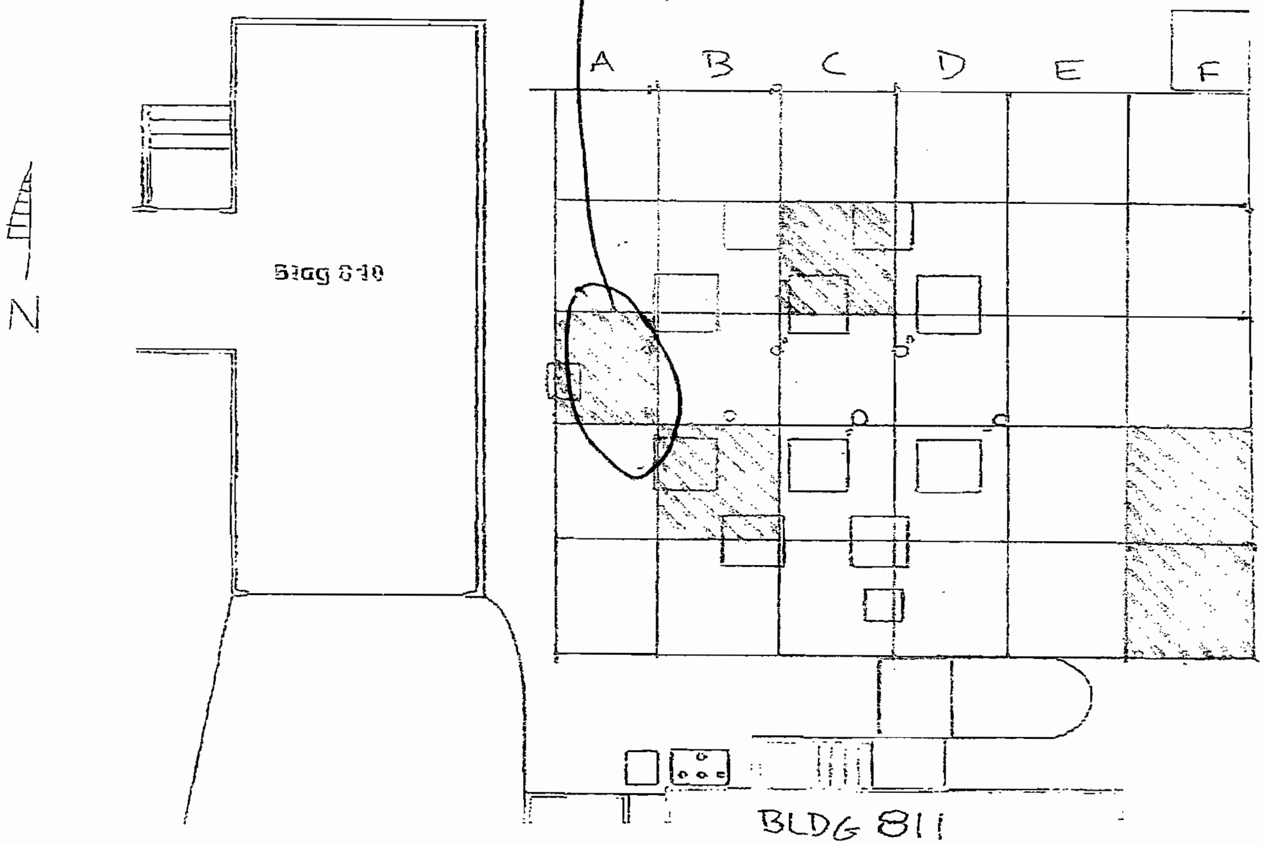
As per ISOCS marinelli
isolated hot spot 1300pCi/gm
Field correlation

BNL BLDG 811 U.S.T. REMEDIATION PROJECT
ISOCS OVERBURDEN SURVEY GRID MAP

LWCF # 48427
Contents - ~~A2~~ NQS, Soil, Piping Plastic
Locations - A2, A3, A4

based on 200 pCi/gm for Cs-137 from uR correlation

Box 811-20
A2, A3 A4



D. Criswell
9-10-04

Radioactive Waste Control Form RWCF # 48426

GENERAL INFORMATION Generator (print) Anne White

Department/Division EBO BOX 811-19 Ext. _____ Life/Guest # 12625B

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Concrete From 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Pending Analytical WSO4 A304 See attached for ISOCS calcs.

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

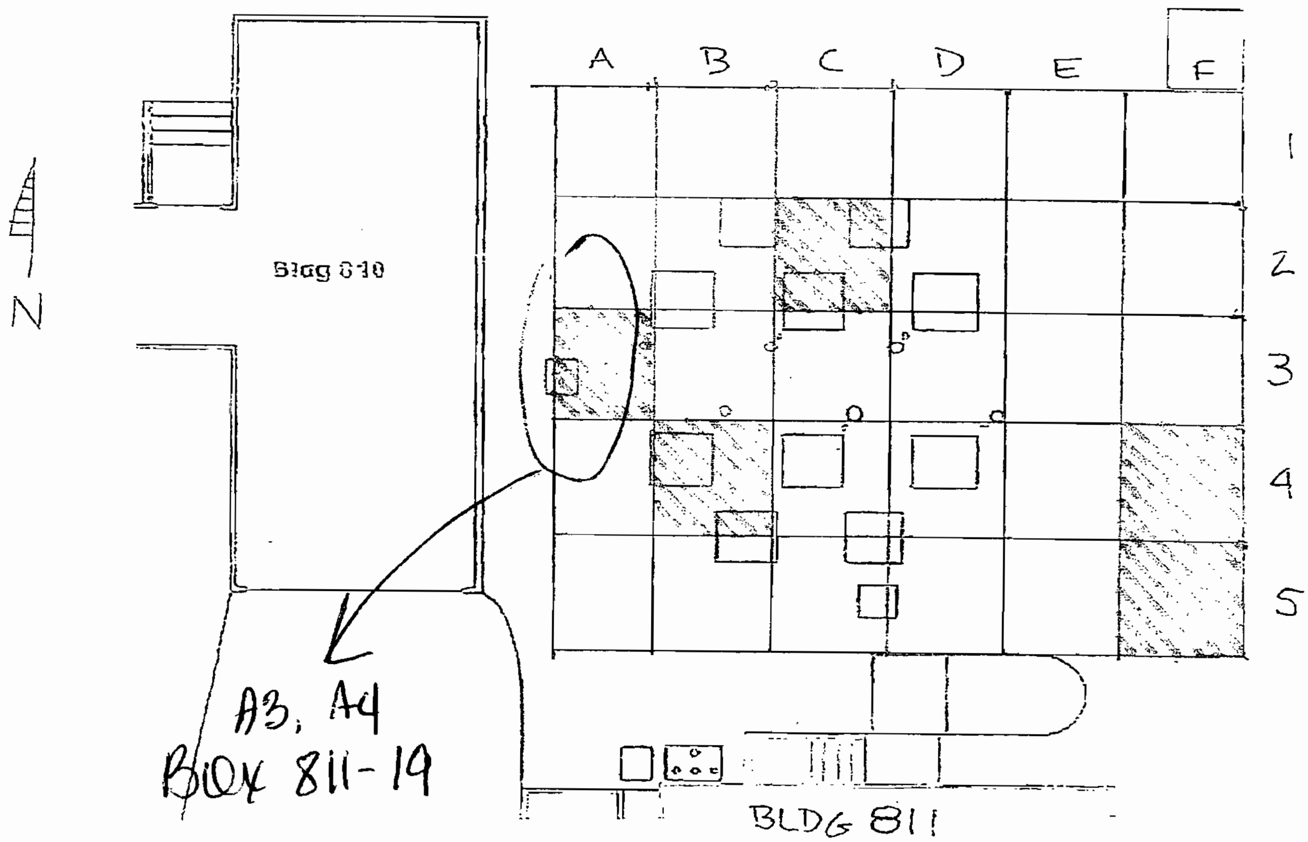
Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL BLDG 811 U.S.T. REMEDIATION PROJECT
ISOCS OVERBURDEN SURVEY GRID MAP

BWCF # 48420

Based on LLR Correlat readings - 180pCi/gm Cs-137



D. Criswell
9-10-04

Content - → 90% Soil
10% Concrete

Location - A3 A4

4[illegible]426

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	200.00		1.82E+03	9.09E+06	7.41E-01	1.25E-05	1.14E-04
Strontium-90	454.55	2.27	4.13E+03		1.68E-01	5.61E-05	5.10E-04
Nickel-59	0.21	0.00	1.93E+00				
Europium-152	1.20	0.01	1.09E+01		4.43E-04	4.43E-08	4.03E-07
Europium-154	0.93	0.00	8.42E+00		3.43E-03	9.26E-07	8.42E-06
Europium-155	0.00	0.00	4.31E-02		1.75E-06	2.96E-10	2.69E-09
Radium-226	1.31	0.01	1.19E+01		4.86E-03	1.62E-05	1.47E-04
Americium-241	37.91	0.19	3.45E+02		1.40E+00	1.40E-03	1.28E-02
Thorium-228	0.04	0.00	3.57E-01		1.45E-03	2.80E-08	2.55E-07
Thorium-232	0.17	0.00	1.56E+00		6.36E-04		
Lead-210	0.05	0.00	4.91E-01		2.00E-04	5.19E-08	4.72E-07
Lead-212	0.10	0.00	9.20E-01		3.75E-04	1.87E-08	1.70E-07
Uranium-234	0.74	0.00	6.69E+00		2.73E-03	4.60E-06	4.18E-05
Uranium-235	0.03	0.00	2.84E-01		1.16E-04		
Uranium-238	0.55	0.00	4.96E+00		2.02E-03		
Plutonium-238	0.32	0.00	2.90E+00		1.18E-02	1.18E-05	1.07E-04
Plutonium-239/240	30.43	0.15	2.77E+02		1.13E+00	1.13E-03	1.02E-02
Plutonium-241	0.01	0.00	9.48E-02		3.86E-06	6.52E-09	5.93E-08
Potassium-40	1.17	0.01	1.07E+01		4.34E-04	4.88E-08	4.44E-07
Actinium-228	0.27	0.00	2.49E+00		1.01E-03	1.95E-08	1.78E-07
Bismuth-212	0.05	0.00	4.74E-01		1.93E-04	3.26E-09	2.96E-08
Bismuth-214	0.12	0.00	1.13E+00				
Technicium-99	0.06	0.00	5.02E-01		2.04E-04	2.30E-09	2.09E-08
Strontium-89	0.04	0.00	3.35E-01		1.36E-06	2.30E-09	2.09E-08
Cobalt-60	3.36	0.02	3.05E+01		1.24E-02	3.05E-07	2.77E-06
Thorium-234	0.05	0.00	4.85E-01		1.98E-06	6.59E-09	5.99E-08
Sodium-22	0.32	0.00	2.94E+00		1.20E-03	2.31E-08	2.10E-07
	0.00	0.00	0.00E+00				
			6.67E+03		3.48E+00		2.39E-02

Radioactive Waste Control Form

RWCF # 48425

GENERAL INFORMATION Generator (print) ANNE WHITE

Department/Division EBD BOX - 811 - 1B Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil + Concrete from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi	See attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04 A309
See attached for Isocs/calcs.

Direct Method
Gamma Ray Spectroscopy ☒ (HPGe 9/22/2004)
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☒
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 9/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 4842

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	250.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	567.50	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	13.31	0.05	8.30E+01		1.18E-05		
Europium-152	75.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	58.08	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.30	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	82.31	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	2.46	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	10.77	0.04	6.72E+01		9.57E-03		
Lead-210	3.38	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	6.35	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	46.15	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	1.96	0.01	1.22E+01		1.74E-03		
Uranium-238	34.23	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	73.46	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	17.15	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	3.27	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	7.77	0.03	4.85E+01				
Technicium-99	3.46	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	2.31	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	3.85	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	3.35	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	20.27	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

Radioactive Waste Control Form   RWCF# 48424

GENERAL INFORMATION Generator (print) Anne White

Department/Division EBO BOV 811-17 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: EBO Acct. # ______ Accumulation Area Bldg. # ______ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES [X] NO [ ]

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ______ (ft^3) WEIGHT OF WASTE: ______ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, Metal, Wood from 811 Yard

Physical State (check only one): Solid [X] Liquid [ ] Gas [ ] Is waste eligible for Decay-In-Storage? (Halflife <90 days) [ ] yes [X] no

List COMPONENTS with their percentages by volume

paper %	plastic %	glass %	metal 5 %	soil 93 %	rubber %
water %	sludge %	cloth %	concrete %	resin %	wood 2 %
%	%	%	%	%	%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity:
(attach copies of all supporting documentation)
Pending Analytical WS04A301
See Attached for ISOCS + calcs

Direct Method
- Gamma Ray Spectroscopy [X]
- Scintillation Counter [ ]

Indirect Method
- Dose Rate to Activity Conversion [ ]
- Material Balance [ ]
- Scaling Factors [X]

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? [X] NO [ ] YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	.3 @ contact	.2 @ 12"	N/A @ contact	N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. [signature] Life # U9746 Date 9/22/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______
Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

BNL F 2975C 11/01

RWCF 4842

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	43.10		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	97.84	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	2.29	0.05	8.30E+01		1.18E-05		
Europium-152	12.93	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	10.01	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.05	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	14.19	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.42	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	1.86	0.04	6.72E+01		9.57E-03		
Lead-210	0.58	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	1.09	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	7.96	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.34	0.01	1.22E+01		1.74E-03		
Uranium-238	5.90	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	12.66	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	2.96	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.56	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	1.34	0.03	4.85E+01				
Technicium-99	0.60	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.40	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.66	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.58	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	3.49	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

Radioactive Waste Control Form

RWCF # 48423

GENERAL INFORMATION Generator (print) Anne White

Department/Division EMD Bldg 811-16 Ext. _____ Life/Guest # Q16258

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Metloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil From 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	95 %	rubber	%
water	%	sludge	%	cloth	%	concrete	5 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A801
See Attached For ISOCS Calcs

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne Li White Date 9/22/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 @ contact .01 @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

RWCF 48423

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	250.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	567.50	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	13.31	0.05	8.30E+01		1.18E-05		
Europium-152	75.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	58.08	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.30	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	82.31	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	2.46	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	10.77	0.04	6.72E+01		9.57E-03		
Lead-210	3.38	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	6.35	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	46.15	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	1.96	0.01	1.22E+01		1.74E-03		
Uranium-238	34.23	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	73.46	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	17.15	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	3.27	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	7.77	0.03	4.85E+01				
Technicium-99	3.46	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	2.31	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	3.85	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	3.35	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	20.27	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

Radioactive Waste Control Form RWCF# 48422

GENERAL INFORMATION Generator (print) Anne White

Department/Division EMD BOX 811-15 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi

See attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

Pending Analytical WS0291d304

See attached for ISOCS + calcs.

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-28-04 21 LBS

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48420

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.70		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	53.80	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	1.26	0.05	8.30E+01		1.18E-05		
Europium-152	7.11	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	5.51	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.03	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	7.80	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.23	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	1.02	0.04	6.72E+01		9.57E-03		
Lead-210	0.32	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	0.60	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	4.38	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.19	0.01	1.22E+01		1.74E-03		
Uranium-238	3.25	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	6.96	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	1.63	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.31	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	0.74	0.03	4.85E+01				
Technicium-99	0.33	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.22	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.36	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.32	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	1.92	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

Radioactive Waste Control Form RWCF # 48421

GENERAL INFORMATION Generator (print) Anne White

Department/Division EBO Box 811 -14 Ext. _____ Life/Guest # Q02558

Dept. Responsible for Waste: EBO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Bolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soils from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

Sample ID WSOU4301
See attached for ISOCS Calcs.

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9/21/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48420

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.70		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	53.80	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	1.26	0.05	8.30E+01		1.18E-05		
Europium-152	7.11	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	5.51	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.03	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	7.80	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.23	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	1.02	0.04	6.72E+01		9.57E-03		
Lead-210	0.32	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	0.60	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	4.38	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.19	0.01	1.22E+01		1.74E-03		
Uranium-238	3.25	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	6.96	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	1.63	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.31	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	0.74	0.03	4.85E+01				
Technicium-99	0.33	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.22	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.36	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.32	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	1.92	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

Radioactive Waste Control Form **RWCF#** 48420

GENERAL INFORMATION Generator (print) Anne White

Department/Division CEBAP BOX 811-13 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: EBD Acct. # ______ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ______ (ft^3) WEIGHT OF WASTE: ______ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WSA1A301
See Attached for Isotopes/Calcs

<u>Direct Method</u>
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

<u>Indirect Method</u>
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9/21/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container		Shielded Transport Container (or Lead Pig)	
Radiation Levels (mR/hr)	______ @ contact	______ @ 12"	______ @ contact	______ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support			

Surveyor's Sig. ______ Life # ______ Date ______

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______
Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic __ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.70		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	53.80	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	1.26	0.05	8.30E+01		1.18E-05		
Europium-152	7.11	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	5.51	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.03	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	7.80	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.23	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	1.02	0.04	6.72E+01		9.57E-03		
Lead-210	0.32	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	0.60	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	4.38	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.19	0.01	1.22E+01		1.74E-03		
Uranium-238	3.25	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	6.96	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	1.63	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.31	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	0.74	0.03	4.85E+01				
Technicium-99	0.33	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.22	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.36	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.32	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	1.92	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

Radioactive Waste Control Form RWCF # 48419

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD BOX 811-12 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil from 811 yard

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi	See Attached µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	
	µCi		µCi		µCi		µCi	

Analysis method used to determine activity: (attach copies of all supporting documentation)
PENDING Analytical WSOA1304
See Attached for ISOCS + CALCS

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NA

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 9-21-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	_____ @ contact _____ @ 12"	_____ @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig _____ Life # _____ Date _____

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

RWCF 48419

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	24.40		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	55.39	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	1.30	0.05	8.30E+01		1.18E-05		
Europium-152	7.32	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	5.67	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.03	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	8.03	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.24	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	1.05	0.04	6.72E+01		9.57E-03		
Lead-210	0.33	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	0.62	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	4.50	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.19	0.01	1.22E+01		1.74E-03		
Uranium-238	3.34	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	7.17	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	1.67	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.32	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	0.76	0.03	4.85E+01				
Technicium-99	0.34	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.23	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.38	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.33	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	1.98	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

Radioactive Waste Control Form   RWCF # 48416

GENERAL INFORMATION Generator (print) Jonne White

Department/Division ERD BCY 811-11 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES [X] NO [ ]

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ______ (ft³) WEIGHT OF WASTE: 90,000 see attached lbs. 9/22/04

RAD WASTE CHARACTERIZATION Describe Waste: Soils from 811 yard.

Physical State (check only one): Solid [X] Liquid [ ] Gas [ ] Is waste eligible for Decay-In-Storage? (Halflife <90 days) [ ] yes [X] no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi	Attached	µCi		µCi		µCi
	µCi		See µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical VS04130

See Attached for ISOCS + Calcs.

Direct Method
- Gamma Ray Spectroscopy [X]
- Scintillation Counter [ ]

Indirect Method
- Dose Rate to Activity Conversion [ ]
- Material Balance [ ]
- Scaling Factors [X]

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? [X] NO [ ] YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards N/A

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 9/20/2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport		
	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.01 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # C9746 Date 9/21/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: ______

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: ______

Hazard Class: Ignitable Corrosive Reactive Toxic__ Waste Stream Code: ______

DOT Hazard Class ______ Waste Profile Number ______

RWCF 48416

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	25.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	56.75	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	1.33	0.05	8.30E+01		1.18E-05		
Europium-152	7.50	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	5.81	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.03	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	8.23	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.25	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	1.08	0.04	6.72E+01		9.57E-03		
Lead-210	0.34	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	0.63	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	4.62	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.20	0.01	1.22E+01		1.74E-03		
Uranium-238	3.42	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	7.35	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	1.72	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.33	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	0.78	0.03	4.85E+01				
Technicium-99	0.35	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.23	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.38	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.33	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	2.03	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
					0.52002		0.008733

40410

	RWCF pCi/gm	RATIO, based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	10.15	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	3.19	0.05	8.30E+01		1.18E-05		
Europium-152	18.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	13.94	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.07	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	19.75	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.59	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	2.58	0.04	6.72E+01		9.57E-03		
Lead-210	0.81	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	1.52	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	11.08	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.47	0.01	1.22E+01		1.74E-03		
Uranium-238	8.22	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	17.63	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	4.12	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.78	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	1.86	0.03	4.85E+01				
Technicium-99	0.83	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.55	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.92	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.80	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	4.86	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
	0.00	0.00	0.00E+00				
					0.52002		0.008733

Radioactive Waste Control Form RWCF # 48410

GENERATOR INFORMATION Generator (print) Anne White

Department/Division ERD 811-9 Ext. ____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # ____ Accumulation Area Bldg. # 8 Placement Date 9/16/04

WASTE DESCRIPTION Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ____ (gal.) OR Solid ~400 (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RADIOLOGICAL CHARACTERIZATION Describe Waste: Soils mixed debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	<1 %	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	<10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.4E3 µCi	U-238	1.1E3 µCi		µCi		µCi		µCi
Sr-90	3.1BE3 µCi	U	µCi		µCi		µCi		µCi
U-234	2.5BE2 µCi		µCi		µCi		µCi		µCi
U-235	1.1E1 µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☒; Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☐; Material Balance ☐; Scaling Factors ☒

ISOCs and PK attached

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.05 @ contact 0.02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donald Chu Life # 21813 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ____

Waste Management Division Storage Location ____ Life # ____

[redacted]

Radioactive Waste Control Form

RWCF # 48417

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Ext. _____ Life/Guest # 06258

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~370 (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil w/ limited debris (concrete)

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	1 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi	~ see attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A301
See attached ISOCS data and calcs.

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-17-04

FOR HWM FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.01 @ contact 0.01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Ronald Olsen Life # 21813 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11/01

RWCF 48417

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	10.15	0.17	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	3.19	0.05	8.30E+01		1.18E-05		
Europium-152	18.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	13.94	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.07	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	19.75	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.59	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	2.58	0.04	6.72E+01		9.57E-03		
Lead-210	0.81	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	1.52	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	11.08	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.47	0.01	1.22E+01		1.74E-03		
Uranium-238	8.22	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	17.63	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	4.12	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.78	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	1.86	0.03	4.85E+01				
Technicium-99	0.83	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.55	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.92	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.80	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	4.86	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
	0.00	0.00	0.00E+00				
					0.52002		0.008733

(7)

Radioactive Waste Control Form   RWCF # 48408

[illegible] Generator (print) Anne White

Department/Division EBD BOX 811-7 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: EBD Acct. # ______ Accumulation Area Bldg. # 811 Placement Date / /

[illegible] Package Type Roll-Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ~370 (ft³) WEIGHT OF WASTE: ~20,000 lbs.

RADWASTE CHARACTERIZATION Describe Waste: Soil, Concrete, plastic, Rebar

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	'<1 %	glass	%	metal	<1 %	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Pending Analytical WS04A30 See Attached Isos + Calcs.

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ______

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 9-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.02 @ contact 0.01 @ 12"	N/A @ contact ______ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 21F13 Date 09-17-04

WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

[illegible]

BNL F 2975C 11/01

(6)

Radioactive Waste Control Form RWCF # 48407

GENERATOR INFO Generator (print) Anne White

Department/Division EBD BOX 811-6 Ext. _____ Life/Guest # Q62588

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE PACKAGE INFO Package Type Roll-off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~370 (ft³) WEIGHT OF WASTE: ~20,000 lbs.

WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	See attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A301
See attached ISOCS + Calcs.

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U5741 Date 9/17/04

FOR WASTE MANAGEMENT USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11 /01

WCF48407

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	36.20		1.40E+03	2.60E+07	1.99E-01	3.36E-06	8.73E-05
Strontium-90	122.16	2.27	3.18E+03		4.52E-02	1.51E-05	3.92E-04
Nickel-59	2.86	0.05	7.44E+01		1.06E-05		
Europium-152	16.13	0.30	4.19E+02		5.97E-03	5.97E-07	1.55E-05
Europium-154	12.49	0.23	3.25E+02		4.62E-02	1.25E-05	3.25E-04
Europium-155	0.06	0.00	1.66E+00		2.36E-05	3.99E-09	1.04E-07
Radium-226	17.70	0.33	4.60E+02		6.55E-02	2.18E-04	5.68E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.53	0.01	1.38E+01		1.96E-02	3.78E-07	9.83E-06
Thorium-232	2.32	0.04	6.02E+01		8.58E-03		
Lead-210	0.73	0.01	1.89E+01		2.70E-03	7.00E-07	1.82E-05
Lead-212	1.36	0.03	3.55E+01		5.05E-03	2.53E-07	6.57E-06
Uranium-234	9.92	0.18	2.58E+02		3.68E-02	6.20E-05	1.61E-03
Uranium-235	0.42	0.01	1.10E+01		1.56E-03		
Uranium-238	7.36	0.14	1.91E+02		2.73E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	15.79	0.29	4.11E+02		5.85E-03	6.58E-07	1.71E-05
Actinium-228	3.69	0.07	9.59E+01		1.37E-02	2.63E-07	6.85E-06
Bismuth-212	0.70	0.01	1.83E+01		2.60E-03	4.39E-08	1.14E-06
Bismuth-214	1.67	0.03	4.34E+01				
Technicium-99	0.74	0.01	1.94E+01		2.76E-03	3.10E-08	8.06E-07
Strontium-89	0.50	0.01	1.29E+01		1.84E-05	3.10E-08	8.06E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.83	0.02	2.15E+01		3.06E-03	7.52E-08	1.95E-06
Thorium-234	0.72	0.01	1.87E+01		2.66E-05	8.88E-08	2.31E-06
Sodium-22	4.36	0.08	1.13E+02		1.61E-02	3.11E-07	8.09E-06
	0.00	0.00	0.00E+00				
	276.78		7.20E+03		5.08E-01		8.19E-03

811-4

Radioactive Waste Control Form RWCF # 48406

GENERATOR INFORMATION Generator (print) Anne White

Department/Division ERD Box 811-5 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date 9/16/04

WASTE PACKAGE Package Type Roll off bin Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~~405~~ (ft³) ~370 WEIGHT OF WASTE: ~20,000 lbs.

RADIOACTIVE CHARACTERIZATION Describe Waste: Soil, wood debris, concrete, small amount of rebar

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	<1 %	soil	~25 %	rubber	%
water	%	sludge	%	cloth	%	concrete	~50 %	resin	~25 %	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A301
see attached ISOCS + Calcs

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTION Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne Li White Date ~~9-14-04~~ 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Shana Kuk Life # 22144 Date 9-16-04

FOR WASTE MANAGEMENT USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	20.90		1.40E+03	9.09E+06	1.99E-01	3.36E-06	8.73E-05
Strontium-90	122.16	2.27	3.18E+03		4.52E-02	1.51E-05	3.92E-04
Nickel-59	2.86	0.05	7.44E+01		1.06E-05		
Europium-152	16.13	0.30	4.19E+02		5.97E-03	5.97E-07	1.55E-05
Europium-154	12.49	0.23	3.25E+02		4.62E-02	1.25E-05	3.25E-04
Europium-155	0.06	0.00	1.66E+00		2.36E-05	3.99E-09	1.04E-07
Radium-226	17.70	0.33	4.60E+02		6.55E-02	2.18E-04	5.68E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.53	0.01	1.38E+01		1.96E-02	3.78E-07	9.83E-06
Thorium-232	2.32	0.04	6.02E+01		8.58E-03		
Lead-210	0.73	0.01	1.89E+01		2.70E-03	7.00E-07	1.82E-05
Lead-212	1.36	0.03	3.55E+01		5.05E-03	2.53E-07	6.57E-06
Uranium-234	9.92	0.18	2.58E+02		3.68E-02	6.20E-05	1.61E-03
Uranium-235	0.42	0.01	1.10E+01		1.56E-03		
Uranium-238	7.36	0.14	1.91E+02		2.73E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	15.79	0.29	4.11E+02		5.85E-03	6.58E-07	1.71E-05
Actinium-228	3.69	0.07	9.59E+01		1.37E-02	2.63E-07	6.85E-06
Bismuth-212	0.70	0.01	1.83E+01		2.60E-03	4.39E-08	1.14E-06
Bismuth-214	1.67	0.03	4.34E+01				
Technicium-99	0.74	0.01	1.94E+01		2.76E-03	3.10E-08	8.06E-07
Strontium-89	0.50	0.01	1.29E+01		1.84E-05	3.10E-08	8.06E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.83	0.02	2.15E+01		3.06E-03	7.52E-08	1.95E-06
Thorium-234	0.72	0.01	1.87E+01		2.66E-05	8.88E-08	2.31E-06
Sodium-22	4.36	0.08	1.13E+02		1.61E-02	3.11E-07	8.09E-06
	0.00	0.00	0.00E+00				
	276.78		7.20E+03		5.08E-01		8.19E-03

Radioactive Waste Control Form RWCF # 48405

GENERATOR INFORMATION Generator (print) Anne White

Department/Division ERD Bldg 811-4 Ext. _____ Life/Guest # 06258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE PACKAGE Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RADIOACTIVE WASTE CHARACTERIZATION Describe Waste: Soils from 811 yard that have been screened using ISOCS and further characterized by PK.

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.4E3 µCi	U-238	1.9E2 µCi		µCi		µCi		µCi		µCi
Sr-90	3.1E3 µCi		µCi		See attached µCi						µCi
U-234	2.5E2 µCi		µCi		µCi		µCi		µCi		µCi
U-235	1.1E1 µCi		µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

Sample ID WS04A301
See Attached for ISOCS & Calcs.

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-16-04

WORK CONTROL SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.015 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kuk Life # 22144 Date 9/16/04

WASTE MANAGEMENT USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		2.09E+02	9.09E+06	8.52E-02	1.44E-06	1.31E-05
Strontium-90	52.27	2.27	4.75E+02		1.94E-02	6.45E-06	5.87E-05
Nickel-59	0.02	0.00	2.22E-01				
Europium-152	0.14	0.01	1.25E+00		5.10E-05	5.10E-09	4.63E-08
Europium-154	0.11	0.00	9.68E-01		3.95E-04	1.07E-07	9.68E-07
Europium-155	0.00	0.00	4.95E-03		2.02E-07	3.40E-11	3.09E-10
Radium-226	0.15	0.01	1.37E+00		5.59E-04	1.86E-06	1.69E-05
Americium-241	4.36	0.19	3.96E+01		1.61E-01	1.61E-04	1.47E-03
Thorium-228	0.00	0.00	4.10E-02		1.67E-04	3.23E-09	2.93E-08
Thorium-232	0.02	0.00	1.80E-01		7.32E-05		
Lead-210	0.01	0.00	5.64E-02		2.30E-05	5.97E-09	5.43E-08
Lead-212	0.01	0.00	1.06E-01		4.31E-05	2.16E-09	1.96E-08
Uranium-234	0.08	0.00	7.70E-01		3.14E-04	5.29E-07	4.81E-06
Uranium-235	0.00	0.00	3.27E-02		1.33E-05		
Uranium-238	0.06	0.00	5.71E-01		2.33E-04		
Plutonium-238	0.04	0.00	3.34E-01		1.36E-03	1.36E-06	1.24E-05
Plutonium-239/240	3.50	0.15	3.18E+01		1.30E-01	1.30E-04	1.18E-03
Plutonium-241	0.00	0.00	1.09E-02		4.44E-07	7.50E-10	6.81E-09
Potassium-40	0.13	0.01	1.23E+00		4.99E-05	5.61E-09	5.10E-08
Actinium-228	0.03	0.00	2.86E-01		1.17E-04	2.25E-09	2.04E-08
Bismuth-212	0.01	0.00	5.45E-02		2.22E-05	3.75E-10	3.41E-09
Bismuth-214	0.01	0.00	1.30E-01				
Technicium-99	0.01	0.00	5.77E-02		2.35E-05	2.65E-10	2.41E-09
Strontium-89	0.00	0.00	3.85E-02		1.57E-07	2.65E-10	2.41E-09
Cobalt-60	0.39	0.02	3.51E+00		1.43E-03	3.51E-08	3.19E-07
Thorium-234	0.01	0.00	5.58E-02		2.27E-07	7.58E-10	6.89E-09
Sodium-22	0.04	0.00	3.38E-01		1.38E-04	2.66E-09	2.41E-08
	0.00	0.00	0.00E+00				
			7.67E+02		4.01E-01		2.75E-03

Average requires verification

(5)

Radioactive Waste Control Form

RWCF # SW 48403

GENERATOR INFORMATION Generator (print) ~~Marianne Stone~~ - Weskem Anne White 865-7128

Department/Division ERD Box 811-3 Ext. 8401 Life/Guest # ~~0102C~~

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE STANDARDS Package Type ~~Red waste Bag~~ Rolloff Return Package? YES ☑ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~430 (ft³) WEIGHT OF WASTE: ~70,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: ~~PPE~~ Soils from 811 yard that have been screened using ISOCS + further characterized by PK

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	~~100~~ %	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.7E3 µCi	U-238	1.9E2 µCi		µCi		µCi		µCi
Sr-90	3.8E3 µCi		µCi		µCi		µCi		µCi
U-234	2.8E2 µCi		µCi	See attached	µCi		µCi		µCi
U-235	1.1E3 µCi		µCi		µCi		µCi		µCi

- Analysis method used to determine activity: (attach copies of all supporting documentation)

Pending Analytical WS04A301

See attached for ISOCS & Calcs

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☐
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards Done

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 9-16-04

FOR FACILITY SUPERVISOR ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.008 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 22144 Date 9/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11/01

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	24.90		1.40E+03	2.60E+07	1.99E-01	3.36E-06	8.73E-05
Strontium-90	122.16	2.27	3.18E+03		4.52E-02	1.51E-05	3.92E-04
Nickel-59	2.86	0.05	7.44E+01		1.06E-05		
Europium-152	16.13	0.30	4.19E+02		5.97E-03	5.97E-07	1.55E-05
Europium-154	12.49	0.23	3.25E+02		4.62E-02	1.25E-05	3.25E-04
Europium-155	0.06	0.00	1.66E+00		2.36E-05	3.99E-09	1.04E-07
Radium-226	17.70	0.33	4.60E+02		6.55E-02	2.18E-04	5.68E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.53	0.01	1.38E+01		1.96E-02	3.78E-07	9.83E-06
Thorium-232	2.32	0.04	6.02E+01		8.58E-03		
Lead-210	0.73	0.01	1.89E+01		2.70E-03	7.00E-07	1.82E-05
Lead-212	1.36	0.03	3.55E+01		5.05E-03	2.53E-07	6.57E-06
Uranium-234	9.92	0.18	2.58E+02		3.68E-02	6.20E-05	1.61E-03
Uranium-235	0.42	0.01	1.10E+01		1.56E-03		
Uranium-238	7.36	0.14	1.91E+02		2.73E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	15.79	0.29	4.11E+02		5.85E-03	6.58E-07	1.71E-05
Actinium-228	3.69	0.07	9.59E+01		1.37E-02	2.63E-07	6.85E-06
Bismuth-212	0.70	0.01	1.83E+01		2.60E-03	4.39E-08	1.14E-06
Bismuth-214	1.67	0.03	4.34E+01				
Technicium-99	0.74	0.01	1.94E+01		2.76E-03	3.10E-08	8.06E-07
Strontium-89	0.50	0.01	1.29E+01		1.84E-05	3.10E-08	8.06E-07
Tritium	0.00	0.00	0.00E+00		0.00E+00		
Cobalt-60	0.83	0.02	2.15E+01		3.06E-03	7.52E-08	1.95E-06
Thorium-234	0.72	0.01	1.87E+01		2.66E-05	8.88E-08	2.31E-06
Sodium-22	4.36	0.08	1.13E+02		1.61E-02	3.11E-07	8.09E-06
	0.00	0.00	0.00E+00				
	276.78		7.20E+03		5.08E-01		8.19E-03

Radioactive Waste Control Form

RWCF # 48411

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Box 811-2 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # ______ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid 405 (ft³) WEIGHT OF WASTE: 20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soils from 811 yard that have been screened using ISOCS + further characterized by i

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

[illegible]	1.[illegible]E3 µCi	U-235	1.1E1 µCi		µCi		µCi		µCi
Cs-137	1.4E3 µCi	U-238	1.9E2 µCi		µCi		µCi		µCi
Sr-90	3.10E3 µCi		µCi		µCi		µCi		µCi
U-234	2.58E2 µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

Hard An Samp # [illegible]04A301 See attached for ISOCS + Calcs

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 9-14-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.2 mR/hr @ contact .1 mR/hr @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 22144 Date 9/15/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH St. DIS EPA Codes

Packaging Category: Compactible Non-Compactible Pallet Seavan Designation

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code

DOT Hazard Class Waste Profile Number

BNL F 2975C 11/01

811-2

Radioactive Waste Control Form

RWCF# 48404

GENERATOR INFORMATION Generator (print) ~~Marianne Wade~~ Anne White

Department/Division ERD (Weskem, LLC) Ext. 865-7172 8401 Life/Guest # ~~0192C~~ 0625

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE INVENTORY Package Type 20cy Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid 405 (ft^3) WEIGHT OF WASTE: _____ lbs.

WASTE CHARACTERIZATION Describe Waste: Bldg 811 A&B Tank Overburden soils that have been screened using ISOCS & further characterized by PK

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.4E3 µCi	U-238	1.9E2 µCi		µCi		µCi		µCi
Sr-90	3.18E3 µCi		µCi	See attached	µCi		µCi		µCi
U-234	2.58E2 µCi		µCi		µCi		µCi		µCi
U-235	1.1E3 µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

See Attached for ISOCS & Calcs

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date _____

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 03746 Date 9/15/04

FOR WASTE MANAGEMENT FACILITY USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11 /01

RWCF 48404

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	41.93		3.81E+02	9.09E+06	1.55E-01	2.62E-06	2.38E-05
Strontium-90	95.30	2.27	8.66E+02		3.53E-02	1.18E-05	1.07E-04
Nickel-59	2.23	0.05	2.03E+01				
Europium-152	12.58	0.30	1.14E+02		4.66E-03	4.66E-07	4.24E-06
Europium-154	9.74	0.23	8.86E+01		3.61E-02	9.74E-06	8.86E-05
Europium-155	0.05	0.00	4.53E-01		1.84E-05	3.11E-09	2.83E-08
Radium-226	13.81	0.33	1.26E+02		5.11E-02	1.70E-04	1.55E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.41	0.01	3.75E+00		1.53E-02	2.95E-07	2.68E-06
Thorium-232	1.81	0.04	1.64E+01		6.69E-03		
Lead-210	0.57	0.01	5.16E+00		2.10E-03	5.46E-07	4.96E-06
Lead-212	1.06	0.03	9.68E+00		3.94E-03	1.97E-07	1.79E-06
Uranium-234	7.74	0.18	7.04E+01		2.87E-02	4.84E-05	4.40E-04
Uranium-235	0.33	0.01	2.99E+00		1.22E-03		
Uranium-238	5.74	0.14	5.22E+01		2.13E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	12.32	0.29	1.12E+02		4.56E-03	5.13E-07	4.67E-06
Actinium-228	2.88	0.07	2.62E+01		1.07E-02	2.06E-07	1.87E-06
Bismuth-212	0.55	0.01	4.99E+00		2.03E-03	3.43E-08	3.12E-07
Bismuth-214	1.30	0.03	1.18E+01				
Technicium-99	0.58	0.01	5.28E+00		2.15E-03	2.42E-08	2.20E-07
Strontium-89	0.39	0.01	3.52E+00		1.43E-05	2.42E-08	2.20E-07
Tritium	0.00		0.00E+00				
Cobalt-60	0.70	0.02	6.40E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-234	0.56	0.01	5.10E+00		2.61E-05	8.69E-08	7.90E-07
Sodium-22	3.40	0.08	3.09E+01		2.08E-03	4.01E-08	3.64E-07
			1.93E+03		3.83E-01		2.23E-03

Radioactive Waste Control Form RWCF# 48856

GENERAL INFORMATION Generator (print) Melinda B. Soest

Department/Division EHD - Tank A1 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EHD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 12/21/2004

WASTE QUANTITY Package Type UST Return Package? YES ☐ NO ☒

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
STEEL	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		See μCi		μCi		μCi		μCi
	μCi		Attached		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	10 @ contact 2 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U9746 Date 2/9/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0002
Envirocare of Utah, Inc.

	Total Activity		
Isotope	**(MBq)**	**(mCi)**	**(Ci)**
Am-241	3.7740E+01	1.0200E+00	1.0200E-03
Co-60	9.2500E+01	2.5000E+00	2.5000E-03
Cs-137	5.9348E+03	1.6040E+02	1.6040E-01
H-3	1.2469E+02	3.3700E+00	3.3700E-03
Pu-239	3.7962E+02	1.0260E+01	1.0260E-02
Ra-226	7.4000E-01	2.0000E-02	2.0000E-05
Sr-90	4.7471E+03	1.2830E+02	1.2830E-01
U-234	3.3300E+00	9.0000E-02	9.0000E-05
U-235	1.8500E+00	5.0000E-02	5.0000E-05
U-238	3.3300E+00	9.0000E-02	9.0000E-05

Radioactive Waste Control Form RWCF# 48857

GENERAL INFORMATION Generator (print) Melinda B. Sobst

Department/Division EMD Tank B-3 Ext. _____ Life/Guest # Q6580

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 12/21/2004

WASTE QUANTITY Package Type UST Return Package? YES ☐ NO ☒

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
STEEL 100	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi	See Attached			μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Sobst Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	150 @ contact 50 @ 12"	nn @ contact nn @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 05746 Date 1/4/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

TANK B-3

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0002
Envirocare of Utah, Inc.

	Total Activity		
Isotope	**(MBq)**	**(mCi)**	**(Ci)**
Am-241	3.7740E+01	1.0200E+00	1.0200E-03
Co-60	9.2500E+01	2.5000E+00	2.5000E-03
Cs-137	5.9348E+03	1.6040E+02	1.6040E-01
H-3	1.2469E+02	3.3700E+00	3.3700E-03
Pu-239	3.7962E+02	1.0260E+01	1.0260E-02
Ra-226	7.4000E-01	2.0000E-02	2.0000E-05
Sr-90	4.7471E+03	1.2830E+02	1.2830E-01
U-234	3.3300E+00	9.0000E-02	9.0000E-05
U-235	1.8500E+00	5.0000E-02	5.0000E-05
U-238	3.3300E+00	9.0000E-02	9.0000E-05

Radioactive Waste Control Form RWCF # 48858

GENERAL INFORMATION Generator (print) Melinda B. Soest

Department/Division EMO Tank B-1 Ext. _____ Life/Guest # Q6880

Dept. Responsible for Waste: EMO Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 12/21/2005

WASTE QUANTITY Package Type UST Return Package? YES ☐ NO ☒

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Steel	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards NONE

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	1200 @ contact 380 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 05746 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

TANK B-1

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0003
Envirocare of Utah, Inc.

	Total Activity		
Isotope	**(MBq)**	**(mCi)**	**(Ci)**
Am-241	6.7340E+01	1.8200E+00	1.8200E-03
Co-60	1.4023E+02	3.7900E+00	3.7900E-03
Cs-137	1.5059E+04	4.0700E+02	4.0700E-01
H-3	1.4171E+02	3.8300E+00	3.8300E-03
Pu-239	5.3132E+02	1.4360E+01	1.4360E-02
Ra-226	2.9600E+00	8.0000E-02	8.0000E-05
Sr-90	6.6045E+03	1.7850E+02	1.7850E-01
U-234	5.9200E+00	1.6000E-01	1.6000E-04
U-235	2.9600E+00	8.0000E-02	8.0000E-05
U-238	5.9200E+00	1.6000E-01	1.6000E-04

Radioactive Waste Control Form RWCF# 48859

GENERAL INFORMATION Generator (print) Melinda B. Soast

Department/Division EMD TANK A-3 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 12/21/2005

WASTE QUANTITY Package Type UST Return Package? YES ☐ NO ☒

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Steel	100%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soast Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	1600 @ contact 270 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 05746 Date 1/21/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

1 ANK A-3

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0003
Envirocare of Utah, Inc.

	Total Activity		
Isotope	**(MBq)**	**(mCi)**	**(Ci)**
Am-241	6.7340E+01	1.8200E+00	1.8200E-03
Co-60	1.4023E+02	3.7900E+00	3.7900E-03
Cs-137	1.5059E+04	4.0700E+02	4.0700E-01
H-3	1.4171E+02	3.8300E+00	3.8300E-03
Pu-239	5.3132E+02	1.4360E+01	1.4360E-02
Ra-226	2.9600E+00	8.0000E-02	8.0000E-05
Sr-90	6.6045E+03	1.7850E+02	1.7850E-01
U-234	5.9200E+00	1.6000E-01	1.6000E-04
U-235	2.9600E+00	8.0000E-02	8.0000E-05
U-238	5.9200E+00	1.6000E-01	1.6000E-04

Radioactive Waste Control Form RWCF# 48860

GENERAL INFORMATION Generator (print) Melinda B. Soest

Department/Division EMO Tank A-2 Ext. _____ Life/Guest # Q0550

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 12/21/2004

WASTE QUANTITY Package Type Approved NRS 1/3/2005 UST Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Steel	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached			µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
Gamma Ray Spectroscopy ☐
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	45 @ contact 8 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. MLP Life # U5746 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0001
Envirocare of Utah, Inc.

	Total Activity		
sotope	**(MBq)**	**(mCi)**	**(Ci)**
m-241	3.9590E+01	1.0700E+00	1.0700E-03
o-60	6.5860E+01	1.7800E+00	1.7800E-03
s-137	6.5971E+03	1.7830E+02	1.7830E-01
-3	1.3653E+02	3.6900E+00	3.6900E-03
Pu-239	3.9035E+02	1.0550E+01	1.0550E-02
Ra-226	1.1100E+00	3.0000E-02	3.0000E-05
Sr-90	4.8766E+03	1.3180E+02	1.3180E-01
U-234	4.8100E+00	1.3000E-01	1.3000E-04
U-235	7.4000E-01	2.0000E-02	2.0000E-05
U-238	3.3300E+00	9.0000E-02	9.0000E-05

Radioactive Waste Control Form RWCF# 48861

GENERAL INFORMATION Generator (print) Melinda B. Soest

Department/Division EMD Tank B-2 Ext. _____ Life/Guest # Q6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Tank (UST) Return Package? YES ☐ NO ☒

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Steel	100%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	15 @ contact 4 @ 12"	nr @ contact nr @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 05744 Date 1/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible PathologicalWAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0001
Envirocare of Utah, Inc.

otope	Total Activity (MBq)	(mCi)	(Ci)
ı-241	3.9590E+01	1.0700E+00	1.0700E-03
›-60	6.5860E+01	1.7800E+00	1.7800E-03
s-137	6.5971E+03	1.7830E+02	1.7830E-01
-3	1.3653E+02	3.6900E+00	3.6900E-03
u-239	3.9035E+02	1.0550E+01	1.0550E-02
a-226	1.1100E+00	3.0000E-02	3.0000E-05
r-90	4.8766E+03	1.3180E+02	1.3180E-01
J-234	4.8100E+00	1.3000E-01	1.3000E-04
J-235	7.4000E-01	2.0000E-02	2.0000E-05
J-238	3.3300E+00	9.0000E-02	9.0000E-05

Radioactive Waste Control Form RWCF# 48691 M. Soest

GENERAL INFORMATION Generator (print) ~~Weston Solutions 811 Tank Project~~ (M)

Department/Division Environmental Restoration Div Ext. 2423 Life/Guest # Q6550

Dept. Responsible for Waste: ERD Acct. # 07458 Accumulation Area Bldg. # 810 Placement Date 11 / ~~14~~ /04

WASTE QUANTITY Package Type HIC LINER Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid 250 (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: [redacted] lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DECON RINSE WATER FROM RESPIRATOR WASHING AT 811 TANK PROJECT

Physical State (check only one): Solid ☐ Liquid ☒ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	> 99 %	sludge	< 1 %	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Am^{241}	$2.93E^{-3}$ µCi		µCi		µCi		µCi		µCi
Cs^{137}	46.6 µCi		µCi		µCi		µCi		µCi
$Pu^{239/240}$	$2.95E^{-2}$ µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☒; Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☐; Material Balance ☐; Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 11/19/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetar Life # Q6004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Code: _____

Packaging Category: Compactible Non-Compactible Palletized WAC Designation: _____

Hazard Classi... Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class: _____ Waste Profile Number: _____

BNL F 2975C 11/01

Page 1 of 1

Radioactive Waste Inventory

RWCF # 4869

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
11/23/04	Respirator Decon Rinse		Sr-90	<1
↓	Water.	2000	Cs-137	<1
			Am-241	<1
			Pu 239/240	<1

Has any hazardous waste been introduced to this waste? NO
If Yes please complete the Hazardous Waste Inventory Table

Hazardous Waste Inventory

Hazardous component	How much?

Comments

Signature: [signature] Date: 11/29/2004
Generator

*definitions on back

Table - Activity Calculations

RWCF # Or ANWCF # (Cross Out One):	48866
OER Container Control Number (CCN):	
Container Identification (Imprinted Serial Number or Other):	811 HIC Weston/Weskem
Project Name:	811 D&D
Waste Matrix:	Water

Weights	(gal)	(L)
Gross Weight of Container:		0.00E+00
Weight of Empty Container:		0.00E+00
Weight of Waste:	2.50E+02	9.46E+02
Weight of Contamination:		0.00E+00

Isotope	Concentration (pCi/L)	Weight of Waste (L)	Waste Activity (uCi)	Isotope
Am^{241}	3.10E+00	9.46E+02	2.93E-03	Am^{241}
Am^{243}		9.46E+02	0.00E+00	Am^{243}
Co^{60}		9.46E+02	0.00E+00	Co^{60}
Cs^{137}	4.92E+04	9.46E+02	4.66E+01	Cs^{137}
Eu^{152}		9.46E+02	0.00E+00	Eu^{152}
Eu^{154}		9.46E+02	0.00E+00	Eu^{154}
Eu^{155}		9.46E+02	0.00E+00	Eu^{155}
H^{3}		9.46E+02	0.00E+00	H^{3}
Np^{237}		9.46E+02	0.00E+00	Np^{237}
Pu^{238}		9.46E+02	0.00E+00	Pu^{238}
$Pu^{239/240}$	3.12E+01	9.46E+02	2.95E-02	$Pu^{239/240}$
Pu^{240}		9.46E+02	0.00E+00	Pu^{240}
Pu^{241}	0.00E+00	9.46E+02	0.00E+00	Pu^{241}
Pu^{242}		9.46E+02	0.00E+00	Pu^{242}
Pu^{244}		9.46E+02	0.00E+00	Pu^{244}
Ra^{224}		9.46E+02	0.00E+00	Ra^{224}
Ra^{226}		9.46E+02	0.00E+00	Ra^{226}
Sr^{90}	0.00E+00	9.46E+02	0.00E+00	Sr^{90}
Th^{228}		9.46E+02	0.00E+00	Th^{228}
Th^{229}		9.46E+02	0.00E+00	Th^{229}
Th^{230}		9.46E+02	0.00E+00	Th^{230}
Th^{232}		9.46E+02	0.00E+00	Th^{232}
U^{232}		9.46E+02	0.00E+00	U^{232}
U^{233}		9.46E+02	0.00E+00	U^{233}
U^{234}		9.46E+02	0.00E+00	U^{234}
U^{235}		9.46E+02	0.00E+00	U^{235}
U^{236}		9.46E+02	0.00E+00	U^{236}
U^{238}		9.46E+02	0.00E+00	U^{238}

Sample Reference (COC #, Report):	STL, Janurary 15, 2005, SDG/COC # 19813

ANALYTICAL DRAFT REPORT

Building 811 UST Removal

Lot #: F5A120151
SDG #: 19813

Teresa Baker/Melinda Soest

Brookhaven National Labs
Building 51
Upton, NY 11973

SEVERN TRENT LABORATORIES, INC.

Ed Kao
Project Manager

January 15, 2005

METHODS SUMMARY

F5A120151

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
ICP-MS (6020)	SW846 6020	
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 7470A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F5A120151

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
G2FRF	001	19813-001	01/10/05	13:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Weskem, LLC

Client Sample ID: 19813-001

TOTAL Metals

Lot-Sample #...: F5A120151-001 Matrix.....: W
Date Sampled...: 01/10/05 13:30 Date Received..: 01/12/05

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5013123						
Silver	ND	10 Dilution Factor: 10	ug/L	SW846 6020 Analysis Time..: 15:04	01/13-01/14/05	G2FRF1CG
Aluminum	1390 E	50 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1A2
Arsenic	0.87 B	5 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1A4
Barium	158	20 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1A5
Beryllium	ND	2 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1A6
Cadmium	0.21 B	2 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1A7
Cobalt	1.5 BE	5 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1A8
Chromium	13.1	5 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1CK
Copper	73.8 E	10 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1A9
Potassium	164000	10000 Dilution Factor: 10	ug/L	SW846 6020 Analysis Time..: 15:04	01/13-01/14/05	G2FRF1CE
Manganese	31.6 E	5 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1CC
Nickel	20.3 E	10 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1CD
Lead	18.7	3 Dilution Factor: 2	ug/L	SW846 6020 Analysis Time..: 12:10	01/13-01/14/05	G2FRF1CA

(Continued on next page)

Weskem, LLC

Client Sample ID: 19813-001

TOTAL Metals

Lot-Sample #...: F5A120151-001 Matrix.....: W

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Antimony	2.8 B	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A3
		Dilution Factor: 2		Analysis Time..: 12:10		
Selenium	ND	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CF
		Dilution Factor: 2		Analysis Time..: 12:10		
Thallium	1.2 B	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CH
		Dilution Factor: 2		Analysis Time..: 12:10		
Vanadium	2.3 B	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CJ
		Dilution Factor: 2		Analysis Time..: 12:10		
Prep Batch #...: 5013124						
Calcium	247000	250	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1AV
		Dilution Factor: 1		Analysis Time..: 16:00		
Iron	3560	50	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1
		Dilution Factor: 1		Analysis Time..: 16:00		
Magnesium	282	250	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1AX
		Dilution Factor: 1		Analysis Time..: 16:00		
Sodium	146000	250	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1A0
		Dilution Factor: 1		Analysis Time..: 16:00		
Zinc	21.8	10	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1A1
		Dilution Factor: 1		Analysis Time..: 16:00		
Prep Batch #...: 5013324						
Mercury	0.36	0.2	ug/L	SW846 7470A	01/13-01/14/05	G2FRF1AU
		Dilution Factor: 1		Analysis Time..: 11:13		

NOTE(S):

E Matrix interference.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F5A130000-123 **Prep Batch #...:** 5013123						
Aluminum	ND	100	ug/L	SW846 6020	01/13-01/14/05	G2HK01AA
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Antimony	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AC
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Arsenic	ND B	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AD
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Barium	0.52 B	40	ug/L	SW846 6020	01/13-01/14/05	G2HK01AE
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Beryllium	ND	4	ug/L	SW846 6020	01/13-01/14/05	G2HK01AF
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Cadmium	ND	4	ug/L	SW846 6020	01/13-01/14/05	G2HK01AG
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Chromium	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AU
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Cobalt	ND B	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AH
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Copper	ND	20	ug/L	SW846 6020	01/13-01/14/05	G2HK01AJ
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Lead	ND	6	ug/L	SW846 6020	01/13-01/14/05	G2HK01AK
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Manganese	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AL
		Dilution Factor: 2				
		Analysis Time..: 11:45				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Nickel	0.14 B	20	ug/L	SW846 6020	01/13-01/14/05	G2HK01AM
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Potassium	ND	4000	ug/L	SW846 6020	01/13-01/14/05	G2HK01AN
		Dilution Factor: 2				
		Analysis Time..: 14:55				
Selenium	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AP
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Silver	ND	4	ug/L	SW846 6020	01/13-01/14/05	G2HK01AQ
		Dilution Factor: 2				
		Analysis Time..: 14:55				
Thallium	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AR
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Vanadium	ND B	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01A.
		Dilution Factor: 2				
		Analysis Time..: 11:45				

MB Lot-Sample #: F5A130000-124 **Prep Batch #...:** 5013124

Calcium	ND	250	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AA
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Iron	ND	50	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AC
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Magnesium	ND	250	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AD
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Sodium	ND	250	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AE
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Zinc	ND	10	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AF
		Dilution Factor: 1				
		Analysis Time..: 15:47				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F5A130000-324 **Prep Batch #...:** 5013324						
Mercury	ND	0.2	ug/L	SW846 7470A	01/13-01/14/05	G2JLN1AA
		Dilution Factor: 1				
		Analysis Time..: 11:09				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: F5A120151 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Aluminum	103	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	104	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Antimony	96	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	97	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Arsenic	101	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	103	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Barium	91	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	92	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Beryllium	94	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	94	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Cadmium	93	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	93	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Chromium	94	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	94	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Cobalt	92	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	91	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Copper	86	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	86	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Lead	89	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	91	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: F5A120151 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Manganese	91	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	92	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Nickel	90	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	89	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Potassium	100	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	104	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 14:58		
Selenium	96	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	100	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Silver	88	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	94	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 14:58		
Thallium	88	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	90	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Vanadium	96	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	97	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Calcium	101	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	103	(80 - 120)	1.6	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		
Iron	102	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	103	(80 - 120)	0.94	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		
Magnesium	102	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	103	(80 - 120)	1.6	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: F5A120151 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Sodium	105	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	107	(80 - 120)	1.5	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		
Zinc	96	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	96	(80 - 120)	0.72	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F5A120151 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F5A130000-324 Prep Batch #...: 5013324					
Mercury	96	(82 - 125)	SW846 7470A	01/13-01/14/05	G2JLN1AC
		Dilution Factor: 1		Analysis Time..: 11:11	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER
Date Sampled...: 01/12/05 12:00 **Date Received..:** 01/13/05

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F5A130134-001 **Prep Batch #...:** 5013324							
Mercury	97	(59 - 136)			SW846 7470A	01/13-01/14/05	G2HQ41DU
	98	(59 - 136)	1.0	(0-20)	SW846 7470A	01/13-01/14/05	G2HQ41DV
		Dilution Factor: 1					
		Analysis Time..: 11:17					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Weskem, LLC

Client Sample ID: 19813-001

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F5A120151-001
Work Order: G2FRF
Matrix: WATER

Date Collected: 01/10/05 1330
Date Received: 01/12/05 0845

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
SR-90 BY GFPC EPA-905 MOD				pCi/L	905 MOD			
Strontium 90	0.0	J	0.0	0.0	01/13/05		5013165	0.0
Iso URANIUM (SHORT CT) NAS & DOE MOD				pCi/L	3050/RP-725			
Uranium 234	0.30	U	0.86	1.3	01/12/05	01/14/05	5012349	91
Uranium 235	0.09	U	0.50	0.95	01/12/05	01/14/05	5012349	91
Uranium 238	0.48	U	0.60	0.80	01/12/05	01/14/05	5012349	91
Iso PLUTONIUM (SHORT CT) NAS & DOE MOD				pCi/L	3058/RP-725			
Plutonium 239/40	31.2		4.7	1	01/12/05	01/14/05	5012348	84
Plutonium-241 by Liquid Scintillation				pCi/L	STL-RC-0245			
Plutonium 241	0.0	J	0.0	0.0	01/12/05		5012351	0.0
Iso AMERICIUM (SHORT CT) NAS & DOE MOD				pCi/L	3006/RP-725			
Am-241	3.1		1.3	0.9	01/12/05	01/14/05	5012347	87
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/L	901.1 MOD			
Americium 241	61	U	82	140	01/12/05	01/12/05	5012343	
Beryllium 7	800	U	1100	1900	01/12/05	01/12/05	5012343	
Cesium 134	-15	U	65	110	01/12/05	01/12/05	5012343	
Cesium 137	49200		6200	100	01/12/05	01/12/05	5012343	
Cobalt 57	-9	U	38	63	01/12/05	01/12/05	5012343	
Cobalt 60	34	U	43	92	01/12/05	01/12/05	5012343	
Europium 152	-270	U	340	550	01/12/05	01/12/05	5012343	
Europium 154	30	U	360	660	01/12/05	01/12/05	5012343	
Europium 155	50	U	130	230	01/12/05	01/12/05	5012343	
Manganese 54	14	U	38	73	01/12/05	01/12/05	5012343	
Sodium 22	-6	U	41	76	01/12/05	01/12/05	5012343	
Zinc 65	20	U	86	160	01/12/05	01/12/05	5012343	

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.
Bold results are greater than the MDC

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

METHOD BLANK REPORT

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151
Matrix: WATER

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Lab Sample ID Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			**pCi/L**	**901.1 MOD**			**F5A120000-343B**	
Americium 241	-5	U	42	71	01/12/05	01/12/05	5012343	
Beryllium 7	40	U	300	540	01/12/05	01/12/05	5012343	
Cesium 134	-27	U	40	67	01/12/05	01/12/05	5012343	
Cesium 137	19	U	39	78	01/12/05	01/12/05	5012343	
Cobalt 57	-10	U	16	26	01/12/05	01/12/05	5012343	
Cobalt 60	-2	U	40	78	01/12/05	01/12/05	5012343	
Europium 152	-50	U	280	540	01/12/05	01/12/05	5012343	
Europium 154	-100	U	270	480	01/12/05	01/12/05	5012343	
Europium 155	-1	U	55	100	01/12/05	01/12/05	5012343	
Manganese 54	-14	U	34	61	01/12/05	01/12/05	5012343	
Sodium 22	5	U	44	89	01/12/05	01/12/05	5012343	
Zinc 65	-21	U	90	170	01/12/05	01/12/05	5012343	
Iso AMERICIUM (SHORT CT) NAS & DOE MOD			**pCi/L**	**3006/RP-725**			**F5A120000-347B**	
Am-241	0.0	U	0.0	0.2	01/12/05	01/14/05	5012347	90
Iso PLUTONIUM (SHORT CT) NAS & DOE MOD			**pCi/L**	**3058/RP-725**			**F5A120000-348B**	
Plutonium 239/40	0.0	U	0.0	0.1	01/12/05	01/14/05	5012348	80
Iso URANIUM (SHORT CT) NAS & DOE MOD			**pCi/L**	**3050/RP-725**			**F5A120000-349B**	
Uranium 234	0.034	U	0.087	0.14	01/12/05	01/14/05	5012349	89
Uranium 235	0.026	U	0.073	0.070	01/12/05	01/14/05	5012349	89
Uranium 238	0.016	U	0.046	0.092	01/12/05	01/14/05	5012349	89
Plutonium-241 by Liquid Scintillation			**pCi/L**	**STL-RC-0245**			**F5A120000-351B**	
Plutonium 241	0.0	J	0.0	0.0	01/12/05		5012351	0.0
SR-90 BY GFPC EPA-905 MOD			**pCi/L**	**905 MOD**			**F5A130000-165B**	
Strontium 90	0.0	J	0.0	0.0	01/13/05		5013165	0.0

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined using instrument performance only
Bold results are greater than the MDC

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

DUPLICATE EVALUATION REPORT

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151 Date Sampled: 01/10/05
Matrix: WATER Date Received: 01/12/05

Parameter	SAMPLE Result		Total Uncert. (2σ +/-)	% Yld	DUPLICATE Result		Total Uncert. (2 σ +/-)	% Yld	QC Sample ID Precision	
Gamma Cs-137 & Hits by EPA 901.1 MOD		pCi/L			901.1 MOD				F5A120151-001	
Americium 241	61	U	82		-21	U	82		408	%RPD
Beryllium 7	800	U	1100		700	U	1100		7	%RPD
Cesium 134	-15	U	65		-53	U	75		-110	%RPD
Cesium 137	49200		6200		49900		6600		1	%RPD
Cobalt 57	-9	U	38		18	U	39		582	%RPD
Cobalt 60	34	U	43		-5	U	50		266	%RPD
Europium 152	-270	U	340		240	U	420		-3.85	%RPD
Europium 154	30	U	360		110	U	420		109	%RPD
Europium 155	50	U	130		110	U	140		74	%RPD
Manganese 54	14	U	38		31	U	50		75	%RPD
Sodium 22	-6	U	41		-23	U	58		-116	%RPD
Zinc 65	20	U	86		-100	U	120		-294	%RPD
	Batch #:		5012343 (Sample)		5012343 (Duplicate)					

NOTE(S)

Data are incomplete without the case narrative.
Calculations are performed before rounding to avoid round-off error in calculated results

U Result is less than the sample detection limit.

Laboratory Control Sample Report

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151
Matrix: WATER

Parameter	Spike Amount	Result	Total Uncert. (2 σ +/-)	MDC	% Yld	% Rec	Lab Sample ID QC Control Limits
Gamma Cs-137 & Hits by EPA 901.1 MOD		pCi/L		901.1 MOD			F5A120000-343C
Americium 241	106000	113000	14000	500		107	(90 - 110)
Cesium 137	44400	48400	6400	300		109	(90 - 110)
Cobalt 60	63900	67000	7800	300		105	(90 - 110)
Batch #:	5012343			Analysis Date:	01/12/05		

NOTE(S)

MDC is determined by instrument performance only
Calculations are performed before rounding to avoid round-off error in calculated results

J Result is greater than sample detection limit but less than stated reporting limit.
J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

Laboratory Control Sample/LCS Duplicate Report

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151
Matrix: WATER

Parameter		Spike Amount	Result		Total Uncert. (2 σ +/-)	% Yld	% Rec	QC Control Limits	Precision	
Iso AMERICIUM (SHORT CT) NAS & DOE MOD		pCi/L	3006/RP-725					Lab Sample ID F5A120000-347C		
Am-241		15.4	12.8		1.4	99	83	(73 - 117)		
	Spk 2	15.4	13.8		1.6	86	89	(73 - 117)	7	%RPD
Curium 243/244		0.0	0.07	U	0.13	99	***	(70 - 130)		
	Spk 2	0.0	0.17	U	0.19	86	****	(70 - 130)	87	%RPD
		Batch #:	5012347			Analysis Date:		01/14/05		
Iso PLUTONIUM (SHORT CT) NAS & DOE MOD		pCi/L	3058/RP-725					F5A120000-348C		
Plutonium 238		5.96	5.44		0.82	86	91	(72 - 109)		
	Spk 2	5.96	6.23		0.90	80	104	(72 - 109)	14	%RPD
Plutonium 239/40		5.77	5.12		0.79	86	89	(79 - 122)		
	Spk 2	5.77	5.68		0.85	80	98	(79 - 122)	10	%RPD
		Batch #:	5012348			Analysis Date:		01/14/05		
Iso URANIUM (SHORT CT) NAS & DOE MOD		pCi/L	3050/RP-725					F5A120000-349C		
Uranium 234		10.7	9.7		1.1	91	90	(73 - 115)		
	Spk 2	10.7	8.9		1.1	91	82	(73 - 115)	9	%RPD
Uranium 238		10.7	10.0		1.1	91	93	(70 - 130)		
	Spk 2	10.7	10.1		1.2	91	94	(70 - 130)	0.9	%RPD
		Batch #:	5012349			Analysis Date:		01/14/05		
Plutonium-241 by Liquid Scintillation		pCi/L	STL-RC-0245					F5A120000-351C		
Plutonium 241		0.0	0.0	J	0.0	0.0	***	(70 - 130)		
	Spk 2	0.0	0.0	J	0.0	0.0	****	(70 - 130)	Erro	%RPD
		Batch #:	5012351			Analysis Date:				
SR-90 BY GFPC EPA-905 MOD		pCi/L	905 MOD					F5A130000-165C		
Strontium 90		0.0	0.0	J	0.0	0.0	***	(60 - 150)		
	Spk 2	0.0	0.0	J	0.0	0.0	****	(60 - 150)	Erro	%RPD
		Batch #:	5013165			Analysis Date:				

NOTE(S)

Calculations are performed before rounding to avoid round-off error in calculated results

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

Radioactive Waste Control Form RWCF# 48418

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Ext. _____ Life/Guest # 06258

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 20,000 – 3/22/05 lbs. based on attached sheet

RAD WASTE CHARACTERIZATION Describe Waste: soil w/limited debris - small asphalt pieces and piece of metal.

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	.5 %	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	.5 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

See attached

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A301
See attached ISOCS data and calcs

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☐
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature _____ Date 9-17-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.03 @ contact .02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Dana Kirk Life # 22144 Date 9/20/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11/01

0850 - 9/20/04

LIQUID WASTE CHARACTERIZATION

Complete this section if the waste contains or has come in contact with hazardous chemical substances:

List CHEMICAL CONSTITUENTS with their percentages by volume

	%		%		%
	%		%		%

		YES	NO
CORROSIVITY	Is the pH less than or equal to 2.0 or greater than or equal to 12.5?	☐	☐
GENERAL	Is the waste an unused chemical or spill clean-up?	☐	☐
	Was the waste used as a solvent or degreaser? If so which?	☐	☐
IGNITABILITY	Is the flashpoint less than 140 F (60 C)?	☐	☐
	Is the waste an oxidizer or pyrophoric?	☐	☐
REACTIVITY	Is the waste unstable, water reactive, or explosive? If so which?	☐	☐
	Does the waste contain cyanide or sulfide? If so which?	☐	☐
TOXICITY	Based on your knowledge, does the waste contain any of the following?	YES ☐ (If yes, check all that apply)	NO ☐

State Regulated Materials	
Asbestos	
Carcinogens	
Chelating Cmpds	
Infectious Agents	
Halogenated Organics	
Oils	
Organic Solvents	
PCB's	
Polycyclic Aromatics	

RCRA Regulated Materials							
Arsenic		m-Cresol		Hexachlorobenzene		Pyridine	
Barium		p-Cresol		Hexachlorobutadiene		Selenium	
Benzene		Cresol		Hexachloroethane		Silver	
Cadmium		2,4-D		Lead		Tetrachloroethylene	
Carbon Tetrachloride		1,4-Dichlorobenzene		Lindane		Toxaphene	
Chlordane		1,2-Dichloroethane		Mercury		Trichloroethylene	
Chlorobenzene		1,1-Dichloroethylene		Methoxychlor		2,4,5-Trichlorophenol	
Chloroform		2,4-Dinitrotoluene		Methyl Ethyl Ketone		2,4,6- Trichlorophenol	
Chromium		Endrin		Nitrobenzene		2,4,5-TP (Silvex)	
o-Cresol		Heptachlor		Pentachlorophenol		Vinyl Chloride	

SPECIAL HANDLING INSTRUCTIONS

Note any special hazards _____

GENERATOR CERTIFICATION

I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.

Generator's Signature _____ Date _____

4/8/18

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	10.15	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	3.19	0.05	8.30E+01		1.18E-05		
Europium-152	18.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	13.94	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.07	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	19.75	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.59	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	2.58	0.04	6.72E+01		9.57E-03		
Lead-210	0.81	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	1.52	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	11.08	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.47	0.01	1.22E+01		1.74E-03		
Uranium-238	8.22	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	17.63	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	4.12	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.78	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	1.86	0.03	4.85E+01				
Technicium-99	0.83	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.55	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.92	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.80	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	4.86	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
	0.00	0.00	0.00E+00				
					0.52002		0.008733

8

Radioactive Waste Control Form RWCF # 48410

GENERATOR INFORMATION Generator (print) Anne White

Department/Division ERD 84-9 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 8 Placement Date 9/16/04

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~400 (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soils mixed debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	<1 %	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	<10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.4E3 µCi	U-238	1.1E3 µCi		µCi		µCi		µCi
Sr-90	3.1BE3 µCi	U	µCi		µCi		µCi		µCi
U-234	2.5BE2 µCi		µCi		µCi		µCi		µCi
U-235	1.1E1 µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method: Gamma Ray Spectroscopy ☒; Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☐; Material Balance ☐; Scaling Factors ☒

ISOCs and PK attached

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne Li White Date 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.05 @ contact 0.02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donald Chan Life # 21813 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes:

Packaging Category: Compactible Non-Compactible Pathological WAC Designation:

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code:

DOT Hazard Class: Waste Profile Number:

Complete this section if the waste contains
or has come in contact with hazardous chemical substances:

List CHEMICAL CONSTITUENTS with their percentages by volume

	%		%		%
	%		%		%

		YES	NO
CORROSIVITY	Is the pH less than or equal to 2.0 or greater than or equal to 12.5?	☐	☐
GENERAL	Is the waste an unused chemical or spill clean-up?	☐	☐
	Was the waste used as a solvent or degreaser? If so which?	☐	☐
IGNITABILITY	Is the flashpoint less than 140 F (60 C)?	☐	☐
	Is the waste an oxidizer or pyrophoric?	☐	☐
REACTIVITY	Is the waste unstable, water reactive, or explosive? If so which?	☐	☐
	Does the waste contain cyanide or sulfide? If so which?	☐	☐
TOXICITY	Based on your knowledge, does the waste contain any of the following?	YES ☐ (If yes, check all that apply)	NO ☐

State Regulated Materials	
Asbestos	
Carcinogens	
Chelating Cmpds	
Infectious Agents	
Halogenated Organics	
Oils	
Organic Solvents	
PCB's	
Polycyclic Aromatics	

RCRA Regulated Materials							
Arsenic		m-Cresol		Hexachlorobenzene		Pyridine	
Barium		p-Cresol		Hexachlorobutadiene		Selenium	
Benzene		Cresol		Hexachloroethane		Silver	
Cadmium		2,4-D		Lead		Tetrachloroethylene	
Carbon Tetrachloride		1,4-Dichlorobenzene		Lindane		Toxaphene	
Chlordane		1,2-Dichloroethane		Mercury		Trichloroethylene	
Chlorobenzene		1,1-Dichloroethylene		Methoxychlor		2,4,5-Trichlorophenol	
Chloroform		2,4-Dinitrotoluene		Methyl Ethyl Ketone		2,4,6- Trichlorophenol	
Chromium		Endrin		Nitrobenzene		2,4,5-TP (Silvex)	
o-Cresol		Heptachlor		Pentachlorophenol		Vinyl Chloride	

Note any special hazards _____

I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.

Generator's Signature _____ Date _____

Radioactive Waste Control Form

RWCF # 48417

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Ext. _____ Life/Guest # 06258

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~370 (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil w/ limited debris (concrete)

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	1 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi	~ see attached	µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A301
See attached ISOCS data and calcs.

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☐
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-17-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.01 @ contact 0.01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donald Olsen Life # 21813 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11/01

WASTE CHARACTERIZATION

Complete this section if the waste contains or has come in contact with hazardous chemical substances:

List CHEMICAL CONSTITUENTS with their percentages by volume

	%		%		%
	%		%		%

		YES	NO
CORROSIVITY	Is the pH less than or equal to 2.0 or greater than or equal to 12.5?	☐	☐
GENERAL	Is the waste an unused chemical or spill clean-up?	☐	☐
	Was the waste used as a solvent or degreaser? If so which?	☐	☐
IGNITABILITY	Is the flashpoint less than 140 F (60 C)?	☐	☐
	Is the waste an oxidizer or pyrophoric?	☐	☐
REACTIVITY	Is the waste unstable, water reactive, or explosive? If so which?	☐	☐
	Does the waste contain cyanide or sulfide? If so which?	☐	☐
TOXICITY	Based on your knowledge, does the waste contain any of the following?	YES ☐ (If yes, check all that apply)	NO ☐

State Regulated Materials	
Asbestos	
Carcinogens	
Chelating Cmpds	
Infectious Agents	
Halogenated Organics	
Oils	
Organic Solvents	
PCB's	
Polycyclic Aromatics	

RCRA Regulated Materials							
Arsenic		m-Cresol		Hexachlorobenzene		Pyridine	
Barium		p-Cresol		Hexachlorobutadiene		Selenium	
Benzene		Cresol		Hexachloroethane		Silver	
Cadmium		2,4-D		Lead		Tetrachloroethylene	
Carbon Tetrachloride		1,4-Dichlorobenzene		Lindane		Toxaphene	
Chlordane		1,2-Dichloroethane		Mercury		Trichloroethylene	
Chlorobenzene		1,1-Dichloroethylene		Methoxychlor		2,4,5-Trichlorophenol	
Chloroform		2,4-Dinitrotoluene		Methyl Ethyl Ketone		2,4,6- Trichlorophenol	
Chromium		Endrin		Nitrobenzene		2,4,5-TP (Silvex)	
o-Cresol		Heptachlor		Pentachlorophenol		Vinyl Chloride	

APPLICATIONS CERTIFICATION

Note any special hazards _____

I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.

Generator's Signature _____ Date 9-17-04

RWCF 48417

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	10.15	0.17	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	3.19	0.05	8.30E+01		1.18E-05		
Europium-152	18.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	13.94	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.07	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	19.75	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.59	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	2.58	0.04	6.72E+01		9.57E-03		
Lead-210	0.81	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	1.52	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	11.08	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.47	0.01	1.22E+01		1.74E-03		
Uranium-238	8.22	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	17.63	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	4.12	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.78	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	1.86	0.03	4.85E+01				
Technicium-99	0.83	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.55	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.92	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.80	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	4.86	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
	0.00	0.00	0.00E+00				
					0.52002		0.008733

(7)

Radioactive Waste Control Form RWCF# 48408

GENERATOR INFORMATION Generator (print) Anne White

Department/Division EBD BOX-811-7 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Roll-off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~370 (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, Concrete, plastic, Rebar

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	<1 %	glass	%	metal	<1 %	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi	μCi
	μCi		μCi		μCi		μCi	μCi
	μCi	See attached	μCi		μCi		μCi	μCi
	μCi		μCi		μCi		μCi	μCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WSO4P30 See attached ISOCS + Calcs.

Direct Method
Gamma Ray Spectroscopy ☒
Scintillation Counter ☐

Indirect Method
Dose Rate to Activity Conversion ☐
Material Balance ☐
Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 9-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.02 @ contact 0.01 @ 12"	n/a @ contact _____ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 21513 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASHST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

[redacted] Complete this section if the waste contains or has come in contact with hazardous chemical substances:

List CHEMICAL CONSTITUENTS with their percentages by volume

	%		%		%
	%		%		%

		YES	NO
CORROSIVITY	Is the pH less than or equal to 2.0 or greater than or equal to 12.5?	☐	☐
GENERAL	Is the waste an unused chemical or spill clean-up?	☐	☐
	Was the waste used as a solvent or degreaser? If so which?	☐	☐
IGNITABILITY	Is the flashpoint less than 140 F (60 C)?	☐	☐
	Is the waste an oxidizer or pyrophoric?	☐	☐
REACTIVITY	Is the waste unstable, water reactive, or explosive? If so which?	☐	☐
	Does the waste contain cyanide or sulfide? If so which?	☐	☐
TOXICITY	Based on your knowledge, does the waste contain any of the following?	YES ☐ (If yes, check all that apply)	NO ☐

State Regulated Materials	
Asbestos	
Carcinogens	
Chelating Cmpds	
Infectious Agents	
Halogenated Organics	
Oils	
Organic Solvents	
PCB's	
Polycyclic Aromatics	

RCRA Regulated Materials							
Arsenic		m-Cresol		Hexachlorobenzene		Pyridine	
Barium		p-Cresol		Hexachlorobutadiene		Selenium	
Benzene		Cresol		Hexachloroethane		Silver	
Cadmium		2,4-D		Lead		Tetrachloroethylene	
Carbon Tetrachloride		1,4-Dichlorobenzene		Lindane		Toxaphene	
Chlordane		1,2-Dichloroethane		Mercury		Trichloroethylene	
Chlorobenzene		1,1-Dichloroethylene		Methoxychlor		2,4,5-Trichlorophenol	
Chloroform		2,4-Dinitrotoluene		Methyl Ethyl Ketone		2,4,6- Trichlorophenol	
Chromium		Endrin		Nitrobenzene		2,4,5-TP (Silvex)	
o-Cresol		Heptachlor		Pentachlorophenol		Vinyl Chloride	

[redacted] Note any special hazards _____

I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.

Generator's Signature _____ Date _____

(6)

Radioactive Waste Control Form RWCF# 48407

GENERATOR INFORMATION Generator (print) Anne White

Department/Division EBD Box 811-6 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: EBD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Roll-off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~ 370 (ft³) WEIGHT OF WASTE: ~ 20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi	See attached	μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WS04FF301 See attached ISOCS + calcs.

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☐
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	n/a @ contact n/a @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # U5741 Date 9/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

[redacted] Complete this section if the waste contains or has come in contact with hazardous chemical substances:

List CHEMICAL CONSTITUENTS with their percentages by volume

	%		%		%
	%		%		%

		YES	NO
CORROSIVITY	Is the pH less than or equal to 2.0 or greater than or equal to 12.5?	☐	☐
GENERAL	Is the waste an unused chemical or spill clean-up?	☐	☐
	Was the waste used as a solvent or degreaser? If so which?	☐	☐
IGNITABILITY	Is the flashpoint less than 140 F (60 C)?	☐	☐
	Is the waste an oxidizer or pyrophoric?	☐	☐
REACTIVITY	Is the waste unstable, water reactive, or explosive? If so which?	☐	☐
	Does the waste contain cyanide or sulfide? If so which?	☐	☐
TOXICITY	Based on your knowledge, does the waste contain any of the following?	YES ☐ (If yes, check all that apply)	NO ☐

State Regulated Materials	
Asbestos	
Carcinogens	
Chelating Cmpds	
Infectious Agents	
Halogenated Organics	
Oils	
Organic Solvents	
PCB's	
Polycyclic Aromatics	

RCRA Regulated Materials							
Arsenic		m-Cresol		Hexachlorobenzene		Pyridine	
Barium		p-Cresol		Hexachlorobutadiene		Selenium	
Benzene		Cresol		Hexachloroethane		Silver	
Cadmium		2,4-D		Lead		Tetrachloroethylene	
Carbon Tetrachloride		1,4-Dichlorobenzene		Lindane		Toxaphene	
Chlordane		1,2-Dichloroethane		Mercury		Trichloroethylene	
Chlorobenzene		1,1-Dichloroethylene		Methoxychlor		2,4,5-Trichlorophenol	
Chloroform		2,4-Dinitrotoluene		Methyl Ethyl Ketone		2,4,6- Trichlorophenol	
Chromium		Endrin		Nitrobenzene		2,4,5-TP (Silvex)	
o-Cresol		Heptachlor		Pentachlorophenol		Vinyl Chloride	

[redacted] Note any special hazards _____

I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.

Generator's Signature _____ Date 9-16-2004

WCF48407

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	36.20		1.40E+03	2.60E+07	1.99E-01	3.36E-06	8.73E-05
Strontium-90	122.16	2.27	3.18E+03		4.52E-02	1.51E-05	3.92E-04
Nickel-59	2.86	0.05	7.44E+01		1.06E-05		
Europium-152	16.13	0.30	4.19E+02		5.97E-03	5.97E-07	1.55E-05
Europium-154	12.49	0.23	3.25E+02		4.62E-02	1.25E-05	3.25E-04
Europium-155	0.06	0.00	1.66E+00		2.36E-05	3.99E-09	1.04E-07
Radium-226	17.70	0.33	4.60E+02		6.55E-02	2.18E-04	5.68E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.53	0.01	1.38E+01		1.96E-02	3.78E-07	9.83E-06
Thorium-232	2.32	0.04	6.02E+01		8.58E-03		
Lead-210	0.73	0.01	1.89E+01		2.70E-03	7.00E-07	1.82E-05
Lead-212	1.36	0.03	3.55E+01		5.05E-03	2.53E-07	6.57E-06
Uranium-234	9.92	0.18	2.58E+02		3.68E-02	6.20E-05	1.61E-03
Uranium-235	0.42	0.01	1.10E+01		1.56E-03		
Uranium-238	7.36	0.14	1.91E+02		2.73E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	15.79	0.29	4.11E+02		5.85E-03	6.58E-07	1.71E-05
Actinium-228	3.69	0.07	9.59E+01		1.37E-02	2.63E-07	6.85E-06
Bismuth-212	0.70	0.01	1.83E+01		2.60E-03	4.39E-08	1.14E-06
Bismuth-214	1.67	0.03	4.34E+01				
Technicium-99	0.74	0.01	1.94E+01		2.76E-03	3.10E-08	8.06E-07
Strontium-89	0.50	0.01	1.29E+01		1.84E-05	3.10E-08	8.06E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.83	0.02	2.15E+01		3.06E-03	7.52E-08	1.95E-06
Thorium-234	0.72	0.01	1.87E+01		2.66E-05	8.88E-08	2.31E-06
Sodium-22	4.36	0.08	1.13E+02		1.61E-02	3.11E-07	8.09E-06
	0.00	0.00	0.00E+00				
	276.78		7.20E+03		5.08E-01		8.19E-03

811-4

Radioactive Waste Control Form RWCF# 48406

GENERATOR ACTION Generator (print) Anne White

Department/Division ERD Box 811-5 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date 9/15/04

WASTE QUANTITY Package Type Roll off bin Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~~405~~ (ft³) ~370 WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, wood debris, concrete, small amount of rebar

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	<1 %	soil	~25 %	rubber	%
water	%	sludge	%	cloth	%	concrete	~50 %	resin	<25 %	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WS04A301 see attached ISOCS + Calcs

Direct Method: Gamma Ray Spectroscopy ☒ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☐ Material Balance ☐ Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne Li White Date 9-15-04 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Thomas Kuhl Life # 22144 Date 9-16-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

[redacted] Complete this section if the waste contains or has come in contact with hazardous chemical substances:

List CHEMICAL CONSTITUENTS with their percentages by volume

	%		%		%
	%		%		%

		YES	NO
CORROSIVITY	Is the pH less than or equal to 2.0 or greater than or equal to 12.5?	☐	☐
GENERAL	Is the waste an unused chemical or spill clean-up?	☐	☐
	Was the waste used as a solvent or degreaser? If so which?	☐	☐
IGNITABILITY	Is the flashpoint less than 140 F (60 C)?	☐	☐
	Is the waste an oxidizer or pyrophoric?	☐	☐
REACTIVITY	Is the waste unstable, water reactive, or explosive? If so which?	☐	☐
	Does the waste contain cyanide or sulfide? If so which?	☐	☐
TOXICITY	Based on your knowledge, does the waste contain any of the following?	YES ☐ (If yes, check all that apply)	NO ☐

State Regulated Materials	
Asbestos	
Carcinogens	
Chelating Cmpds	
Infectious Agents	
Halogenated Organics	
Oils	
Organic Solvents	
PCB's	
Polycyclic Aromatics	

RCRA Regulated Materials							
Arsenic		m-Cresol		Hexachlorobenzene		Pyridine	
Barium		p-Cresol		Hexachlorobutadiene		Selenium	
Benzene		Cresol		Hexachloroethane		Silver	
Cadmium		2,4-D		Lead		Tetrachloroethylene	
Carbon Tetrachloride		1,4-Dichlorobenzene		Lindane		Toxaphene	
Chlordane		1,2-Dichloroethane		Mercury		Trichloroethylene	
Chlorobenzene		1,1-Dichloroethylene		Methoxychlor		2,4,5-Trichlorophenol	
Chloroform		2,4-Dinitrotoluene		Methyl Ethyl Ketone		2,4,6- Trichlorophenol	
Chromium		Endrin		Nitrobenzene		2,4,5-TP (Silvex)	
o-Cresol		Heptachlor		Pentachlorophenol		Vinyl Chloride	

[redacted] Note any special hazards _____

[redacted]

I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.

Generator's Signature _____ Date 9-16-04

10412

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	10.15	2.27	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	3.19	0.05	8.30E+01		1.18E-05		
Europium-152	18.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	13.94	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.07	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	19.75	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.59	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	2.58	0.04	6.72E+01		9.57E-03		
Lead-210	0.81	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	1.52	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	11.08	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.47	0.01	1.22E+01		1.74E-03		
Uranium-238	8.22	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	17.63	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	4.12	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.78	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	1.86	0.03	4.85E+01				
Technicium-99	0.83	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.55	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.92	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.80	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	4.86	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
	0.00	0.00	0.00E+00				
					0.52002		0.008733

Radioactive Waste Control Form RWCF# 48410

GENERATOR INFORMATION Generator (print) Anne White

Department/Division ERD 84-9 Ext. _____ Life/Guest # Q6252

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 8 Placement Date 9/16/04

WASTE QUANTITY Package Type Roll off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~400 (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RADWASTE CHARACTERIZATION Describe Waste: Soils mixed debris

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	<1 %	metal	%	soil	90 %	rubber	%
water	%	sludge	%	cloth	%	concrete	<10 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.4E3 µCi	U-238	1.1E3 µCi		µCi		µCi		µCi
Sr-90	3.1BE3 µCi	U	µCi		µCi		µCi		µCi
U-234	2.5BE2 µCi		µCi		µCi		µCi		µCi
U-235	1.1E1 µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

ISOCs and PK attached

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☐ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne Li White Date 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.05 @ contact 0.02 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donald Chu Life # 21813 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH 01 DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

Radioactive Waste Control Form

RWCF# 48417

GENERAL INFORMATION Generator (print) Anne White

Department/Division ERD Ext. _____ Life/Guest # 06258

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~370 (ft^3) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: soil w/ limited debris (concrete)

Physical State (check only one): Solid ☐ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	99 %	rubber	%
water	%	sludge	%	cloth	%	concrete	1 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

~ see attached

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A301
See attached ISOCS data and calcs.

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☐
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-17-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.01 @ contact 0.01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donald Olsen Life # 21613 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

[redacted]

BNL F 2975C 11 /01

1425 - 9-17-04

RWCF 48417

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		1.56E+03	2.60E+07	2.22E-01	3.75E-06	9.75E-05
Strontium-90	10.15	0.17	2.64E+02		3.76E-03	1.25E-06	3.26E-05
Nickel-59	3.19	0.05	8.30E+01		1.18E-05		
Europium-152	18.00	0.30	4.68E+02		6.67E-03	6.67E-07	1.73E-05
Europium-154	13.94	0.23	3.62E+02		5.16E-02	1.39E-05	3.62E-04
Europium-155	0.07	0.00	1.85E+00		2.64E-05	4.45E-09	1.16E-07
Radium-226	19.75	0.33	5.14E+02		7.32E-02	2.44E-04	6.34E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.59	0.01	1.54E+01		2.19E-02	4.22E-07	1.10E-05
Thorium-232	2.58	0.04	6.72E+01		9.57E-03		
Lead-210	0.81	0.01	2.11E+01		3.01E-03	7.81E-07	2.03E-05
Lead-212	1.52	0.03	3.96E+01		5.64E-03	2.82E-07	7.33E-06
Uranium-234	11.08	0.18	2.88E+02		4.10E-02	6.92E-05	1.80E-03
Uranium-235	0.47	0.01	1.22E+01		1.74E-03		
Uranium-238	8.22	0.14	2.14E+02		3.04E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	17.63	0.29	4.58E+02		6.53E-03	7.35E-07	1.91E-05
Actinium-228	4.12	0.07	1.07E+02		1.52E-02	2.94E-07	7.65E-06
Bismuth-212	0.78	0.01	2.04E+01		2.91E-03	4.90E-08	1.28E-06
Bismuth-214	1.86	0.03	4.85E+01				
Technicium-99	0.83	0.01	2.16E+01		3.08E-03	3.46E-08	9.00E-07
Strontium-89	0.55	0.01	1.44E+01		2.05E-05	3.46E-08	9.00E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.92	0.02	2.40E+01		3.42E-03	8.39E-08	2.18E-06
Thorium-234	0.80	0.01	2.09E+01		2.97E-05	9.91E-08	2.58E-06
Sodium-22	4.86	0.08	1.26E+02		1.80E-02	3.47E-07	9.03E-06
	0.00	0.00	0.00E+00				
					0.52002		0.008733

(7)

Radioactive Waste Control Form   RWCF # 48408

GENERAL INFORMATION Generator (print) Anne White

Department/Division EBD BOX-811-7 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: EBD Acct. # ______ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Roll-Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ~370 (ft³) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, Concrete, plastic, Rebar

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	<1 %	glass	%	metal	<1 %	soil	80 %	rubber	%
water	%	sludge	%	cloth	%	concrete	20 %	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

See attached

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)
Pending Analytical WS04A301
See attached Isos + Calcs.

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ______

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 9-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	0.02 @ contact 0.01 @ 12"	N/A @ contact ______ @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # 21F13 Date 09-17-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes:

Packaging Category: Compactible Non-Compactible Radiological WAC Designation:

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code

DOT Hazard Class Waste Profile Number

(6)

Radioactive Waste Control Form

RWCF # 48407

GENERATOR INFORMATION Generator (print) Anne White

Department/Division EMD BOX 811-6 Ext. ______ Life/Guest # Q6258

Dept. Responsible for Waste: EMD Acct. # ______ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type Roll-Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid ______ (gal.) OR Solid ~370 (ft³) WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (μCi)

	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi
	μCi		μCi		μCi		μCi		μCi

See attached

Analysis method used to determine activity:
(attach copies of all supporting documentation)
Pending Analytical WS04A301
See attached ISOCS + calcs.

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards ______

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature [signature] Date 9-16-2004

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.05 @ contact .02 @ 12"	n/a @ contact n/a @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U3741 Date 9/17/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date ______

Waste Management Division Storage Location ______ Life # ______

Waste Category: LLW MW RCRA TSCA WASH SF DIS EPA Codes

Packaging Category: Compactible Non-Compactible Radiological WAC Designation

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code

DOT Hazard Class Waste Profile Number

BNL F 2975C 11/01

magn - 9-17-04

WCF48407

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	36.20		1.40E+03	2.60E+07	1.99E-01	3.36E-06	8.73E-05
Strontium-90	122.16	2.27	3.18E+03		4.52E-02	1.51E-05	3.92E-04
Nickel-59	2.86	0.05	7.44E+01		1.06E-05		
Europium-152	16.13	0.30	4.19E+02		5.97E-03	5.97E-07	1.55E-05
Europium-154	12.49	0.23	3.25E+02		4.62E-02	1.25E-05	3.25E-04
Europium-155	0.06	0.00	1.66E+00		2.36E-05	3.99E-09	1.04E-07
Radium-226	17.70	0.33	4.60E+02		6.55E-02	2.18E-04	5.68E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.53	0.01	1.38E+01		1.96E-02	3.78E-07	9.83E-06
Thorium-232	2.32	0.04	6.02E+01		8.58E-03		
Lead-210	0.73	0.01	1.89E+01		2.70E-03	7.00E-07	1.82E-05
Lead-212	1.36	0.03	3.55E+01		5.05E-03	2.53E-07	6.57E-06
Uranium-234	9.92	0.18	2.58E+02		3.68E-02	6.20E-05	1.61E-03
Uranium-235	0.42	0.01	1.10E+01		1.56E-03		
Uranium-238	7.36	0.14	1.91E+02		2.73E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	15.79	0.29	4.11E+02		5.85E-03	6.58E-07	1.71E-05
Actinium-228	3.69	0.07	9.59E+01		1.37E-02	2.63E-07	6.85E-06
Bismuth-212	0.70	0.01	1.83E+01		2.60E-03	4.39E-08	1.14E-06
Bismuth-214	1.67	0.03	4.34E+01				
Technicium-99	0.74	0.01	1.94E+01		2.76E-03	3.10E-08	8.06E-07
Strontium-89	0.50	0.01	1.29E+01		1.84E-05	3.10E-08	8.06E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.83	0.02	2.15E+01		3.06E-03	7.52E-08	1.95E-06
Thorium-234	0.72	0.01	1.87E+01		2.66E-05	8.88E-08	2.31E-06
Sodium-22	4.36	0.08	1.13E+02		1.61E-02	3.11E-07	8.09E-06
	0.00	0.00	0.00E+00				
	276.78		7.20E+03		5.08E-01		8.19E-03

811-4

Radioactive Waste Control Form RWCF # 48406

GENERATOR INFORMATION Generator (print) Anne White

Department/Division ERD Box 811-5 Ext. _____ Life/Guest # Q6258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date 9/16/04

WASTE DESCRIPTION Package Type Roll off bin Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~~405~~ (ft³) ~370 WEIGHT OF WASTE: ~20,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soil, wood debris, concrete, small amount of rebar

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	<1 %	soil	~75 %	rubber	%
water	%	sludge	%	cloth	%	concrete	~50 %	resin	<25 %	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation) Pending Analytical WS04A301 see attached ISOCS + Calcs

Direct Method: Gamma Ray Spectroscopy ☒ Scintillation Counter ☐

Indirect Method: Dose Rate to Activity Conversion ☐ Material Balance ☐ Scaling Factors ☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne Li White Date 9-14-04 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.02 @ contact .01 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Donna Kuk Life # 22144 Date 9-16-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASTE ACT DIS EPA Codes: _____

Packaging Category: Combustible Non-Combustible Chemical/WAC Designation(s): _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

Radioactive Waste Control Form

RWCF # SW 48403

GENERATOR INFORMATION Generator (print) ~~Marianne Clune~~ - Weskem Anne White 865-7122

Department/Division ERD Box 811-3 Ext. 8401 Life/Guest # ~~C1982~~ C0685

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # 811 Placement Date / /

WASTE QUANTITY Package Type ~~Roll Waste Bag~~ Rolloff Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid ~430 (ft³) WEIGHT OF WASTE: ~70,000 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: ~~PPE~~ Soils from 811 yard that have been screened using ISOCS + further characterized by PK

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	~~100~~ %	soil	100 %	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.4E3 µCi	U-238	1.9E2 µCi		µCi		µCi		µCi
Sr-90	3.8E3 µCi		µCi		µCi		µCi		µCi
U-234	2.8E2 µCi		µCi		µCi		µCi		µCi
U-235	1.1E1 µCi		µCi		µCi		µCi		µCi

See Attached

Analysis method used to determine activity: (attach copies of all supporting documentation)

Pending Analytical WS04A301

See attached for ISOCS & Calcs

Direct Method		Indirect Method	
Gamma Ray Spectroscopy	☒	Dose Rate to Activity Conversion	☐
Scintillation Counter	☐	Material Balance	☐
		Scaling Factors	☒

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards Done

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.008 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Anna Hull Life # 22144 Date 9/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASHST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

	RWCF pCi/gm	RATIO based on AVG	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	20.90		1.40E+03	9.09E+06	1.99E-01	3.36E-06	8.73E-05
Strontium-90	122.16	2.27	3.18E+03		4.52E-02	1.51E-05	3.92E-04
Nickel-59	2.86	0.05	7.44E+01		1.06E-05		
Europium-152	16.13	0.30	4.19E+02		5.97E-03	5.97E-07	1.55E-05
Europium-154	12.49	0.23	3.25E+02		4.62E-02	1.25E-05	3.25E-04
Europium-155	0.06	0.00	1.66E+00		2.36E-05	3.99E-09	1.04E-07
Radium-226	17.70	0.33	4.60E+02		6.55E-02	2.18E-04	5.68E-03
Americium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Thorium-228	0.53	0.01	1.38E+01		1.96E-02	3.78E-07	9.83E-06
Thorium-232	2.32	0.04	6.02E+01		8.58E-03		
Lead-210	0.73	0.01	1.89E+01		2.70E-03	7.00E-07	1.82E-05
Lead-212	1.36	0.03	3.55E+01		5.05E-03	2.53E-07	6.57E-06
Uranium-234	9.92	0.18	2.58E+02		3.68E-02	6.20E-05	1.61E-03
Uranium-235	0.42	0.01	1.10E+01		1.56E-03		
Uranium-238	7.36	0.14	1.91E+02		2.73E-02		
Plutonium-238	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-239/240	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Plutonium-241	0.00	0.00	0.00E+00		0.00E+00	0.00E+00	0.00E+00
Potassium-40	15.79	0.29	4.11E+02		5.85E-03	6.58E-07	1.71E-05
Actinium-228	3.69	0.07	9.59E+01		1.37E-02	2.63E-07	6.85E-06
Bismuth-212	0.70	0.01	1.83E+01		2.60E-03	4.39E-08	1.14E-06
Bismuth-214	1.67	0.03	4.34E+01				
Technicium-99	0.74	0.01	1.94E+01		2.76E-03	3.10E-08	8.06E-07
Strontium-89	0.50	0.01	1.29E+01		1.84E-05	3.10E-08	8.06E-07
Tritium	0.00		0.00E+00		0.00E+00		
Cobalt-60	0.83	0.02	2.15E+01		3.06E-03	7.52E-08	1.95E-06
Thorium-234	0.72	0.01	1.87E+01		2.66E-05	8.88E-08	2.31E-06
Sodium-22	4.36	0.08	1.13E+02		1.61E-02	3.11E-07	8.09E-06
	0.00	0.00	0.00E+00				
	276.78		7.20E+03		5.08E-01		8.19E-03

Radioactive Waste Control Form RWCF # 48405

GENERATOR SECTION Generator (print) Anne White

Department/Division ERD Bldg 811-4 Ext. _____ Life/Guest # 06258

Dept. Responsible for Waste: ERD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Roll Off Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: _____ lbs.

RAD WASTE CHARACTERIZATION Describe Waste: Soils from 811 yard that have been screened using ISOCS and further characterized by PK.

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	100%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Cs-137	1.4E3 µCi	U-238	1.9E2 µCi		µCi		µCi		µCi
Sr-90	3.1E3 µCi		µCi		See attached µCi		µCi		µCi
U-234	2.5E2 µCi		µCi		µCi		µCi		µCi
U-235	1.1E1 µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

Sample ID WS04A301

See Attached for ISOCS & Calcs.

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Anne White Date 9-16-04

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.015 @ contact .005 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Laura Kuk Life # 22144 Date 9/16/04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH-1? DOE RPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class: _____ Waste Profile Number: _____

BNL F 2975C 11 /01

9-20 - 9/16

RWCF 48405

	RWCF pCi/gm	RATIO based on MAX	uCi	Enter Weight	COMP to 436	COMP to LSA-1	COMP to A2
Cesium-137	23.00		2.09E+02	9.09E+06	8.52E-02	1.44E-06	1.31E-05
Strontium-90	52.27	2.27	4.75E+02		1.94E-02	6.45E-06	5.87E-05
Nickel-59	0.02	0.00	2.22E-01				
Europium-152	0.14	0.01	1.25E+00		5.10E-05	5.10E-09	4.63E-08
Europium-154	0.11	0.00	9.68E-01		3.95E-04	1.07E-07	9.68E-07
Europium-155	0.00	0.00	4.95E-03		2.02E-07	3.40E-11	3.09E-10
Radium-226	0.15	0.01	1.37E+00		5.59E-04	1.86E-06	1.69E-05
Americium-241	4.36	0.19	3.96E+01		1.61E-01	1.61E-04	1.47E-03
Thorium-228	0.00	0.00	4.10E-02		1.67E-04	3.23E-09	2.93E-08
Thorium-232	0.02	0.00	1.80E-01		7.32E-05		
Lead-210	0.01	0.00	5.64E-02		2.30E-05	5.97E-09	5.43E-08
Lead-212	0.01	0.00	1.06E-01		4.31E-05	2.16E-09	1.96E-08
Uranium-234	0.08	0.00	7.70E-01		3.14E-04	5.29E-07	4.81E-06
Uranium-235	0.00	0.00	3.27E-02		1.33E-05		
Uranium-238	0.06	0.00	5.71E-01		2.33E-04		
Plutonium-238	0.04	0.00	3.34E-01		1.36E-03	1.36E-06	1.24E-05
Plutonium-239/240	3.50	0.15	3.18E+01		1.30E-01	1.30E-04	1.18E-03
Plutonium-241	0.00	0.00	1.09E-02		4.44E-07	7.50E-10	6.81E-09
Potassium-40	0.13	0.01	1.23E+00		4.99E-05	5.61E-09	5.10E-08
Actinium-228	0.03	0.00	2.86E-01		1.17E-04	2.25E-09	2.04E-08
Bismuth-212	0.01	0.00	5.45E-02		2.22E-05	3.75E-10	3.41E-09
Bismuth-214	0.01	0.00	1.30E-01				
Technicium-99	0.01	0.00	5.77E-02		2.35E-05	2.65E-10	2.41E-09
Strontium-89	0.00	0.00	3.85E-02		1.57E-07	2.65E-10	2.41E-09
Cobalt-60	0.39	0.02	3.51E+00		1.43E-03	3.51E-08	3.19E-07
Thorium-234	0.01	0.00	5.58E-02		2.27E-07	7.58E-10	6.89E-09
Sodium-22	0.04	0.00	3.38E-01		1.38E-04	2.66E-09	2.41E-08
	0.00	0.00	0.00E+00				
			7.67E+02		4.01E-01		2.75E-03

Average requires verification

1 ANK A-3

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0003
Envirocare of Utah, Inc.

Total Activity

Isotope	(MBq)	(mCi)	(Ci)
Am-241	6.7340E+01	1.8200E+00	1.8200E-03
Co-60	1.4023E+02	3.7900E+00	3.7900E-03
Cs-137	1.5059E+04	4.0700E+02	4.0700E-01
H-3	1.4171E+02	3.8300E+00	3.8300E-03
Pu-239	5.3132E+02	1.4360E+01	1.4360E-02
Ra-226	2.9600E+00	8.0000E-02	8.0000E-05
Sr-90	6.6045E+03	1.7850E+02	1.7850E-01
U-234	5.9200E+00	1.6000E-01	1.6000E-04
U-235	2.9600E+00	8.0000E-02	8.0000E-05
U-238	5.9200E+00	1.6000E-01	1.6000E-04

Radioactive Waste Control Form RWCF # 48860

GENERAL INFORMATION Generator (print) Melinda B. Soest

Department/Division EMO Tank A-2 Ext. _____ Life/Guest # Q6552

Dept. Responsible for Waste: _____ Acct. # _____ Accumulation Area Bldg. # _____ Placement Date 12/21/2004

WASTE QUANTITY Package Type Rolloff NBS 1/3/2005 UST Return Package? YES ☐ NO ☐

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☑ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☐ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Steel	100 %		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	45 @ contact 5 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. _____ Life # 07746 Date 2/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

BLANK

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0001
Envirocare of Utah, Inc.

	Total Activity		
sotope	(MBq)	(mCi)	(Ci)
m-241	3.9590E+01	1.0700E+00	1.0700E-03
o-60	6.5860E+01	1.7800E+00	1.7800E-03
s-137	6.5971E+03	1.7830E+02	1.7830E-01
-3	1.3653E+02	3.6900E+00	3.6900E-03
Pu-239	3.9035E+02	1.0550E+01	1.0550E-02
Ra-226	1.1100E+00	3.0000E-02	3.0000E-05
Sr-90	4.8766E+03	1.3180E+02	1.3180E-01
U-234	4.8100E+00	1.3000E-01	1.3000E-04
U-235	7.4000E-01	2.0000E-02	2.0000E-05
U-238	3.3300E+00	9.0000E-02	9.0000E-05

Radioactive Waste Control Form RWCF # 48861

GENERAL INFORMATION Generator (print) Melinda B. Soest

Department/Division EMD Tank B-2 Ext. _____ Life/Guest # A6550

Dept. Responsible for Waste: EMD Acct. # _____ Accumulation Area Bldg. # _____ Placement Date / /

WASTE QUANTITY Package Type Tank (UST) Return Package? YES ☐ NO ☒

VOLUME OF WASTE: Liquid _____ (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: 5500 lbs.

RAD WASTE CHARACTERIZATION Describe Waste: UST

Physical State (check only one): Solid ☒ Liquid ☐ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	%	sludge	%	cloth	%	concrete	%	resin	%	wood	%
Steel	100%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

	µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi
	µCi		µCi	See Attached	µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☐
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards None

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 1/3/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	15 @ contact 4 @ 12"	NA @ contact NA @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. [signature] Life # U5744 Date 1/10/05

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11 /01

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0001
Envirocare of Utah, Inc.

	Total Activity		
otope	(MBq)	(mCi)	(Ci)
ı-241	3.9590E+01	1.0700E+00	1.0700E-03
›-60	6.5860E+01	1.7800E+00	1.7800E-03
ɜ-137	6.5971E+03	1.7830E+02	1.7830E-01
-3	1.3653E+02	3.6900E+00	3.6900E-03
u-239	3.9035E+02	1.0550E+01	1.0550E-02
a-226	1.1100E+00	3.0000E-02	3.0000E-05
r-90	4.8766E+03	1.3180E+02	1.3180E-01
I-234	4.8100E+00	1.3000E-01	1.3000E-04
J-235	7.4000E-01	2.0000E-02	2.0000E-05
J-238	3.3300E+00	9.0000E-02	9.0000E-05

Radioactive Waste Control Form

RWCF # 48691 M. Soest

GENERAL INFORMATION Generator (print) ~~Weston Solutions 811 Tanks Project~~ (M)

Department/Division Environmental Restoration Div Ext. 2423 Life/Guest # 96550

Dept. Responsible for Waste: ERD Acct. # 07458 Accumulation Area Bldg. # 810 Placement Date 11/19/04

WASTE QUANTITY Package Type HIC LINER Return Package? YES ☒ NO ☐

VOLUME OF WASTE: Liquid 250 (gal.) OR Solid _____ (ft^3) WEIGHT OF WASTE: [redacted] lbs.

RAD WASTE CHARACTERIZATION Describe Waste: DECON RINSE WATER FROM RESPIRATOR WASHING AT 811 TANK PROJECT

Physical State (check only one): Solid ☐ Liquid ☒ Gas ☐ Is waste eligible for Decay-In-Storage? (Halflife <90 days) ☐ yes ☒ no

List COMPONENTS with their percentages by volume

paper	%	plastic	%	glass	%	metal	%	soil	%	rubber	%
water	> 99 %	sludge	< 1 %	cloth	%	concrete	%	resin	%	wood	%
	%		%		%		%		%		%

List the RADIOACTIVE ISOTOPE(S) and ACTIVITY of each in microcuries (µCi)

Am^{241}	$2.93E^{-3}$ µCi		µCi		µCi		µCi		µCi
Cs^{137}	46.6 µCi		µCi		µCi		µCi		µCi
$Pu^{239/240}$	$2.95E^{-2}$ µCi		µCi		µCi		µCi		µCi
	µCi		µCi		µCi		µCi		µCi

Analysis method used to determine activity: (attach copies of all supporting documentation)

Direct Method
- Gamma Ray Spectroscopy ☒
- Scintillation Counter ☐

Indirect Method
- Dose Rate to Activity Conversion ☐
- Material Balance ☐
- Scaling Factors ☐

MIXED WASTE CHARACTERIZATION Does the waste contain or has it come in contact with hazardous chemical substances? ☒ NO ☐ YES, IF YES COMPLETE BACK →

PRECAUTIONS Note any special hazards _____

CERTIFICATION *I certify that, to the best of my knowledge, the information provided on this form is true and complete. I also certify that I am minimizing all waste generated to the best of my ability.*

Generator's Signature Melinda B. Soest Date 11/19/2005

FOR FACILITY SUPPORT USE ONLY List the RADIATION levels for HWM handling and transport

	Waste Container	Shielded Transport Container (or Lead Pig)
Radiation Levels (mR/hr)	.5 @ contact .3 @ 12"	N/A @ contact N/A @ 12"
Contamination Level	Note: The shielded transport container and the outside of the waste container should meet contamination release criteria or arrangements must be made in advance of pickup with HWM Facility Support	

Surveyor's Sig. Carol Ann Juetan Life # Q6004 Date 11-22-04

FOR WASTE MANAGEMENT DIVISION USE ONLY RCA Sign/Date _____

Waste Management Division Storage Location _____ Life # _____

Waste Category: LLW MW RCRA TSCA WASH ST DIS EPA Codes: _____

Packaging Category: Compactible Non-Compactible Pathological WAC Designation: _____

Hazard Class: Ignitable Corrosive Reactive Toxic Waste Stream Code: _____

DOT Hazard Class _____ Waste Profile Number _____

BNL F 2975C 11/01

Radioactive Waste Inventory

RWCF # 48691

Date	Article Description	Weight (lbs)	Radio-nuclide	uCi
11/23/04	RESPIRATOR DECON RINSE		Sr-90	<1
↓	WATER.	2000	Cs 137	<1
			Am-241	<1
			Pu 239/240	<1

Has any hazardous waste been introduced to this waste? NO
If Yes please complete the Hazardous Waste Inventory Table

Hazardous Waste Inventory

Hazardous component	How much?

Comments:

Signature: [signature] Generator   1/19/2005 Date

*definitions on back

Table - Activity Calculations

RWCF # Or ANWCF # (Cross Out One):	48866
OER Container Control Number (CCN):	
Container Identification (Imprinted Serial Number or Other):	811 HIC Weston/Weskem
Project Name:	811 D&D
Waste Matrix:	Water

Weights	(gal)	(L)
Gross Weight of Container:		0.00E+00
Weight of Empty Container:		0.00E+00
Weight of Waste:	2.50E+02	9.46E+02
Weight of Contamination:		0.00E+00

Isotope	Concentration (pCi/L)	Weight of Waste (L)	Waste Activity (uCi)	Isotope
Am^{241}	3.10E+00	9.46E+02	2.93E-03	Am^{241}
Am^{243}		9.46E+02	0.00E+00	Am^{243}
Co^{60}		9.46E+02	0.00E+00	Co^{60}
Cs^{137}	4.92E+04	9.46E+02	4.66E+01	Cs^{137}
Eu^{152}		9.46E+02	0.00E+00	Eu^{152}
Eu^{154}		9.46E+02	0.00E+00	Eu^{154}
Eu^{155}		9.46E+02	0.00E+00	Eu^{155}
H^{3}		9.46E+02	0.00E+00	H^{3}
Np^{237}		9.46E+02	0.00E+00	Np^{237}
Pu^{238}		9.46E+02	0.00E+00	Pu^{238}
$Pu^{239/240}$	3.12E+01	9.46E+02	2.95E-02	$Pu^{239/240}$
Pu^{240}		9.46E+02	0.00E+00	Pu^{240}
Pu^{241}	0.00E+00	9.46E+02	0.00E+00	Pu^{241}
Pu^{242}		9.46E+02	0.00E+00	Pu^{242}
Pu^{244}		9.46E+02	0.00E+00	Pu^{244}
Ra^{224}		9.46E+02	0.00E+00	Ra^{224}
Ra^{226}		9.46E+02	0.00E+00	Ra^{226}
Sr^{90}	0.00E+00	9.46E+02	0.00E+00	Sr^{90}
Th^{228}		9.46E+02	0.00E+00	Th^{228}
Th^{229}		9.46E+02	0.00E+00	Th^{229}
Th^{230}		9.46E+02	0.00E+00	Th^{230}
Th^{232}		9.46E+02	0.00E+00	Th^{232}
U^{232}		9.46E+02	0.00E+00	U^{232}
U^{233}		9.46E+02	0.00E+00	U^{233}
U^{234}		9.46E+02	0.00E+00	U^{234}
U^{235}		9.46E+02	0.00E+00	U^{235}
U^{236}		9.46E+02	0.00E+00	U^{236}
U^{238}		9.46E+02	0.00E+00	U^{238}

Sample Reference (COC #, Report):	STL, Janurary 15, 2005, SDG/COC # 19813

ANALYTICAL DRAFT REPORT

Building 811 UST Removal

Lot #: F5A120151
SDG #: 19813

Teresa Baker/Melinda Soest

Brookhaven National Labs
Building 51
Upton, NY 11973

SEVERN TRENT LABORATORIES, INC.

Ed Kao
Project Manager

January 15, 2005

METHODS SUMMARY

F5A120151

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
ICP-MS (6020)	SW846 6020	
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 7470A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F5A120151

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
G2FRF	001	19813-001	01/10/05	13:30

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Weskem, LLC

Client Sample ID: 19813-001

TOTAL Metals

Lot-Sample #...: F5A120151-001 Matrix.....: W
Date Sampled...: 01/10/05 13:30 Date Received..: 01/12/05

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5013123						
Silver	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CG
		Dilution Factor: 10		Analysis Time..: 15:04		
Aluminum	1390 E	50	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A2
		Dilution Factor: 2		Analysis Time..: 12:10		
Arsenic	0.87 B	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A4
		Dilution Factor: 2		Analysis Time..: 12:10		
Barium	158	20	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A5
		Dilution Factor: 2		Analysis Time..: 12:10		
Beryllium	ND	2	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A6
		Dilution Factor: 2		Analysis Time..: 12:10		
Cadmium	0.21 B	2	ug/L	SW846 6020	01/13-01/14/05	G2FRF1
		Dilution Factor: 2		Analysis Time..: 12:10		
Cobalt	1.5 BE	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A8
		Dilution Factor: 2		Analysis Time..: 12:10		
Chromium	13.1	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CK
		Dilution Factor: 2		Analysis Time..: 12:10		
Copper	73.8 E	10	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A9
		Dilution Factor: 2		Analysis Time..: 12:10		
Potassium	164000	10000	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CE
		Dilution Factor: 10		Analysis Time..: 15:04		
Manganese	31.6 E	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CC
		Dilution Factor: 2		Analysis Time..: 12:10		
Nickel	20.3 E	10	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CD
		Dilution Factor: 2		Analysis Time..: 12:10		
Lead	18.7	3	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CA
		Dilution Factor: 2		Analysis Time..: 12:10		

(Continued on next page)

Weskem, LLC

Client Sample ID: 19813-001

TOTAL Metals

Lot-Sample #...: F5A120151-001 Matrix.....: W

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Antimony	2.8 B	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1A3
		Dilution Factor: 2		Analysis Time..: 12:10		
Selenium	ND	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CF
		Dilution Factor: 2		Analysis Time..: 12:10		
Thallium	1.2 B	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CH
		Dilution Factor: 2		Analysis Time..: 12:10		
Vanadium	2.3 B	5	ug/L	SW846 6020	01/13-01/14/05	G2FRF1CJ
		Dilution Factor: 2		Analysis Time..: 12:10		
Prep Batch #...: 5013124						
Calcium	247000	250	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1AV
		Dilution Factor: 1		Analysis Time..: 16:00		
Iron	3560	50	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1AW
		Dilution Factor: 1		Analysis Time..: 16:00		
Magnesium	282	250	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1AX
		Dilution Factor: 1		Analysis Time..: 16:00		
Sodium	146000	250	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1A0
		Dilution Factor: 1		Analysis Time..: 16:00		
Zinc	21.8	10	ug/L	SW846 6010B	01/13-01/14/05	G2FRF1A1
		Dilution Factor: 1		Analysis Time..: 16:00		
Prep Batch #...: 5013324						
Mercury	0.36	0.2	ug/L	SW846 7470A	01/13-01/14/05	G2FRF1AU
		Dilution Factor: 1		Analysis Time..: 11:13		

NOTE(S):

E Matrix interference.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F5A130000-123 **Prep Batch #...:** 5013123						
Aluminum	ND	100	ug/L	SW846 6020	01/13-01/14/05	G2HK01AA
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Antimony	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AC
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Arsenic	ND B	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AD
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Barium	0.52 B	40	ug/L	SW846 6020	01/13-01/14/05	G2HK01AE
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Beryllium	ND	4	ug/L	SW846 6020	01/13-01/14/05	G2HK01AF
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Cadmium	ND	4	ug/L	SW846 6020	01/13-01/14/05	G2HK01AG
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Chromium	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AU
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Cobalt	ND B	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AH
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Copper	ND	20	ug/L	SW846 6020	01/13-01/14/05	G2HK01AJ
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Lead	ND	6	ug/L	SW846 6020	01/13-01/14/05	G2HK01AK
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Manganese	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AL
		Dilution Factor: 2				
		Analysis Time..: 11:45				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Nickel	0.14 B	20	ug/L	SW846 6020	01/13-01/14/05	G2HK01AM
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Potassium	ND	4000	ug/L	SW846 6020	01/13-01/14/05	G2HK01AN
		Dilution Factor: 2				
		Analysis Time..: 14:55				
Selenium	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AP
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Silver	ND	4	ug/L	SW846 6020	01/13-01/14/05	G2HK01AQ
		Dilution Factor: 2				
		Analysis Time..: 14:55				
Thallium	ND	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AR
		Dilution Factor: 2				
		Analysis Time..: 11:45				
Vanadium	ND B	10	ug/L	SW846 6020	01/13-01/14/05	G2HK01AT
		Dilution Factor: 2				
		Analysis Time..: 11:45				
MB Lot-Sample #: F5A130000-124 **Prep Batch #...:** 5013124						
Calcium	ND	250	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AA
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Iron	ND	50	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AC
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Magnesium	ND	250	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AD
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Sodium	ND	250	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AE
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Zinc	ND	10	ug/L	SW846 6010B	01/13-01/14/05	G2HK31AF
		Dilution Factor: 1				
		Analysis Time..: 15:47				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F5A130000-324 **Prep Batch #...:** 5013324						
Mercury	ND	0.2	ug/L	SW846 7470A	01/13-01/14/05	G2JLN1AA
		Dilution Factor: 1				
		Analysis Time..: 11:09				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: F5A120151 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Aluminum	103	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	104	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Antimony	96	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	97	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Arsenic	101	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	103	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Barium	91	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	92	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Beryllium	94	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	94	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Cadmium	93	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	93	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Chromium	94	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	94	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Cobalt	92	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	91	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Copper	86	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	86	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Lead	89	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	91	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: F5A120151 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Manganese	91	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	92	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Nickel	90	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	89	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Potassium	100	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	104	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 14:58		
Selenium	96	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	100	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Silver	88	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	94	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 14:58		
Thallium	88	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	90	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Vanadium	96	(85 - 115)			SW846 6020	01/13-01/14/05	5013123
	97	(85 - 115)		(0-20)	SW846 6020	01/13-01/14/05	5013123
		Dilution Factor: 2			Analysis Time..: 12:01		
Calcium	101	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	103	(80 - 120)	1.6	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		
Iron	102	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	103	(80 - 120)	0.94	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		
Magnesium	102	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	103	(80 - 120)	1.6	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: F5A120151 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Sodium	105	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	107	(80 - 120)	1.5	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		
Zinc	96	(80 - 120)			SW846 6010B	01/13-01/14/05	5013124
	96	(80 - 120)	0.72	(0-20)	SW846 6010B	01/13-01/14/05	5013124
		Dilution Factor: 1			Analysis Time..: 15:51		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F5A120151 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F5A130000-324 Prep Batch #...: 5013324					
Mercury	96	(82 - 125)	SW846 7470A	01/13-01/14/05	G2JLN1AC
		Dilution Factor: 1		Analysis Time..: 11:11	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F5A120151 **Matrix.....:** WATER
Date Sampled...: 01/12/05 12:00 **Date Received..:** 01/13/05

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F5A130134-001 **Prep Batch #...:** 5013324							
Mercury	97	(59 - 136)			SW846 7470A	01/13-01/14/05	G2HQ41DU
	98	(59 - 136)	1.0	(0-20)	SW846 7470A	01/13-01/14/05	G2HQ41DV
		Dilution Factor: 1					
		Analysis Time..: 11:17					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Weskem, LLC

Client Sample ID: 19813-001

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F5A120151-001
Work Order: G2FRF
Matrix: WATER

Date Collected: 01/10/05 1330
Date Received: 01/12/05 0845

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
SR-90 BY GFPC EPA-905 MOD				pCi/L	905 MOD			
Strontium 90	0.0	J	0.0	0.0	01/13/05		5013165	0.0
Iso URANIUM (SHORT CT) NAS & DOE MOD				pCi/L	3050/RP-725			
Uranium 234	0.30	U	0.86	1.3	01/12/05	01/14/05	5012349	91
Uranium 235	0.09	U	0.50	0.95	01/12/05	01/14/05	5012349	91
Uranium 238	0.48	U	0.60	0.80	01/12/05	01/14/05	5012349	91
Iso PLUTONIUM (SHORT CT) NAS & DOE MOD				pCi/L	3058/RP-725			
Plutonium 239/40	31.2		4.7	1	01/12/05	01/14/05	5012348	84
Plutonium-241 by Liquid Scintillation				pCi/L	STL-RC-0245			
Plutonium 241	0.0	J	0.0	0.0	01/12/05		5012351	0.0
Iso AMERICIUM (SHORT CT) NAS & DOE MOD				pCi/L	3006/RP-725			
Am-241	3.1		1.3	0.9	01/12/05	01/14/05	5012347	87
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/L	901.1 MOD			
Americium 241	61	U	82	140	01/12/05	01/12/05	5012343	
Beryllium 7	800	U	1100	1900	01/12/05	01/12/05	5012343	
Cesium 134	-15	U	65	110	01/12/05	01/12/05	5012343	
Cesium 137	49200		6200	100	01/12/05	01/12/05	5012343	
Cobalt 57	-9	U	38	63	01/12/05	01/12/05	5012343	
Cobalt 60	34	U	43	92	01/12/05	01/12/05	5012343	
Europium 152	-270	U	340	550	01/12/05	01/12/05	5012343	
Europium 154	30	U	360	660	01/12/05	01/12/05	5012343	
Europium 155	50	U	130	230	01/12/05	01/12/05	5012343	
Manganese 54	14	U	38	73	01/12/05	01/12/05	5012343	
Sodium 22	-6	U	41	76	01/12/05	01/12/05	5012343	
Zinc 65	20	U	86	160	01/12/05	01/12/05	5012343	

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.
Bold results are greater than the MDC

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

METHOD BLANK REPORT

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151
Matrix: WATER

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Lab Sample ID Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/L	901.1 MOD			F5A120000-343B	
Americium 241	-5	U	42	71	01/12/05	01/12/05	5012343	
Beryllium 7	40	U	300	540	01/12/05	01/12/05	5012343	
Cesium 134	-27	U	40	67	01/12/05	01/12/05	5012343	
Cesium 137	19	U	39	78	01/12/05	01/12/05	5012343	
Cobalt 57	-10	U	16	26	01/12/05	01/12/05	5012343	
Cobalt 60	-2	U	40	78	01/12/05	01/12/05	5012343	
Europium 152	-50	U	280	540	01/12/05	01/12/05	5012343	
Europium 154	-100	U	270	480	01/12/05	01/12/05	5012343	
Europium 155	-1	U	55	100	01/12/05	01/12/05	5012343	
Manganese 54	-14	U	34	61	01/12/05	01/12/05	5012343	
Sodium 22	5	U	44	89	01/12/05	01/12/05	5012343	
Zinc 65	-21	U	90	170	01/12/05	01/12/05	5012343	
Iso AMERICIUM (SHORT CT) NAS & DOE MOD			pCi/L	3006/RP-725			F5A120000-347B	
Am-241	0.0	U	0.0	0.2	01/12/05	01/14/05	5012347	90
Iso PLUTONIUM (SHORT CT) NAS & DOE MOD			pCi/L	3058/RP-725			F5A120000-348B	
Plutonium 239/40	0.0	U	0.0	0.1	01/12/05	01/14/05	5012348	80
Iso URANIUM (SHORT CT) NAS & DOE MOD			pCi/L	3050/RP-725			F5A120000-349B	
Uranium 234	0.034	U	0.087	0.14	01/12/05	01/14/05	5012349	89
Uranium 235	0.026	U	0.073	0.070	01/12/05	01/14/05	5012349	89
Uranium 238	0.016	U	0.046	0.092	01/12/05	01/14/05	5012349	89
Plutonium-241 by Liquid Scintillation			pCi/L	STL-RC-0245			F5A120000-351B	
Plutonium 241	0.0	J	0.0	0.0	01/12/05		5012351	0.0
SR-90 BY GFPC EPA-905 MOD			pCi/L	905 MOD			F5A130000-165B	
Strontium 90	0.0	J	0.0	0.0	01/13/05		5013165	0.0

NOTE(S)

ata are incomplete without the case narrative.

MDC is determined using instrument performance only
Bold results are greater than the MDC

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

DUPLICATE EVALUATION REPORT

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151
Matrix: WATER

Date Sampled: 01/10/05
Date Received: 01/12/05

Parameter	SAMPLE Result		Total Uncert. (2σ+/-)	% Yld	DUPLICATE Result		Total Uncert. (2 σ+/-)	% Yld	QC Sample ID Precision	
Gamma Cs-137 & Hits by EPA 901.1 MOD		pCi/L			901.1 MOD				F5A120151-001	
Americium 241	61	U	82		-21	U	82		408	%RPD
Beryllium 7	800	U	1100		700	U	1100		7	%RPD
Cesium 134	-15	U	65		-53	U	75		-110	%RPD
Cesium 137	49200		6200		49900		6600		1	%RPD
Cobalt 57	-9	U	38		18	U	39		582	%RPD
Cobalt 60	34	U	43		-5	U	50		266	%RPD
Europium 152	-270	U	340		240	U	420		-3,85	%RPD
Europium 154	30	U	360		110	U	420		109	%RPD
Europium 155	50	U	130		110	U	140		74	%RPD
Manganese 54	14	U	38		31	U	50		75	%RPD
Sodium 22	-6	U	41		-23	U	58		-116	%RPD
Zinc 65	20	U	86		-100	U	120		-294	%RPD
	Batch #:		5012343	(Sample)	5012343		(Duplicate)			

NOTE(S)

Data are incomplete without the case narrative.
Calculations are performed before rounding to avoid round-off error in calculated results

U Result is less than the sample detection limit.

Laboratory Control Sample Report

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151
Matrix: WATER

Parameter	Spike Amount	Result	Total Uncert. (2 σ+/-)	MDC	% Yld	% Rec	Lab Sample ID QC Control Limits
Gamma Cs-137 & Hits by EPA 901.1 MOD		**pCi/L**		**901.1 MOD**			**F5A120000-343C**
Americium 241	106000	113000	14000	500		107	(90 - 110)
Cesium 137	44400	48400	6400	300		109	(90 - 110)
Cobalt 60	63900	67000	7800	300		105	(90 - 110)
	Batch #:	5012343		**Analysis Date:**	01/12/05		

NOTE(S)

MDC is determined by instrument performance only
Calculations are performed before rounding to avoid round-off error in calculated results

J Result is greater than sample detection limit but less than stated reporting limit.
J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

Laboratory Control Sample/LCS Duplicate Report

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F5A120151
Matrix: WATER

Parameter		Spike Amount	Result		Total Uncert. (2 σ +/-)	% Yld	% Rec	QC Control Limits	Precision	
Iso AMERICIUM (SHORT CT) NAS & DOE MOD		**pCi/L**	**3006/RP-725**						**Lab Sample ID F5A120000-347C**	
Am-241		15.4	12.8		1.4	99	83	(73 - 117)		
	Spk 2	15.4	13.8		1.6	86	89	(73 - 117)	7	%RPD
Curium 243/244		0.0	0.07	U	0.13	99	***	(70 - 130)		
	Spk 2	0.0	0.17	U	0.19	86	****	(70 - 130)	87	%RPD
		Batch #:	5012347			**Analysis Date:**		01/14/05		
Iso PLUTONIUM (SHORT CT) NAS & DOE MOD		**pCi/L**	**3058/RP-725**						**F5A120000-348C**	
Plutonium 238		5.96	5.44		0.82	86	91	(72 - 109)		
	Spk 2	5.96	6.23		0.90	80	104	(72 - 109)	14	%RPD
Plutonium 239/40		5.77	5.12		0.79	86	89	(79 - 122)		
	Spk 2	5.77	5.68		0.85	80	98	(79 - 122)	10	%RPD
		Batch #:	5012348			**Analysis Date:**		01/14/05		
Iso URANIUM (SHORT CT) NAS & DOE MOD		**pCi/L**	**3050/RP-725**						**F5A120000-349C**	
Uranium 234		10.7	9.7		1.1	91	90	(73 - 115)		
	Spk 2	10.7	8.9		1.1	91	82	(73 - 115)	9	%RPD
Uranium 238		10.7	10.0		1.1	91	93	(70 - 130)		
	Spk 2	10.7	10.1		1.2	91	94	(70 - 130)	0.9	%RPD
		Batch #:	5012349			**Analysis Date:**		01/14/05		
Plutonium-241 by Liquid Scintillation		**pCi/L**	**STL-RC-0245**						**F5A120000-351C**	
Plutonium 241		0.0	0.0	J	0.0	0.0	***	(70 - 130)		
	Spk 2	0.0	0.0	J	0.0	0.0	****	(70 - 130)	Erro	%RPD
		Batch #:	5012351			**Analysis Date:**				
SR-90 BY GFPC EPA-905 MOD		**pCi/L**	**905 MOD**						**F5A130000-165C**	
Strontium 90		0.0	0.0	J	0.0	0.0	***	(60 - 150)		
	Spk 2	0.0	0.0	J	0.0	0.0	****	(60 - 150)	Erro	%RPD
		Batch #:	5013165			**Analysis Date:**				

NOTE(S)

Calculations are performed before rounding to avoid round-off error in calculated results

J Result is greater than sample detection limit but less than stated reporting limit.

U Result is less than the sample detection limit.

****
***** ISOCS SPECTRAL ANALYSIS *****
****

ISOCS Report Generator : +++ ISOCSHDR.TPL 01 JAN 2004 +++
Report Generated On : 10/28/04 9:15:24 AM

Spectrum File Name : DET01
Sample Title : BNL-063
Sample Identification :
Sample Type :
Desc. 1 : D-Pad 6-6
Desc. 2 :
Desc. 3 :
Desc. 4 :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 100 - 8000
Peak Area Range (in channels) : 100 - 8000
Identification Energy Tolerance : 1.000 FWHM

Sample Size : 1.000E+000 gram

Sample Collected :
Acquisition Started : 10/28/04 9:10:12 AM

Live Time : 300.0 seconds
Real Time : 301.1 seconds

Energy Calibration Performed : 8/9/04 1:08:58 PM
Efficiency / Geometry ID : _133-N_MARINELLI
Efficiency Calibration File Created : 10/11/04 11:26:32 AM

****
***** PEAK EFFICIENCY REPORT *****
****

Detector Name: DET01
Sample Title: BNL-063
Peak Analysis Performed on: 10/28/2004 9:15:24 AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	238.68	1.14E+002	83.09	4.78E+001	4.13E+000
	2	351.57	1.12E+002	49.09	3.80E+001	2.88E+000
	3	510.59	3.43E+002	71.08	3.06E+001	1.93E+000
	4	582.73	7.00E+001	37.42	2.85E+001	1.71E+000
	5	609.04	1.17E+002	37.43	2.78E+001	1.64E+000
	6	661.28	2.37E+003	99.92	2.66E+001	1.52E+000
	7	910.86	5.09E+001	25.07	2.26E+001	1.03E+000
M	8	964.05	2.06E+001	11.53	2.19E+001	9.51E-001
m	9	968.86	3.52E+001	13.96	2.18E+001	9.44E-001
	10	1120.04	4.35E+001	17.66	2.02E+001	7.65E-001
	11	1274.37	1.06E+002	25.05	1.88E+001	6.74E-001
	12	1460.58	3.03E+002	36.71	1.73E+001	6.48E-001
	13	2615.86	6.20E+001	15.75	1.18E+001	8.17E-001

M = First peak in a multiplet region
m = Other peak in a multiplet region
= Fitted singlet

Errors quoted at 2.000 sigma

****
** NUCLIDE IDENTIFICATION REPORT *****
****

Sample Title: BNL-063
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/gram)	Activity Uncertainty
ANNIHIL	0.992	511.00*	100.00	1.00918E+000	2.18631E-001
K-40	0.999	1460.75*	10.67	1.48041E+001	1.87490E+000
Cs-137	0.994	661.65*	85.12	9.42683E+000	6.69557E-001
Tl-208	0.841	583.19*	84.50	2.61902E-001	1.40866E-001
		860.56 @	12.42		
		2614.50*	99.16	4.76577E-001	1.25452E-001
Pb-212	1.000	238.63*	44.60	4.80922E-001	3.53451E-001
Bi-214	0.732	609.31*	46.30	8.18733E-001	2.66093E-001
		1120.29*	15.10	1.28503E+000	5.24357E-001
		1764.49	15.80		
Pb-214	0.432	295.21	18.50		
		351.92*	35.80	7.39136E-001	3.29811E-001
Ac-228	0.581	338.32	11.40		
		911.60*	27.70	7.34103E-001	3.63011E-001
		969.11* @	16.60	8.73965E-001	3.49100E-001

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 FWHM
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/gram)	Wt mean Activity Uncertainty
ANNIHIL		0.992	1.009185E+000	2.186312E-001
K-40		0.999	1.480407E+001	1.874903E+000
Cs-137		0.994	9.426829E+000	6.695569E-001
Tl-208	@	0.841	3.816226E-001	9.368542E-002
Pb-212		1.000	4.809220E-001	3.534508E-001
Bi-214		0.732	9.142224E-001	2.372878E-001
Pb-214		0.432	7.391363E-001	3.298115E-001
Ac-228	@	0.581	7.341027E-001	3.630110E-001

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/28/2004 9:15:24 AM
Peak Locate From Channel: 100
Peak Locate To Channel: 8000

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
M	8	964.05	6.8502E-002	56.08
	11	1274.37	3.5377E-001	23.61

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
** NUCLIDE MDA REPORT *****
****

Detector Name: DET01
Sample Geometry:
Sample Title: BNL-063
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
+	K-40	1460.75*	10.67	1.0611E+000	1.06E+000	1.4804E+001
	Cr-51	320.08	9.83	1.2981E+000	1.30E+000	-2.6181E-001
	Mn-54	834.83	99.97	8.7741E-002	8.77E-002	1.2255E-002
	Co-57	122.06	85.51	2.4137E-001	2.41E-001	5.8098E-002
		136.48	10.60	1.6902E+000		-6.1594E-001
	Co-58	810.76	99.40	8.2775E-002	8.28E-002	-1.6683E-003
	Fe-59	1099.22	56.50	1.6668E-001	1.67E-001	-4.9847E-002
		1291.56	43.20	1.7772E-001		8.9613E-002
	Co-60	1173.22	100.00	1.2108E-001	9.91E-002	7.1976E-002
		1332.49	100.00	9.9136E-002		4.3182E-002
	Zn-65	1115.52	50.75	1.7654E-001	1.77E-001	-2.7584E-002
	Sr-85	513.99	99.27	1.2386E-001	1.24E-001	-1.4489E-002
	Y-88	898.02	93.40	9.2908E-002	4.45E-002	-2.8836E-002
		1836.01	99.38	4.4531E-002		-3.0257E-002
	Nb-95	765.79	99.81	8.9683E-002	8.97E-002	1.2464E-002
	Zr-95	724.18	43.70	2.2517E-001	1.54E-001	-6.5167E-002
		756.72	55.30	1.5420E-001		-1.6394E-002
	Ru-103	497.08	89.00	1.2019E-001	1.20E-001	7.7212E-003
	Ru-106	621.84	9.80	9.4142E-001	9.41E-001	-3.5622E-002
	Cd-109	88.03	3.72	6.8790E+000	6.88E+000	7.3311E-001
	Sn-113	391.69	64.90	1.6960E-001	1.70E-001	-1.3921E-001
	I-131	284.30	6.05	2.1472E+000	1.51E-001	1.5133E-001
		364.48	81.20	1.5097E-001		2.6425E-002
		636.97	7.26	1.3439E+000		-8.1145E-001
	Cs-134	569.32	15.43	5.9559E-001	1.00E-001	-6.6222E-002
		604.70	97.60	1.1092E-001		6.4285E-002
		795.84	85.40	1.0020E-001		2.5351E-002
+	Cs-137	661.65*	85.12	1.5527E-001	1.55E-001	9.4268E+000
	Ce-139	165.85	80.35	2.0101E-001	2.01E-001	-3.8139E-002
	Ba-140	162.64	6.70	2.4456E+000	3.84E-001	1.0335E-001
		537.32	25.00	3.8442E-001		1.3639E-001
	La-140	328.77	20.50	6.3264E-001	8.12E-002	1.4217E-001
		487.03	45.50	2.7255E-001		2.1218E-002
		815.85	23.50	3.6884E-001		-2.0057E-001
		1596.49	95.49	8.1222E-002		2.3037E-002
	Ce-141	145.44	48.40	3.6793E-001	3.68E-001	1.3381E-001
	Ce-144	133.54	10.80	1.7557E+000	1.76E+000	2.7535E-001
	Eu-152	121.78	28.40	7.3787E-001	4.08E-001	1.9920E-001
		244.70	7.51	1.8085E+000		-4.7990E-001
		344.28	26.60	4.4332E-001		1.9819E-002
		778.90	12.98	6.3659E-001		-2.8361E-002
		964.10	14.50	8.2398E-001		5.4913E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
	Eu-152	1085.90	9.92	7.3720E-001	4.08E-001	1.2288E-001
		1112.10	13.55	6.1778E-001		1.7093E-001
		1408.00	20.80	4.0790E-001		1.1332E-001
	Hg-203	279.19	77.30	1.6130E-001	1.61E-001	-6.7078E-002
+	Tl-208	583.19*	84.50	2.1609E-001	2.08E-002	2.6190E-001
		860.56	12.42	8.7988E-001		4.5986E-001
		2614.50*	99.16	2.0800E-002		4.7658E-001
+	Pb-212	238.63*	44.60	5.6946E-001	5.69E-001	4.8092E-001
+	Bi-214	609.31*	46.30	3.7011E-001	3.70E-001	8.1873E-001
		1120.29*	15.10	6.5128E-001		1.2850E+000
		1764.49	15.80	9.6331E-001		8.6699E-001
+	Pb-214	295.21	18.50	7.7074E-001	5.01E-001	5.5425E-001
		351.92*	35.80	5.0053E-001		7.3914E-001
+	Ac-228	338.32	11.40	1.2470E+000	5.28E-001	4.8112E-001
		911.60*	27.70	5.2784E-001		7.3410E-001
		969.11*	16.60	5.5798E-001		8.7397E-001
	Pa-234m	1001.30	0.85	9.9401E+000	9.94E+000	1.5178E+000
	Th-234	63.29	3.81	1.1668E+001	4.32E+000	-7.6078E+000
		92.60	5.40	4.3228E+000		-2.7695E+000
	U-235	143.76	10.90	1.6579E+000	2.89E-001	4.6884E-001
		185.71	57.50	2.8933E-001		1.2243E-001
	AM-241	59.54	35.90	1.4239E+000	1.42E+000	-1.2332E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

Sample taken from 11/05/04

****
***** ISOCS SPECTRAL ANALYSIS *****
****

ISOCS Report Generator : +++ ISOCSHDR.TPL 01 JAN 2004 +++
Report Generated On : 11/4/04 12:14:04 PM

Spectrum File Name : DET01
Sample Title : BNL-104
Sample Identification :
Sample Type :
Desc. 1 : D-Pad Asphalt
Desc. 2 :
Desc. 3 :
Desc. 4 :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 100 - 8000
Peak Area Range (in channels) : 100 - 8000
Identification Energy Tolerance : 1.000 FWHM

Sample Size : 1.000E+000 gram

Sample Collected :
Acquisition Started : 11/4/04 12:08:47 PM

Live Time : 300.0 seconds
Real Time : 301.4 seconds

Energy Calibration Performed : 8/9/04 1:08:58 PM
Efficiency / Geometry ID : 133-N_MARINELLI
Efficiency Calibration File Created : 10/11/04 11:26:32 AM

****
***** P E A K E F F I C I E N C Y R E P O R T *****
****

Detector Name: DET01
Sample Title: BNL-104
Peak Analysis Performed on: 11/4/2004 12:14:04 PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	238.53	1.29E+002	123.63	4.78E+001	4.13E+000
2	294.63	9.96E+001	78.18	4.23E+001	3.47E+000
3	351.63	8.83E+001	71.32	3.80E+001	2.88E+000
4	510.50	3.48E+002	87.69	3.06E+001	1.93E+000
5	582.73	5.54E+001	43.75	2.85E+001	1.71E+000
6	608.70	8.30E+001	39.89	2.78E+001	1.64E+000
7	661.07	8.72E+003	194.89	2.67E+001	1.52E+000
8	910.51	7.08E+001	25.99	2.26E+001	1.04E+000
9	968.03	4.32E+001	18.71	2.18E+001	9.45E-001
10	1119.56	2.25E+001	17.09	2.02E+001	7.65E-001
11	1273.83	1.25E+002	22.36	1.88E+001	6.74E-001
12	1460.21	4.03E+002	41.43	1.73E+001	6.48E-001
13	1763.93	3.30E+001	11.49	1.54E+001	6.26E-001
14	2615.11	7.70E+001	17.55	1.18E+001	8.16E-001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
**** NUCLIDE IDENTIFICATION REPORT *****
****

Sample Title: BNL-104
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/gram)	Activity Uncertainty
ANNIHIL	0.989	511.00*		100.00	1.02373E+000	2.65975E-001
K-40	0.987	1460.75*		10.67	1.96399E+001	2.15059E+000
Cs-137	0.985	661.65*		85.12	3.46086E+001	2.12600E+000
Tl-208	0.875	583.19*		84.50	2.07401E-001	1.64159E-001
		860.56	@	12.42		
		2614.50*		99.16	5.91741E-001	1.40918E-001
Pb-212	1.000	238.63*		44.60	5.43515E-001	5.24175E-001
Bi-214	0.982	609.31*		46.30	5.80216E-001	2.80904E-001
		1120.29*		15.10	6.64309E-001	5.05652E-001
		1764.49*		15.80	1.22382E+000	4.28984E-001
Pb-214	0.992	295.21*		18.50	1.14706E+000	9.05236E-001
		351.92*		35.80	5.84516E-001	4.74357E-001
Ac-228	0.552	338.32		11.40		
		911.60*		27.70	1.02080E+000	3.77521E-001
		969.11*	@	16.60	1.07301E+000	4.67148E-001

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 FWHM
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/gram)	Wt mean Activity Uncertainty
ANNIHIL		0.989	1.023727E+000	2.659751E-001
K-40		0.987	1.963991E+001	2.150591E+000
Cs-137		0.985	3.460857E+001	2.125999E+000
Tl-208	@	0.875	4.286804E-001	1.069253E-001
Pb-212		1.000	5.435148E-001	5.241746E-001
Bi-214		0.982	7.539923E-001	2.131128E-001
Pb-214		0.992	7.057080E-001	4.201648E-001
Ac-228	@	0.552	1.020802E+000	3.775213E-001

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 11/4/2004 12:14:04 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 8000

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
11	1273.83	4.1667E-001	17.89

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: DET01
Sample Geometry:
Sample Title: BNL-104
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
+	K-40	1460.75*	10.67	9.5862E-001	9.59E-001	1.9640E+001
	Cr-51	320.08	9.83	1.6520E+000	1.65E+000	1.9116E-001
	Mn-54	834.83	99.97	7.9111E-002	7.91E-002	-6.2344E-003
	Co-57	122.06	85.51	2.5456E-001	2.55E-001	8.3382E-002
		136.48	10.60	1.9595E+000		-3.1085E-001
	Co-58	810.76	99.40	8.2775E-002	8.28E-002	-1.2123E-002
	Fe-59	1099.22	56.50	1.4182E-001	1.42E-001	3.5186E-002
		1291.56	43.20	1.6820E-001		-4.6407E-002
	Co-60	1173.22	100.00	1.2108E-001	1.21E-001	3.1099E-002
		1332.49	100.00	1.2089E-001		7.3926E-002
	Zn-65	1115.52	50.75	1.5919E-001	1.59E-001	-9.2554E-002
	Sr-85	513.99	99.27	1.5454E-001	1.55E-001	-3.5483E-003
	Y-88	898.02	93.40	9.0477E-002	4.45E-002	-2.8119E-002
		1836.01	99.38	4.4531E-002		6.0513E-003
	Nb-95	765.79	99.81	9.9908E-002	9.99E-002	2.8335E-002
	Zr-95	724.18	43.70	2.2865E-001	1.47E-001	-1.9169E-001
		756.72	55.30	1.4720E-001		4.7362E-003
	Ru-103	497.08	89.00	1.8621E-001	1.86E-001	1.0678E-001
	Ru-106	621.84	9.80	1.1556E+000	1.16E+000	-2.3093E-001
	Cd-109	88.03	3.72	7.0383E+000	7.04E+000	-3.8224E+000
	Sn-113	391.69	64.90	2.5842E-001	2.58E-001	-5.7292E-003
	I-131	284.30	6.05	2.6190E+000	2.00E-001	-5.7244E-001
		364.48	81.20	1.9988E-001		-7.0982E-003
		636.97	7.26	1.5166E+000		5.6594E-001
	Cs-134	569.32	15.43	8.3111E-001	9.54E-002	4.5974E-001
		604.70	97.60	1.3479E-001		4.5718E-002
		795.84	85.40	9.5417E-002		-2.1538E-002
+	Cs-137	661.65*	85.12	3.7546E-001	3.75E-001	3.4609E+001
	Ce-139	165.85	80.35	2.3120E-001	2.31E-001	8.5418E-002
	Ba-140	162.64	6.70	2.7953E+000	5.52E-001	8.9783E-001
		537.32	25.00	5.5193E-001		2.9119E-001
	La-140	328.77	20.50	7.8417E-001	6.20E-002	1.9317E-001
		487.03	45.50	3.5758E-001		-6.9290E-003
		815.85	23.50	3.6016E-001		8.6023E-002
		1596.49	95.49	6.1998E-002		-3.1996E-002
	Ce-141	145.44	48.40	4.0192E-001	4.02E-001	-3.1236E-001
	Ce-144	133.54	10.80	1.9195E+000	1.92E+000	-5.3930E-001
	Eu-152	121.78	28.40	7.6883E-001	4.26E-001	1.3412E-001
		244.70	7.51	2.3519E+000		2.3502E-001
		344.28	26.60	6.0711E-001		-1.0073E-001
		778.90	12.98	7.0958E-001		4.4884E-001
		964.10	14.50	9.1217E-001		5.5605E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
	Eu-152	1085.90	9.92	8.0237E-001	4.26E-001	2.9358E-001
		1112.10	13.55	6.8022E-001		-1.0174E-001
		1408.00	20.80	4.2638E-001		1.4034E-001
	Hg-203	279.19	77.30	2.1387E-001	2.14E-001	6.4412E-002
+	Tl-208	583.19*	84.50	2.6331E-001	2.08E-002	2.0740E-001
		860.56	12.42	9.4361E-001		6.4163E-001
		2614.50*	99.16	2.0796E-002		5.9174E-001
+	Pb-212	238.63*	44.60	8.5564E-001	8.56E-001	5.4351E-001
+	Bi-214	609.31*	46.30	4.2691E-001	1.00E-001	5.8022E-001
		1120.29*	15.10	7.7109E-001		6.6431E-001
		1764.49*	15.80	1.0035E-001		1.2238E+000
+	Pb-214	295.21*	18.50	1.4631E+000	7.67E-001	1.1471E+000
		351.92*	35.80	7.6739E-001		5.8452E-001
+	Ac-228	338.32	11.40	1.5939E+000	5.09E-001	7.7980E-001
		911.60*	27.70	5.0853E-001		1.0208E+000
		969.11*	16.60	6.1137E-001		1.0730E+000
	Pa-234m	1001.30	0.85	9.6271E+000	9.63E+000	1.9766E+000
	Th-234	63.29	3.81	1.2628E+001	4.46E+000	8.9554E+000
		92.60	5.40	4.4642E+000		-3.6858E-001
	U-235	143.76	10.90	1.8468E+000	3.28E-001	5.2167E-001
		185.71	57.50	3.2779E-001		1.0922E-001
	AM-241	59.54	35.90	1.5666E+000	1.57E+000	8.7867E-001

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

RWCF # 48574 Box 81(1-87)

****
***** ISOCS SPECTRAL ANALYSIS *****
****

ISOCS Report Generator : +++ ISOCSHDR.TPL 01 JAN 2004 +++
Report Generated On : 11/10/04 1:24:31 PM

Spectrum File Name : DET01
Sample Title : BNL-135
Sample Identification :
Sample Type :
Desc. 1 : 811 Various Soil
Desc. 2 :
Desc. 3 :
Desc. 4 :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 100 - 8000
Peak Area Range (in channels) : 100 - 8000
Identification Energy Tolerance : 1.000 FWHM

Sample Size : 1.000E+000 gram

Sample Collected :
Acquisition Started : 11/10/04 1:18:08 PM

Live Time : 300.0 seconds
Real Time : 350.2 seconds

Energy Calibration Performed : 8/9/04 1:08:58 PM
Efficiency / Geometry ID : 133-N_MARINELLI
Efficiency Calibration File Created : 10/11/04 11:26:32 AM

****
***** PEAK EFFICIENCY REPORT *****
****

Detector Name: DET01
Sample Title: BNL-135
Peak Analysis Performed on: 11/10/2004 1:24:31 PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	75.06	9.60E+002	888.99	3.17E+001	2.77E+000
2	644.11	1.68E+002	184.97	2.70E+001	1.56E+000
3	661.07	7.23E+005	1734.80	2.67E+001	1.52E+000
4	732.56	4.17E+001	52.05	2.53E+001	1.37E+000
5	1058.33	3.18E+001	27.64	2.08E+001	8.27E-001
6	1172.65	4.81E+001	31.05	1.97E+001	7.24E-001
7	1237.46	2.95E+001	20.69	1.91E+001	6.88E-001
8	1273.61	1.26E+002	34.53	1.88E+001	6.74E-001
9	1322.39	9.76E+002	68.85	1.84E+001	6.61E-001
10	1331.71	7.37E+001	21.67	1.83E+001	6.60E-001
11	1460.14	3.26E+002	40.63	1.73E+001	6.48E-001
12	1764.01	3.48E+001	12.98	1.54E+001	6.26E-001
13	2615.48	4.34E+001	16.29	1.18E+001	8.16E-001

M = First peak in a multiplet region
¬ = Other peak in a multiplet region
= Fitted singlet

Errors quoted at 2.000 sigma

****
** NUCLIDE IDENTIFICATION REPORT *****
****

Sample Title: BNL-135
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/gram)	Activity Uncertainty
K-40	0.983	1460.75*	10.67	1.58998E+001	2.06913E+000
Co-60	0.979	1173.22*	100.00	2.20459E-001	1.42435E-001
		1332.49*	100.00	3.62933E-001	1.07537E-001
Cs-137	0.985	661.65*	85.12	2.86910E+003	1.64303E+002

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 FWHM
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/gram)	Wt mean Activity Uncertainty
K-40	0.983	1.589985E+001	2.069132E+000
Co-60	0.979	3.112063E-001	8.582357E-002
Cs-137	0.985	2.869102E+003	1.643034E+002

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 11/10/2004 1:24:31 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 8000

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	75.06	3.1994E+000	92.62
2	644.11	5.6007E-001	110.09
4	732.56	1.3913E-001	124.71
5	1058.33	1.0602E-001	86.91
7	1237.46	9.8267E-002	70.20
8	1273.61	4.1968E-001	27.43
9	1322.39	3.2543E+000	7.05
12	1764.01	1.1592E-001	37.32
13	2615.48	1.4480E-001	37.49

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
** N U C L I D E M D A R E P O R T *****
****

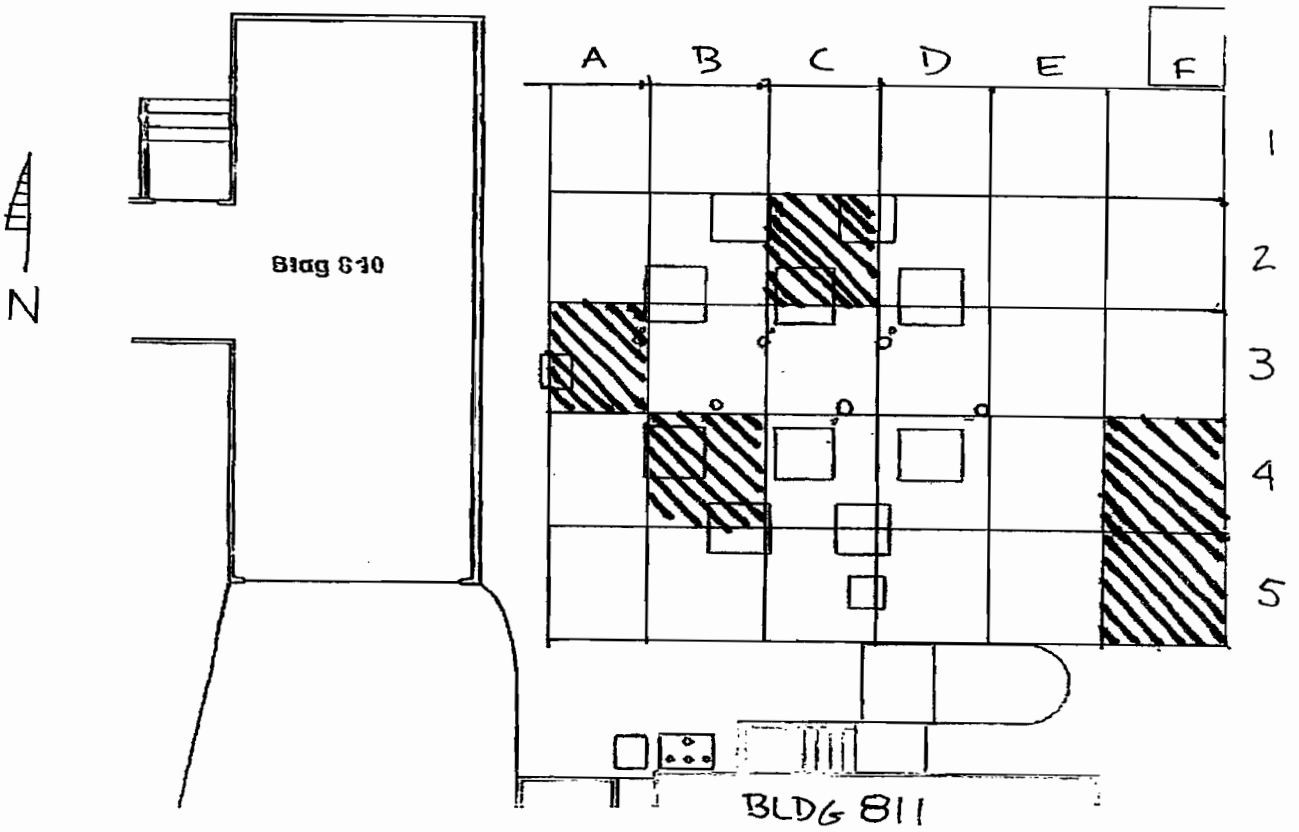
Detector Name: DET01
Sample Geometry:
Sample Title: BNL-135
Nuclide Library Used: C:\GENIE2K\CAMFILES\isocsnid.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
+	K-40	1460.75*	10.67	1.6261E+000	1.63E+000	1.5900E+001
	Cr-51	320.08	9.83	1.1056E+001	1.11E+001	-1.7238E+000
	Mn-54	834.83	99.97	2.0649E-001	2.06E-001	8.2597E-003
	Co-57	122.06	85.51	1.1307E+000	1.13E+000	-5.7520E-001
		136.48	10.60	8.8319E+000		-3.0476E+000
	Co-58	810.76	99.40	2.1084E-001	2.11E-001	-5.8830E-002
	Fe-59	1099.22	56.50	3.3412E-001	2.25E-001	5.0824E-002
		1291.56	43.20	2.2532E-001		-2.0003E-002
+	Co-60	1173.22*	100.00	2.2166E-001	1.20E-001	2.2046E-001
		1332.49*	100.00	1.2045E-001		3.6293E-001
	Zn-65	1115.52	50.75	3.7265E-001	3.73E-001	-6.2459E-002
	Sr-85	513.99	99.27	1.0732E+000	1.07E+000	-2.3476E-002
	Y-88	898.02	93.40	2.1954E-001	1.64E-002	-4.8427E-002
		1836.01	99.38	1.6375E-002		0.0000E+000
	Nb-95	765.79	99.81	2.0608E-001	2.06E-001	-1.8693E-002
	Zr-95	724.18	43.70	4.7006E-001	3.63E-001	-3.1937E-001
		756.72	55.30	3.6295E-001		2.5821E-002
	Ru-103	497.08	89.00	1.2907E+000	1.29E+000	1.9802E-001
	Ru-106	621.84	9.80	7.6163E+000	7.62E+000	6.3387E-001
	Cd-109	88.03	3.72	2.7764E+001	2.78E+001	-1.0558E+001
	Sn-113	391.69	64.90	1.9061E+000	1.91E+000	9.7719E-001
	I-131	284.30	6.05	1.7631E+001	1.45E+000	7.6159E+000
		364.48	81.20	1.4503E+000		5.1120E-001
		636.97	7.26	1.1137E+001		-9.8519E+000
	Cs-134	569.32	15.43	5.3897E+000	2.47E-001	9.5912E-002
		604.70	97.60	7.8027E-001		-1.8059E-001
		795.84	85.40	2.4744E-001		9.7350E-003
+	Cs-137	661.65*	85.12	2.2634E+000	2.26E+000	2.8691E+003
	Ce-139	165.85	80.35	1.1439E+000	1.14E+000	-1.3951E-001
	Ba-140	162.64	6.70	1.3754E+001	3.82E+000	1.3607E+000
		537.32	25.00	3.8237E+000		8.7859E-001
	La-140	328.77	20.50	5.3907E+000	7.55E-002	8.3323E-001
		487.03	45.50	2.6892E+000		1.4930E+000
		815.85	23.50	7.7870E-001		-6.0974E-001
		1596.49	95.49	7.5503E-002		-1.4590E-002
	Ce-141	145.44	48.40	1.9143E+000	1.91E+000	3.6961E-001
	Ce-144	133.54	10.80	8.7362E+000	8.74E+000	-1.0541E+000
	Eu-152	121.78	28.40	3.4085E+000	4.77E-001	-2.0752E+000
		244.70	7.51	1.3991E+001		1.9776E-002
		344.28	26.60	4.2145E+000		6.2693E-001
		778.90	12.98	1.5102E+000		-1.3479E+000
		964.10	14.50	1.3642E+000		1.0294E-001

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/gram)	Nuclide MDA (pCi/gram)	Activity (pCi/gram)
Eu-152	1085.90	9.92	1.7141E+000	4.77E-001	-6.2560E-001
	1112.10	13.55	1.3664E+000		5.4480E-001
	1408.00	20.80	4.7687E-001		1.1737E-001
Hg-203	279.19	77.30	1.3692E+000	1.37E+000	6.2054E-001
Tl-208	583.19	84.50	9.5752E-001	2.58E-001	1.5721E-001
	860.56	12.42	1.7529E+000		5.8416E-001
	2614.50	99.16	2.5806E-001		2.3784E-001
Pb-212	238.63	44.60	2.3984E+000	2.40E+000	-1.9865E-001
Bi-214	609.31	46.30	1.6682E+000	1.14E+000	3.7373E-001
	1120.29	15.10	1.4279E+000		3.3755E-001
	1764.49	15.80	1.1359E+000		1.2426E+000
Pb-214	295.21	18.50	5.7862E+000	3.18E+000	2.4866E+000
	351.92	35.80	3.1816E+000		1.0881E+000
Ac-228	338.32	11.40	9.8234E+000	8.91E-001	5.1189E+000
	911.60	27.70	8.9063E-001		4.7131E-001
	969.11	16.60	1.2243E+000		1.0954E+000
Pa-234m	1001.30	0.85	2.2535E+001	2.25E+001	-6.7090E+000
Th-234	63.29	3.81	5.4559E+001	1.81E+001	2.1678E+001
	92.60	5.40	1.8078E+001		1.0585E+001
U-235	143.76	10.90	8.5511E+000	1.81E+000	8.1313E-001
	185.71	57.50	1.8112E+000		8.9574E-001
AM-241	59.54	35.90	7.1048E+000	7.10E+000	-2.2664E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

BNL BLDG 811 U.S.T. REMEDIATION PROJECT
ISOCS OVERBURDEN SURVEY GRID MAP



D. Griswell
9-10-04

-1 B4, B3, C3 Dumm #2

GRID #	GAMMA ANALYSIS (ISOCS RESULTS)- Elevated Readings
Grid A-2	**19.7 pci/gm Cs-137**
Grid A-3	**24.9 pci/gm Cs-137**
Grid B-3 *	**20.2 pci/gmCs-137**
Grid B-4 *	**82.6 pci/gm Cs-137**
Grid C-2	**36.2 pci/gm Cs-137**
Grid E-5	**22.1 pci/gm Cs-137**
Grid F-4	**24.4 pci/gm Cs-137**

811-2a

B3, B4 and C3 which is < Soil rela
criteria and only
Partially included

9011-14-0001
MANIFEST
SURVEYS
PERMITS

9011-14-0002
MANIFEST
SURVEYS
PERMITS

811Project-UST Shipments

ENVIROCARE of UTAH
5 DAY NOTIFICATION

01/05/2005

SHIPMENT NOTIFICATION
W-9011-14-0002
W-9011-14-0003

FORM 540 E i oc re f Utah l

UNIFORM LOW LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1 EMERGENCY TELEPHONE NUMBER *(Include Area Code)*
5-868-8

RGAN ZA
First Response, Inc.,

EXCL IV ME
☑ Y
☐ NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ====> 2

DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMP NY THIS SHIPMENT? If "Yes " rovid Manifest Num ar
☐ YES ☑ NO

PA M NI EST N BER

5 SHIPPER NAME ND FA ILITY
U.S. DOE c/o Brookhaven National L b.
Fifth Avenue
Bldg 860
Upton, NY 1 73

Utah Generator Site Access ermi No 0112001235

SH P N W-9011-14-0001

CONT
Ind B Soes

R Na and Addr ss
TAG Transport, Inc.
2818 Roane State Highway
Harriman, TN 37748

CO ACT
Ch Mes

SIGNATURE *Authorized carrier acknowledging waste receipt*

SHIPPER I D NUMBER 9011 14-0001

☐ COLLE TOR
☐ ROCESSOR
☑ E ERATOR

TYPE *(Specify)* O

TELEPHONE NUMBER (nclud Area Co)
865-712-8337

E NU TNR000003111

DA E 01/04/2005

TELEPHONE (nclud Area) 865-992-0457

DATE

OR 54 AN 540A PAG OF AG ( )
OR 54 54 AG ( )
FORM 542 AND 542A None PAGE(S)
ADDITIONAL INFORMATION None PAGE(S)

8 MANI E NUMBER (Use th umber on all continuation pages) 9011 14-0001

9 CONSIGNEE - Name and Facility
En irocare f Utah In
Cll Disposal Site (Bulk Wa te F cility)
Inter tate 80, Exit 49
Cli UT 84029

CONTACT Shipping and Receiving
TELEPHONE (nclud Area Cod) (435)884-0155

SIGNATURE *Authorized consignee acknowledging waste receipt*

DATE

10 CERTIFICATION

This is to certify that the herein-named materials are properly classified, described packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposa as described in accordance with the requirements of 10 CFR Parts 20 and 61 or equi ent state regulations

AUTHORIZED SIGNATURE | TITLE | DATE

11 U S DEPARTMENT OF TRANSPORTATION DESCRIPTION (ud per shi pin name hazar es umber and an na formation)	12 DO LA *RADIOAC	13 RANSPO EX	14 HY CA AN CH CA FO	15 VI AL RA ONUCL D				16 AL CKA IVITY Bq		17 SA/SCO CLASS	18 TOTAL WEIGHT (Use approp ate nits)	19 IDENTIFICATION BER OF ACKAG
Radioactive material low specific activity (LSA II) 7 UN 3321 Fi il E pt d RQ	**NA**	**2**	**Solid**	Am-241 P 23	Co-60 226	Cs-137 -90	H 3 U 34	**5 3728E+03**	**1 4521E+02**	**LSA-II**	**5500 LBS; 1200 FT3**	**TANK A-2**
				U 235	U 238							
Radioactive material low specific activity (LSA II) 7 UN 3321 Fi il E pt d RQ	**NA**	**7**	**Solid**	Am-241 P 238	Co-60 R -226	Cs 137 Sr-90	H 3 U 234	**6 7433E+03**	**1 8225E+02**	**LSA-II**	**5500 LBS; 1200 FT3**	**TANK B 2**
				U 235	U 238							

FOR CONSIGNEE USE ONLY

___ Rec d W t Descripti Inadeq te
___ Co tami tio L kag Detect d
___ Une p cted E po R t Detect d
___ L b l Ma kings tc l d q te
___ C tai l tegrity l d quate
___ Othe
___ N Viol ti D tected this Shipm nt

20 TERMS AND CONDITIONS

A. HAZARDOUS MATE IAL enerator represents & warran tha Wast Material __ (or) not hazardous aste as defined i 40 CF 26 Where the eri a hazardou aste thi shipment is also accompanied y separate and compl ted hazardous aste anifest along with th appropri te land-disposal restriction notice and/or certification as equired y 40 CFR 268 1

B. T T E Upon ceptance at the disposal site by Envirocare of Utah nc nd all appropri regulatory authorities to the Waste M teri which conform to Generator' representati ns herei shall thereupon transfer from Generator d vested i Envirocare of Utah In

WA E TE Generator spresents and arran that ata forth n this (NIF RM W-LEVE RADIOACT VE WA AN FE) ar tru an correct all respects nd i ccordance ith li applicable governmental laws rules reg l tions and Envirocar of Utah Inc ' facility license

D. NDE NI CA N Generator agrees to ndemnify Envirocare of Utah nc , s fficers, ployees and gents against all losses nd liabi ty whatsoever If such losses or ability results from the ailure of the Waste Material to conform l al terial respects to the data supplied on the (UNIFORM LOW-LEVE RADIOACTIVE WASTE MANIFEST) or if this shipment fai to eet the sta dard prescribed by the Department of Transportation or ny governmental a ency hav ng j ediction over such matters

FORM 540 (04-03)

FORM 541 — E iro re f Utah l

UNIFORM LOW LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additi I Nucl R g lat ry C mmi l (NRC) R q ireme t fo C t l Tra fe d
Di p sal f R di ctiv Wast

1. MANIFEST TOTALS

NUMBER OF PACKAGES DISPOSAL CONTAINERS	NET WASTE VOLUME		ET WASTE WE GHT		SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
2	3	67 9604	kg	4989 5164	NP	9 2500E+00	1 6930E-01	9 4293E+00
	ft3	2400 0000	ton	5 5000		2 Cont i s	2 C ntainers	

ACTIVITY	ALL NUCL DE	TRITIUM	C-14	Tc-99	129	SOURCE (kg)	
MBq	1 2116E+04	1 3653E+02	NP	NP	NP	(kg)	NA
Ci	3.2746E+02	3.6900E+00	NP	NP	NP	(t ns)	NA

2 MANIFEST NUMBER: 9011 14-0001

3 PAGE 1 OF 2 PAGE(S)

4. SHIPPER NAME: U S DOE / Bro kh en N ti nal Lab

SHIPMENT ID NUMBER: 9011 14-0001

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5 CONTAINER ENTIFICATION NUMBER/ ENERATOR NUMBER(S)	6 CONTAINER ESCR PTION (See Note 1A)	7 (m3) (ft3)	8 WAST AND ONTAINE WEIGHT (kg) (ton)	9 SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10 SURFACE CONTAMINATIO (MBq/100 cm2) (dpm/100cm2) HA	BETA-GAMMA	11 WASTE DESCRIPTOR (See Note 2 Note 2A)	12 ROXIMA WASTE OLUME(S) IN CONTAINER (m3) (FT3)	13 SOLIDIF CATION OR STABILIZATION MEDIA (ee te)	14 CHEMICAL DESCRIPTION HEMICAL FORM/ HELATIN AGENT	WEIGHT % CHELATI G GENT %	15 RADIOLOGICAL DESCRIPTION — NDIVIDUAL RADIO CL DES AND ACTIVITY (MBq) AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT				16 WASTE CLASSIF CATION AS-Class Stabl AU-Class Unstable B-Class B C-Cl ss C
												RADIONUCLIDES	pCi/gm	MBq	mCi	
TANK A-2/BNL-9011 14	19 OT	33	2494 582	000E-01	340 -0	6700 -05	59-SOLID OTHER H	980	100 100	OXIDE/NP	NP	Am 241	7 99000E+00	1 8130E+01	4 9000E-01	AU
												C -60		2 8120E-05	7 6000E-07	
		00 0000	500	0000E	000 E+	0000E 3		00 0000				C -60	1 24000E+00	2 8120E+01	7 6000E-01	
												Cs 137	1 21000E 02	2 7491E+03	7 4300E+01	
												H-3	2.59000E-05	5.8830E+01	1.5900E+00	
												Pu 239 [8 0700E-02 g]	8 20000E+01	1 8611E+02	5 0300E+00	
												Ra 226	1 63000E-02	3 7000E-01	1 0000E-02	
												S 90	1 03000E+02	2 3273E+03	6 2900E+01	
												U 234 [1.2900E-02 g]	1.30000E-01	2.9600E+00	8.0000E-02	
												U-236 [4 6300E+00 g]	1 63000E-02	3 7000E-01	1 0000E-02	
												U-238 [1.2300E+02 g]	6 52000E-02	1.4800E+00	4.0000E-02	
												Subtotal		5.3728E+03	1.4521E+02	
												Total		5.3728E+03	1.4521E+02	
												SNM [4 7107E+00 g]				
TANK B-2/BNL-9011 14	19 OTHE	55.7 27	2494 788	4. 000E-01	<3 34 E-07	1 6700E-05	59-SOLID OTHER -H	3 9802	100 100	OXIDE/NP	NP	Am-241	9 45000E+00	2 1460E+01	5 8000E-01	AU
												C -60	1 66000E+00	3 7740E+01	1 0200E+00	
		5500 0000	500	5000E+0	<2 0000E	0000E 03		200 0000				Cs 137	1 69000E+02	3 8480E+03	1 0400E+02	
												H-3	3 42000E-05	7 7700E+01	2 1000E+00	
												Pu-239 [8.8600E-02 g]	9.00000E+01	2.0424E+02	5.5200E+00	
												Ra 226	3 26000E-02	7 4000E-01	2 0000E-02	
												S 90	1 12000E+01	2 5493E+03	6 8900E+01	
												U-234 [8 0400E-03 g]	8 15000E-02	1 8500E+00	5 0000E-02	
												U-235 [4.6300E+00 g]	1.63000E-02	3.7000E-01	1.0000E-02	

N te nta er Des r pt odes F cont ners/ waste requiring disposal In app o ed st uctural over-packe the numerical cod must be fo lowed by "-OP"

1 Wooden ox or Crat
2 Metal Box
3 Pl stic Drum Pail
4 M tal Dru or P il
5 M tal Tank or er
6 Concrete T nk or Line
7 Polyethlene Tank or Li er
8 Fibergl ss T k or Liner
9 Dem neral zer
10 Gas Cyl der
11 Bulk U packaged W e
12 Unp ckaged Components
13 High tegrity Contal er
19 Other Describ i Item 6 or dition l p ge

No A: Bul Pa ag ng De iption Co es (Cho es od s may be pplicable)

A Go
B Int rm d
C E d-Dump
D Roll-off
E Seave

TE W et Desc ipto Co es (hoos to thre wh h red m st by ol m)

20 Charcoa
21 Inci erator Ash
22 Soil
23 Ga
24 Oil
25 Aq eous Liquid
26 Filter Media
27 Mechanical Filter
28 EPA or State Haz rdou
29 Dem tion bb
30 Cation Ion exch g Medi
31 Anion Ion-exchange Media
32 Mi ed Bed Ion-exchang Medi
33 Contam nated Eq ip ent
34 Org ic Liq id (except oil)
35 Glassware or Labware
36 Sealed Source/Device
37 Paint Pl ti g
38 Evaporator Bottoms/Sl ges/ Concentrate
39 Comp cible Trash
40 Nonc mpactibl Trash
41 Animal Carcass
42 Biological M teri l (except animal carcass)
43 Activ ted Material
59 Other Describe i tem 1 or dition l p ge

NO 2A Specif W te Dee pt ns (Choose all applicable od)

G Dew tered
H Solid
I Comb stibl
J Non-combustib
K Ai Filtration Filters
L Asbesto

N te Sol ification nd St bilizatio Med Codes. (hoose up to hree which predominat by lum) F media meeting di posal site structural stability req irem nts, the umerical od must be followed by "-S." nd the media nd and brand nam must lso be dentified

In Item 13. Cod 100=NONE REQUIRED
So id ficatio

90 Cement
91 Concrete (encapsulation)
92 Bit men
93 Vi yl Chloride
94 Vinyl Ester Styren
99 Other. Describ I Item 13 or dditional pag
00 Non Required

FORM 541 (04-03)

FORM 541A

UNIFORM LOW LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

E i ca f Utah, In

2 MANIFEST NUMBER 9011 14-0001

3 PAGE 2 OF 2 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER								16 WASTE CLASSIF CATION AS-Class Stabl U-Class Unstable B-Class B C-Cl ss C
							PHYSICAL DESCRIPTION			14 CHEMICAL DESCRIPTION		15 RADIOLOGICAL DESCRIPTION			
5 CONTAINER ENTIFICATIO NUMBER/ GENERATOR D NUMBER(S)	6 CONTAINER DESCRIPTION (See N te Note 1A)	7 UM (m3) (ft3)	8 WAST AND ONTAINE WEIGHT (kg) (ton)	9 SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10 SURFACE ONTAMINATIO (MBq/100 cm2) (dpm/100cm2) HA	BETA-GAMM	11 WASTE SCRIPTOR (See N te 2 Not 2A)	12 ROXIMA E WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13 SOLIDIFICATION OR STABILIZATION MEDIA (See N)	CHEMIC FORM/ CHELATING AGENT	WEIGHT % CHELA G AG F 0 %	NDIVIDUAL RADIONUCL OES AND ACTIVITY (MBq) AND CONTAINER TOTAL OR CONTAINER TOTA ACTIVITY AND RADIO UCLIDE PERCE T			
												RADIONUCLIDES	pCi/gm	MBq	mCi
												U 238 [1.5400E+02 g]	8 15000E-02	1.8500E+00	5.0000E-02
												Subtotal		6.7433E+03	1.8225E+02
												Total		6 7433E+03	1 8225E+02
												SNM [4.7186E+00 g]			
Shipment Totals		89 229	999 64									SNM [9 4293E+00 g]		1 2116E+04	3 2746E+02
		6700 0000	000												

FORM 541A (04-03)

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0001
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	(mCi)
Am-241	3.9590E+01	1.0700E+00
Co-60	6.5860E+01	1.7800E+00
Cs-137	6.5971E+03	1.7830E+02
H-3	1.3653E+02	3 6900E+00
Pu-239	3.9035E+02	1.0550E+01
Ra-226	1.1100E+00	3.0000E-02
Sr-90	4.8766E+03	1.3180E+02
U-234	4.8100E+00	1.3000E-01
U-235	7 4000E-01	2.0000E-02
U-238	3.3300E+00	9 0000E-02

BNL RADIOLOGICAL SURVEY FORM FOR OPEN TRANSPORT VEHICLE

Tractor # T2007 Trailer # C148C Date: 12/21/04 (mm-dd-yy) Time: 13:00 ☐ Incomi[ng] ☒ Outgoi[ng]

MODEL	Tennelec	Ecoc	Lud 3	Lud 12	N/A	N/A
SERIAL#	42212	3003	44196	108965		
Cal Due Date	11-5-05	12-21-05	11-4-05	3-5-05		
Source Check Results	P	P	P	P		

Contamination (dpm/100cm²)

Dose Rate (Highest Reading)		Alpha	Beta / Gamma	Tritium
In Cab / Sleeper	<1	<20	<1000	N/A
External Surface	20	<20	<1000	N/A
The 2 Meter Reading	5	N/A	N/A	N/A

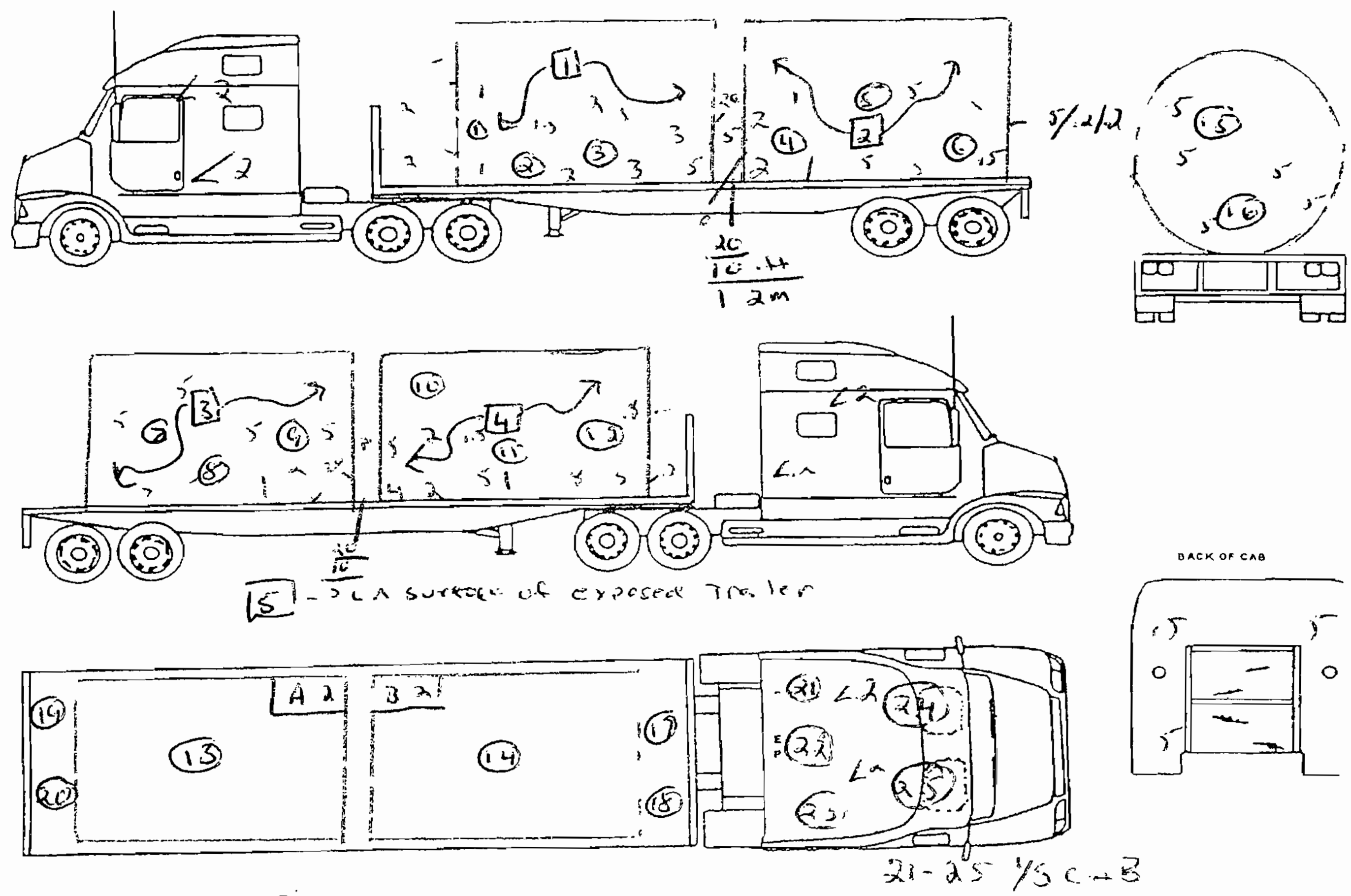
LEGEND:
◯ Smear Survey Results with indicting numbe[r]
☐ Masslinn Survey Result with indicating number

XXX Y / ZZZ — Y = Radiation Type; ZZZ = Reading @ *2 mete[r]*

☒ All Dose Rates are in mR / hr.
☒ See Attachment for smear survey results
☒ Masslinn Wipes < 1000 dpm / LAS (Beta/Gamma) - Alpha - Tritium (indicate)

Smear survey Locations / Results (dpm/100cm²) Beta/Gamma – Alpha – Tritium (indicate on drawing)							
1	See	8.	Attached	15.	Survey	22.	
2		9.		16.		23.	
3		10.		17		24.	
4		11.		18.		25.	N/A
5		12.		19		26.	
6		13.		20.		27	
7		14		21		28.	

Masslinn Survey Results in (dpm / LA[S])			
1	<1000	8.	N/A
2.		9.	
3.		10.	
4.		11	
5.		12.	
6.	N/A	13.	
7		14.	



Surveyed By: M Alonso (Signature) 12/21/04 (Date) Reviewed By: Cheryl Burns (Signature) 1/3/ (Da[te])

12/18/2004
5:28:04PM

Activity Report

SHIPPING SURVEY A-2 B-2

Batch Name:	287	**Acquisition Date:**	12/18
Batch ID:	1 MINUTE SMEAR 200412181646	**Acquisition Time: (minutes)**	1.0
Group:	C		
Device:	ERD Series IV	**Operating Voltage: (volts)**	1,320.0

Selected Geometry: 1/8" Stainless Steel

Efficiency Factors

Alpha Efficiency: (%)	0.31	±	0.00	**Beta Efficiency: (%)**	0.20	±	0.00

Sample ID	Quantity	Alpha Activity (DPM)	2σ	Alpha MDA (DPM)	Beta Activity (DPM)	2σ	Beta MDA (DPM)
20041218164627-C32	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218170518-C32	0.00	-0.97	0.79	14.54	13 16	19.89	32.06
20041218170528-C33	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218170648-C34	0.00	2.25	6.49	14.53	2.99	14.19	32.51
20041218170758-C35	0.00	-0.97	0.79	14.54	13.16	19.89	32.06
20041218170918-C36	0.00	-0.97	0.79	14.53	3.30	14.18	32
20041218171028-C37	0.00	-0.97	0.79	14.54	8.23	17.27	32.06
20041218171148-C38	0.00	-0.96	0.79	14.51	-6.56	2.56	32.06
20041218171258-C39	0.00	2.24	6.49	14.57	27.64	26.22	32.51
20041218171418-C40	0.00	-0.97	0.79	14.54	8.23	17.27	32.06
20041218171528-C30	0.00	-0.98	0.79	14.55	18.09	22.20	32.06
20041218171648-C29	0.00	2.25	6.49	14.53	2.99	14.19	32.51
20041218171758-C28	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218171918-C27	0.00	2.25	6.49	14.53	2.99	14.19	32.51
20041218172028-C26	0.00	-0.97	0.79	14.52	1.63	10.19	32.06
20041218172148-C25	0.00	-0.97	0.79	14.54	8.23	17.27	32.06
20041218172258-C24	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218172418-C23	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218172528-C22	0.00	-0.96	0.79	14.51	-6.56	2.56	32.06
20041218172648-C21	0.00	-0.98	0.79	14.55	18.09	22.20	32.06

Reviewed by: Cheryl Burns

Activity Report

811 TRUCK CABS

Batch Name:	13,882	**Acquisition Date:**	1/3/05
Batch ID:	1 Minute Smear Analysis 200501031320	**Acquisition Time: (minutes)**	1.0
Group:	E		
Device:	S5 XLB	**Operating Voltage: (volts)**	1,380.0
Selected Geometry:	1/8" Stainless Steel		

Efficiency Factors

Alpha Efficiency: (%)	0.27	±	0.00	**Beta Efficiency: (%)**	0.18	±	0.00

Sample ID	Quantity	Alpha (DPM)	2σ	Alpha MDA (DPM)	Beta Activity (DPM)	2σ	Beta MDA (DPM)
20050103132028-E1	0.00	-0.63	0.68	15.10	5.74	16.37	34.72
20050103132159-E2	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103132319-E3	0.00	-0.77	0.73	15.10	17.17	23.01	34.72
20050103132439-E4	0.00	-0.56	0.67	15.10	0.02	11.72	34.72
20050103132549-E5	0.00	2.85	7.57	15.10	28.46	28.13	34.72
20050103132709-E6	0.00	-0.77	0.73	15.10	17.17	23.01	34.72
20050103132819-E7	0.00	-0.77	0.73	15.10	17.17	23.01	34.72
20050103132939-E8	0.00	-0.63	0.68	15.10	5.74	16.37	34.72
20050103133049-E9	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133209-E10	0.00	-0.63	0.68	15.10	5.74	16.37	34.72
20050103133329-E11	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133439-E12	0.00	-0.77	0.73	15.10	17.17	23.01	34.72
20050103133559-E13	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133709-E14	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133829-E15	0.00	3.20	7.56	15.10	-0.12	11.72	34.72

Reviewed by: Cheryl Burns

Memo

To: TAG Transport, Inc.

From: Melinda B. Soest

CC: WESKEM LLC.

Date: January 4, 2005

Re: Contact Info

Goethals Bridge Notification: (718) 390-2502

Please contact bridge authority upon arrival @ holding area for police escort.

Shipper Notification: Cell (865) 712-8337 or (865) 712-8401 Office (631) 344-2423

2X daily contact from each driver to report on status of loads.

Comfest # 9011-14-0001

BROOKHAVEN NATIONAL LABS **ENVIROCARE OF UTAH** 1 3

Account #	43362	COMDATA TRANSCEIVER SERVICES		Workorder #	121505
P O.#:		OVERSIZE/WEIGHT FAX-IN PERMIT		Order Date.	12/27/04
Ordered By	CHUCK MEAD	APPLICATION		Time	08 30
Phone #	800-325-1336	T A. G. FAX # 865-882-9715		Operator	TODD ELLIS
Bill To	T A G TRANSPORT, INC		Issued To	T A G TRANSPORT	
Address	2818 ROANE STATE HWY		Address	2818 ROANE STATE HWY	
City, State, Zip	HARRIMAN, TN 37748		City, State, Zip	HARRIMAN,TN 37748	
Trip Origin	**UPTON,NY**		Trip Destination	**CLIVE,UT**	

	STATE	ROUTE	EFFECTIVE DATE
✓	NY	5TH AVE/RAILROAD AVE RAILROAD AVE (S)-BROOKHAVEN AVE (W) UPTON BLVD (S)-I 495(W)	01/03/05
	NYC	I-495 I 295 - ~~THROGS NECK BRIDGE~~ - I-295 - I-695 - I-95	01/03/05
	~~NYTH~~	~~I-95 - I-287~~	01/04/05
✓	NJ	I-287 I 80	01/04/05
✓	PA	I 80(W)	01/04/05
✓	OH	I-80 I-76 - I 77 - I 277 I 76 - I 71 - I-270 - I 70	01/04/05
✓	IN	I 70 I-465 I-74	01/05/05
✓	IL	I-74 I-474 I 74 - I-80	01/05/05
✓	IA	I 80 I 680	01/05/05
✓	NE	I-80	01/05/05
✓	UT	I-80 I 84 I-15 I-215 - I-80 EXIT 49 ACCESS RD.	01/06/05
			/ /

Load Description:	EMPTY STEEL TANK			Make.		Model		Serial #			
Load Length	37-0	Height:	12-0	Width:	9-4	Weight	35000	Registered Weight	80000		
Overall Length	70-0	Height	14 1	Width.	9-4	Weight.	80000	-			

Trct Unit	T-2003	Year	2000	Make:	KENW	Serial #	45566	Lic #	82146HY	St	TN	# Axles	3
Trct Length		Trct Width		Trct Height		Trct Empty Weight							
Trlr Unit	01480	Year	2001	Make	FRUEHAUF	Serial #	93433	Lic #:	T516872	St	TN	# Axles	2
Trlr Length	48	Trlr Width	8-0	Trlr Height.	2-0	Trlr Empty Weight							
Front Overhang	N/A	Rear Overhang:	N/A	# Additional Vehicles	N/A								

If Overweight													
Axle Spacing 1-2	19-6	2-3.	4-4	3-4	32 0	4 5.	10-0	5-6	N/A	6-7	N/A	7-8	
Axle Weights 1	12000	2	17000	3	17000	4.	17000	5.	17000	6.		7	8.
Tire Size Tractor	11RX24 5					Tire Size Trailer	11RX24.5						

Send Permit To 865-882-9715 Truck Stop Code F43362

Special Comments: **USDOT #: 642202, FED ID #: 62-1638821, ICC/MC #: 304079, IN ACCT CODE: 53050M (PAYING BY COMCHECK)**

Apr 6 1996 10 48PM

No 2393 P 43

MTA Bridges and Tunnels
Verrazano Narrows Bridge

One Verrazano Bridge Plaza
Staten Island, NY 10305
Phone: (718) 390-8400
FAX: (718) 390-8512

1400

OVERSIZE / OVERWEIGHT VEHICLE PERMIT APPLICATION

DATE OF REQUEST: 1/3/05

REQUEST MADE BY (Company): T.A.G. Transport, Inc.

Contact Person: Chuck Meade

Address: 2819 Range State Highway Harriman, TN 37748

Phone Number: (865)882-0457 Fax Permit to: (865-882-9715 / 231-344-2423

DATE OF TRAVEL: 1/8/05 TIME OF TRAVEL (Must be btw. 10:00 p.m. & 5:00 a.m.)

DIRECTION OF TRAVEL: (Eastbound or Westbound) Westbound

Truck Towing Vehicle Lic. No: 22246HV State: TN Trailer Lic. No: T516872

Description of Load: Empty Steel Tanks

☐ Overweight vehicle

Total Gross Weight: 80000 Pounds. Number of axles OF AXLES: 5

Axle #:	Steering	2	3	4	5	6	7	8	9	10	11
Axle Weights (22,400 lb max)	12,000	17,000	17,000	17,000	17,000						
axle spacing (ft min.)	19.6		4.4	32.0	10.6						

☑ Oversize vehicle

VEHICLE DIMENSIONS: Overall Width 9-4 Overall Length 70 Overall Height 14-1

On the basis of the above stated loading conditions and or dimensions this vehicle may cross the Verrazano Narrows Bridge, subject to all New York State, New York City, and TBTA rules and regulations, and special instructions listed below (if any).

For official use only

Approved by: _____ Date: 1/5/05
Verrazano Narrows Bridge Operations.

Special Instructions:

PERMIT NOT REQUIRED
FROM VN, ONLY DOT
PERMIT REQUIRED

EXEMPT

Revised 3/13/02

Please fax back
631-344-2423

MTA Bridges and Tunnels
Verrazano Narrows Bridge

One Verrazano Bridge Plaza
Staten Island, NY 10305
Phone: (718) 390-5609
FAX: (718) 390-5612

OVERSIZE / OVERWEIGHT VEHICLE PERMIT APPLICATION

DATE OF REQUEST: 1/3/05

REQUEST MADE BY (Company): T.A.G. Transport, Inc.

Contact Person: Chuck Meade

Address: 2819 Ranch State Highway Harriman, TN 37748

Phone Number: (865)882-0457 Fax Permit to: (865-882-9715 / 631-344-2423

DATE OF TRAVEL: 1/3/05 TIME OF TRAVEL (Must be btw. 10:00 p.m. & 5:00 a.m.) 2:00 am

DIRECTION OF TRAVEL: (Eastbound or Westbound) Westbound

Truck Towing Vehicle Lic. No: 22[illegible]W State: FL Trailer Lic. No: T516872

Description of Load: Empty Steel Trailer

☐ Overweight vehicle

Total Gross Weight: 80000 Pounds, Number of axles OF AXLES: 5

Axle #:	Steering	2	3	4	5	6	7	8	9	10	11
Axle Weights (22,400 lb max)	17,000	17,000	17,000	17,000	17,000						
Axle Spacing (ft min.)	19-6	4-4	32-0	10-0							

☑ Oversize Vehicle

VEHICLE DIMENSIONS: Overall Width 9-4 Overall Length 70 Overall Height 14-1

On the basis of the above stated loading conditions and or dimensions this vehicle may cross the Verrazano Narrows Bridge, subject to all New York State, New York City, and TBTA rules and regulations, and special instructions listed below (if any).

For official use only

Approved by: _____ Date: 1/3/05
Verrazano Narrows Bridge Operations

Special Instructions:

PERMIT NOT REQUIRED
FROM VN, ONLY DOT
PERMIT REQUIRED

Revised 3/13/02

12/28/04
10:59AM

STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION
SPECIAL HAULING PERMIT

L83

AFTER VALIDATION THIS PERMIT AUTHORIZES MOVEMENT ONLY ON HIGHWAYS UNDER THE JURISDICTION OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION OF A VEHICLE OR COMBINATION OF VEHICLES THE DIMENSIONS AND/OR WEIGHTS OF WHICH EXCEED THOSE SPECIFIED IN ARTICLE 10 SECTION385 OF THE VEHICLE AND TRAFFIC LAW. BY ACCEPTING THIS PERMIT, PERMITEE AGREES TO CONTACT AND SECURE PERMISSION TO OPERATE PERMIT VEHICLE FROM ANY AUTHORITIES HAVING PERMIT ISSUE JURISDICTION OF ANY ROUTES OTHER THAN THOSE ROUTES UNDER THE JURISDICTION OF THE STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION. ALL MOVES MUST CONFORM WITH PART 194-1 TITLE 17 OF THE NEW YORK COMPILATION CODES, RULES AND REGULATIONS. BY ACCEPTING THIS PERMIT, PERMITTEE CERTIFIES THAT THIS PERMITTED VEHICLE IS PROPERLY CONSTRUCTED TO SAFELY CARRY THE PERMITTED LOAD AND THAT THE PERMITTED VEHICLE IS IN CONFORMANCE WITH ALL NEW YORK STATE LAWS.

574865-001 **PERMIT INVALID IF ALL PROVISIONS OF THE PERMIT ARE NOT ADHERED TO**

PERMIT ACCOUNT NO:	PERMIT EFFECTIVE DATE
36398	FROM: 01/03/05
APPLICATION NO: 28 18	TO: 01/07/05

OVERALL	FEET	INCHES	OVERALL	FEET	INCHES
LENGTH	70	0	HEIGHT	14	1
WIDTH	9	4	OVERHANG		

LOAD DESCRIPTION: MAKE, MODEL, SERIAL No. or Bill OF LADING No.
0000 1/EMPTY STEEL TANK

X X

GROSS WEIGHT: 80,000

FRONT	0
REAR	0

FEIN / SS No. 62-1638821 PERMIT TYPE: 1

MOTOR CARRIER'S NAME AND ADDRESS
T A. G. TRANSPORT, INC.
2818 ROANE STATE HWY
HARRIMAN TN 37748
USDOT# 642202

VEHICLE	ST / JUR	REGISTRATION OR VEHICLE ID	NO OF AXLES	REGD GVW
POWER UNIT	TN	82146HY	3	80,000
TRAILER	TN	T516872	2	

IF ROUTING IS INCORRECT, DO YOU WANT THE STATE TO CORRECT FOR AN ADDITIONAL FEE? YES ____ NO X

AXLE NO.	STEER AXLE	2	3	4	5	6	7	8	9	10	11
AXLE WTS	12,000	17,000	17,000	17,000	17,000						
MFG TIRE	12000	17000	17000	17000	17000						
AXLE SPACINGS FEET(') / INCHES(")		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11
		19-6	4-4	32-0	5-0						

SPECIFIC ADDRESS OF TRIP ORIGIN: UPTON, NY 5TH AVE/RAILROAD AVE

SPECIFIC ADDRESS OF TRIP DESTINATION: NYC LINE

ROUTING:
SEE SURVEY

FOR OFFICIAL USE ONLY

DATE AND TIME RECD: 12/28 11:10

PERMIT PREVIOUSLY REJECTED AS RESULT OF ERROR BY: TRANSMISSION CO. ____ STATE ____

STATE FEE: INS: $4.00 TOTAL: $44.00

THIS PERMIT NOT VALID ON NYS THRUWAY

GENERAL RESTRICTIONS: X
No Travel 7-9 am and 4-6 pm for vehicles exceeding the size shown below in the area described:
Wider than 10 ft. and/or longer than 72 ft. in Binghampton
Wider than 10 ft. and/or longer than 85 ft. within a 10 mile radius of Syracuse
Wider than 11 ft. in the cities of Hudson, Kingston, Newburgh and Poughkeepsie
Wider than 12 ft. in the cities of Utica and Amsterdam (Contact police prior to move)
Wider than 13 ft. in Albany and Rensselaer Counties on Route 87 90 and 787
18" x 18" minimum, red or orange fluorescent flags on staffs at extremities of vehicle/load required on all overdimensional loads. Warning signs and appropriate lights are required on permitted load.

VALIDATION

SPECIAL REQUIREMENTS INDICATED BY X:

- X Certified escort vehicle to precede on [redacted] All Routes
- X Lead escort vehicle to have proper height pole attached
- ___ Certified escort vehicle to follow on highways of more than two lanes
- ___ Third certified escort required: Front ___ Rear ___
- ___ Police escort required on _____, contact police 48 hours prior to move
- X No travel business districts 7-9 am & 4-6 pm — NO WEEKEND TRAVEL
- ___ No travel in New York State 7-9 am & 4-6 pm
- ___ Cross no "R" posted structures — MAXIMUM SPEED 55MPH
- ___ Cross all "R" posted structures at less than 5 miles per hour
- ___ Cross all non-interstate structures at less than 5 miles per hour
- ___ Thruway permit required — County & Local Permit May Be Required
- ___ Night move allowed
- ___ Continuous travel authorized
- ___ Night travel authorized: Nassau & Suffolk counties only, notify police prior to move
- ___ Saturday move allowed until 12 noon — PERMIT IN NOT ROUTE
- X See attached Page ___ of ___. — SURVEY IS INCORRECT
- X Other

2004 DEC 20 PM 1 (2)

PERMIT NO. 051980

D X O ___ W ___

Inspector SRS

Time Approved 11 30

COMDATA

A Danaher Company

Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

674865

PERM 88 (11/01)

283

28-18

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUILDING 5, ROOM 211
1220 WASHINGTON AVENUE, STATE CAMPUS
ALBANY, NEW YORK 12232-0155

SPECIAL HAULING ROUTE SURVEY FOR OVER DIMENSIONAL VEHICLES

THE ROUTES SHOWN BELOW FOR THE MOVEMENT OF A:

EMPTY TANK
(load description)

OVERALL VEHICLE DIMENSIONS
(in feet and inches)

HEIGHT 14 ' 1 " LENGTH: 70 ' 0 " WIDTH: 8 ' 4 "

GROSS VEHICLE WEIGHT: 80,000 POUNDS

FROM: 8TH AVE & RAILROAD AVE UPTON, NY (origin) TO: SR25 NYC BORDER (destination)

HAS BEEN PHYSICALLY SURVEYED ON: 12/13/04 (date survey performed) FOR: T. A. G. TRANSPORT (permittee name)

ON ROUTES: [8TH AVE/RAILROAD AVE] [RAILROAD AVE] (S), [BROOKHAVEN AVE] (W), [UPTON BLVD] (S), [PRINCETON AVE] (W), [LONGWOOD RD] (W), [SMITH RD] (N), SR 25 (W), SR 347 (W), SR 454 (W), SR 25 (W), [OLD COUNTRY RD] (W), [MINEOLA BLVD] (N) – SR 25 (W)

AND THERE IS SAFE AND SUFFICIENT CLEARANCE TO ALL OBSTACLES AND THAT THE ROUTE SURVEYED FOR HEIGHT IS AT LEAST 3 INCHES HIGHER THAN THE OVERALL HEIGHT FOR LOADS THAT ARE 12 FEET AND UNDER IN WIDTH AND 6 INCHES HIGHER THAN THE OVERALL HEIGHT FOR LOADS THAT ARE GREATER THAN 12 FEET IN WIDTH. THE GROSS VEHICLE WEIGHT AS STATED ABOVE DOES NOT EXCEED HIGHWAY AND/OR STRUCTURAL WEIGHT POSTINGS ON ANY ROUTES AND THAT THE SURVEY HAS BEEN PERFORMED NO EARLIER THAN ONE MONTH PRIOR TO THE MOVE. HIGHWAYS OTHER THAN THOSE UNDER THE JURISDICTION OF THE STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION WILL BE SHOWN FOR ROUTING CONTINUITY, BUT APPEARANCE OF ROUTES OTHER THAN THOSE UNDER THE JURISDICTION OF THE STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION DOES NOT CONSTITUTE PERMISSION OR AUTHORIZATION FOR THEIR USE.

CERTIFIED BY:

COMPANY NAME: GLASER ESCORT
(if a DBA, name of DBA and commercial entity)

COMPANY ADDRESS: PO BOX 253 HEREFORD PA 18056

COMPANY PHONE NUMBER: (610) 845-0484

NAME: GREG GLASER
(name of individual signing survey)

SUBMISSION OF OR OPERATION ON A ROUTE SURVEY FOUND NOT TO BE LEGITIMATE BY ANY LAW ENFORCEMENT OFFICER OR DEPARTMENT OF TRANSPORTATION EMPLOYEE OR A SURVEY NOT ACTUALLY PERFORMED ON THE DATE SHOWN ABOVE, WILL RESULT IN REVOCATION OF THE EXISTING SPECIAL HAULING PERMIT AND MAY RESULT IN SANCTIONS AGAINST THE COMPANY THAT HAS CERTIFIED THE ROUTE. IF THE VEHICLE CANNOT OPERATE IN THE RIGHT HAND LANE, ATTACH A LIST OF LOCATIONS WHERE THE VEHICLE MUST CHANGE LANES OR GO INTO THE OPPOSING TRAFFIC LANES. IF THE VEHICLE MUST GO THE WRONG WAY ON ANY ROADWAY, NAME THE ROADWAY, PROVIDE MAP OF THE ROADWAY, AND INDICATE IN WHICH ROADWAY IS LOCATED.

(2)

12/17/2004 13:18 6108458402 CHERYLTOLASER PAGE 01

JAN 1 1996 4:12AM 8666666993 COMDATA PILOT CAR PAGE 01

NO 2311 P 2

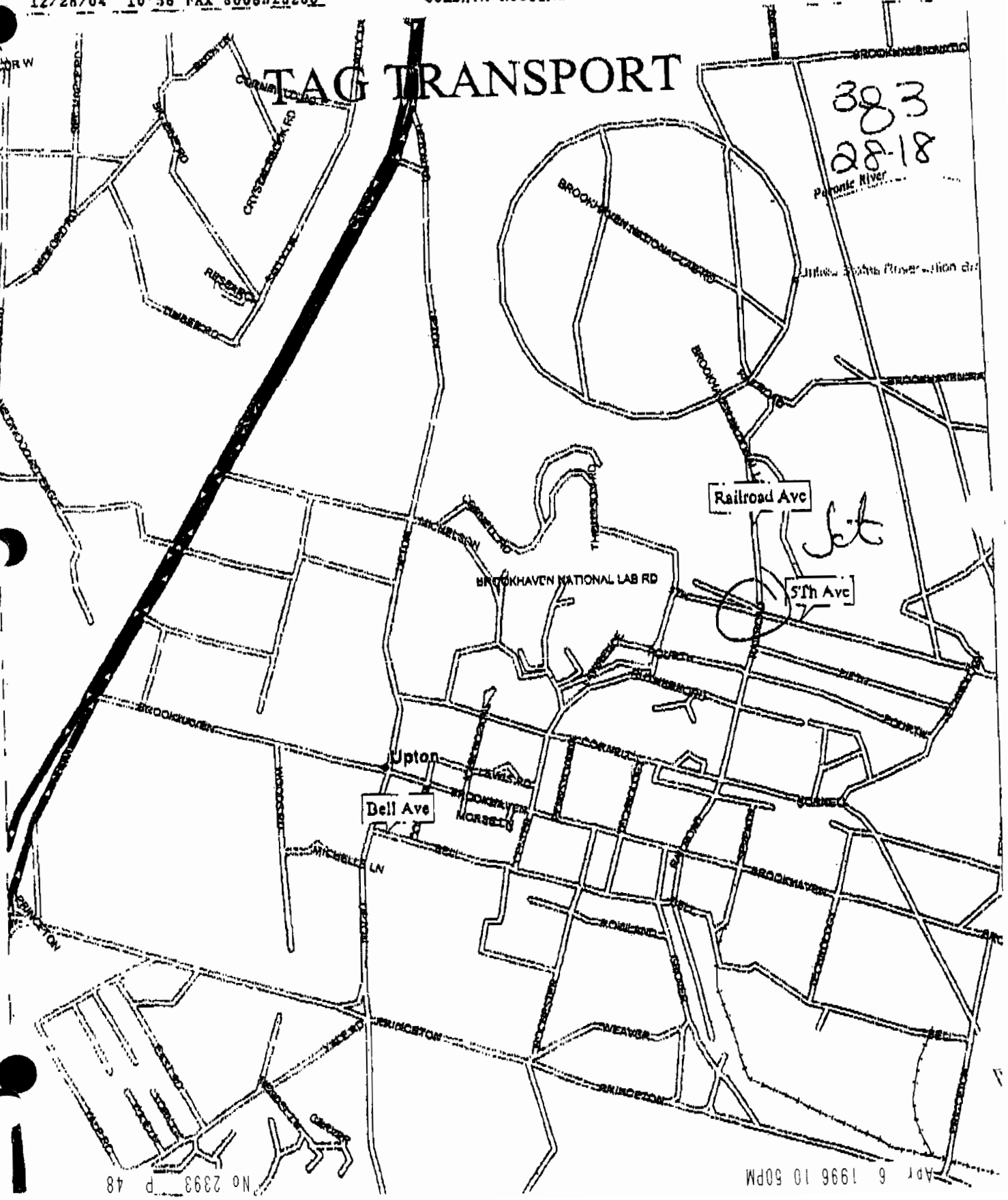
PERMIT INVALID IF ROUTE SURVEY IS INCORRECT

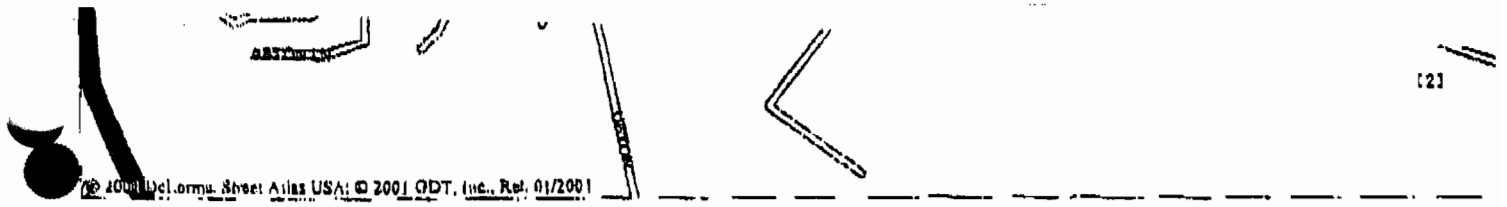
2004 DEC 29 PM 1 14

051980

TAG TRANSPORT

383
28-18





2001 DEC 28 P 1 14

051980

NEW YORK CITY
DEPARTMENT OF TRANSPORTATION
D.O T.BRIDGES/TRUCK UNIT
PERMIT FOR OVER DIMENSIONAL LOAD VEHICLE

DATE ISSUED: 12/29/2004

PERMIT #: M08-2004364-010

RECORDED PERMIT/
LOG # : CT2901
TOTAL FEE: $****25 00

ROUTE
RT 25-JAMAICA-BRADDOCK-HILLSIDE-QUEENS-GRAND AVE-RUST-56TH ROAD-LAUREL HIL L-REVIEW-GREENPOINT-JJ BYRNE MEMORIAL BRIDGE-GREENPOINT-FRANKLIN ST-KENT AV E-WILLIAMSBURG PLACE-FLUSHING-NASSAU ST-GOLD-TIULLARY-FLATBUSH-3RD AVE-HAMI LTON-U TURN AT 2ND AVE-HAMILTON-3RD AVE-I278-WHEN CROSSING VERRAZANO NARROW S BRIDGE, USE TOLL LANE #22 AND UPPER LEVEL-I278
STARTING POINT: NASSAU-RT 25
ENDING POINT: NJ-GOETHALS BRIDGE

RED WARNING FLAGS MUST BE DISPLAYED ON THE FRONT AND EXTREME END OF ALL OVERSIZE VEHICLES SUCH FLAGS SHALL BE AT LEAST 24 INCHES SQUARE

ALL WORK MUST ADHERE TO THE FOLLOWING STIPULATIONS: 162 168 170 171

162 OVZ	OVERSIZE V NIGHT TIME TRAVEL 10PM TO 5:30AM
168 OVZ	VEHICLES OVER 11 FEET WIDE OR 65 FEET LONG MUST HAVE A REAR ESCORT VEHICLE -EQUIPPED WITH 'OVERSIZED LOAD' SIGNS
170 OVZ	VEHICLES OVER 55 FEET LONG MUST HAVE CLEARANCE LIGHTS AT 20 FOOT INTERVALS -ALONG THE SIDES WHEN TRAVELING AT NIGHT
171 OVZ	VEHICLES OVER 13 FEET 6 INCHES HIGH AND/ OR 14 FEET WIDE AND /OR 80 FEET LONG,MUST HAVE A WARNING SIGN AND TWO STEADY YELLOW LIGHTS ATTACHED TO THE REAR OFTHE LOAD

PERMISSION TO OPERATE AN OVERSIZE OR OVERWEIGHT VEHICLE SUBJECT TO THE POSTED HEIGHT, WEIGHT RESTRICTIONS, ROUTING, VEHICLE DESCRIPTION, SPECIAL INSTRUCTIONS, AND DATE OF TRAVEL INDICATED ON THIS PERMIT IS HEREBY GRANTED TO:

PERMIT TYPE: 0804
PERMITTEE NAME: TAG TRANSPORT PTEE #: 20523
CONTACT COMPANY NAME: COMDATA TRANSCEIVER NETWORK CONTACT #: 03000
TRACTOR LICENSE#: 82146HY TRAILER LICENSE#. T516872
WIDTH:FT 9 IN 4 LENGTH:FT 70 IN 0 HEIGHT:FT 14 IN 1 WEIGHT- 80000
VALID FROM: DATE: 01/05/2005 TO: DATE: 01/06/2005
TIME: 22:00 TIME: 05:30

APPLICATION/PERMIT APPROVED BY
SUPERVISOR, TRUCK PERMIT PROGRAM

NEW YORK CITY
DEPARTMENT OF TRANSPORTATION
D O T BRIDGES/TRUCK UNIT
PERMIT FOR OVER DIMENSIONAL LOAD VEHICLE

DATE ISSUED: 12/28/2004

PERMIT #: M08-2004363-026

RECORDED PERMIT/
LOG # : CT2805
TOTAL FEE: $****25 00

ROUTE:
RT 25-JAMAICA-BRADDOCK-HILLSIDE-QUEENS BLVD-GRAND AVE-FLUSHING-NASSAU ST-GOLD-TILLARY-FLATBUSH-3RDAVE-HAMILTON-U TURN AT 2ND AVE-HAMILTON-3RD AVE-60TH ST-FORT HAMILTON-7TH AVE-92ND ST-I278-WHEN CROSSING VERRAZANO NARROWS BRIDGE, USE TOLL LANE #22 AND UPPER LEVEL-I278-NARROWS ROAD SOUTH-LITTLE CLOVE-I278
STARTING POINT: NASSAU-RT 25
ENDING POINT: NJ-OUTERBRIDGE CROSSING

RED WARNING FLAGS MUST BE DISPLAYED ON THE FRONT AND EXTREME END OF ALL OVERSIZE VEHICLES SUCH FLAGS SHALL BE AT LEAST 24 INCHES SQUARE

ALL WORK MUST ADHERE TO THE FOLLOWING STIPULATIONS 160 168 171

162 OVZ OVERSIZE V NIGHT TIME TRAVEL 10PM TO 5:30AM
168 OVZ VEHICLES OVER 11 FEET WIDE OR 65 FEET LONG MUST HAVE A REAR ESCORT VEHICLE -EQUIPPED WITH 'OVERSIZED LOAD' SIGNS
171 OVZ VEHICLES OVER 13 FEET 6 INCHES HIGH AND/ OR 14 FEET WIDE AND /OR 80 FEET LONG,MUST HAVE A WARNING SIGN AND TWO STEADY YELLOW LIGHTS ATTACHED TO THE REAR OFTHE LOAD

PERMISSION TO OPERATE AN OVERSIZE OR OVERWEIGHT VEHICLE SUBJECT TO THE POSTED HEIGHT, WEIGHT RESTRICTIONS, ROUTING VEHICLE DESCRIPTION SPECIAL INSTRUCTIONS AND DATE OF TRAVEL INDICATED ON THIS PERMIT IS HEREBY GRANTED TO:

PERMIT TYPE: 0804
PERMITTEE NAME: TAG TRANSPORT PTEE #: 20523
CONTACT COMPANY NAME: COMDATA TRANSCEIVER NETWORK CONTACT # 03000
TRACTOR LICENSE# 82167MY TRAILER LICENSE#: T674370
WIDTH:FT 9 IN 4 LENGTH:FT 70 IN 0 HEIGHT:FT 13 IN 11 WEIGHT: 80000
VALID FROM: DATE 01/04/2005 TO: DATE: 01/05/2005
TIME: 22:00 TIME: 05:30

APPLICATION/PERMIT APPROVED BY

SUPERVISOR, TRUCK PERMIT PROGRAM

NEW YORK CITY
DEPARTMENT OF TRANSPORTATION
D O T.BRIDGES/TRUCK UNIT
PERMIT FOR OVER DIMENSIONAL LOAD VEHICLE

DATE ISSUED: 12/29/2004

PERMIT #: M08-2004364-010

RECORDED PERMIT/
LOG #. : CT2901
TOTAL FEE: $****25 00

ROUTE
RT 25-JAMAICA-BRADDOCK-HILLSIDE-QUEENS-GRAND AVE-RUST-56TH ROAD-LAUREL HIL L-REVIEW-GREENPOINT-JJ BYRNE MEMORIAL BRIDGE-GREENPOINT-FRANKLIN ST-KENT AV E-WILLIAMSBURG PLACE-FLUSHING-NASSAU ST-GOLD-TIULLARY-FLATBUSH-3RD AVE-HAMI LTON-U TURN AT 2ND AVE-HAMILTON-3RD AVE-I278-WHEN CROSSING VERRAZANO NARROW S BRIDGE, USE TOLL LANE #22 AND UPPER LEVEL-I278
STARTING POINT: NASSAU-RT 25
ENDING POINT: NJ-GOETHALS BRIDGE

RED WARNING FLAGS MUST BE DISPLAYED ON THE FRONT AND EXTREME END OF ALL OVERSIZE VEHICLES SUCH FLAGS SHALL BE AT LEAST 24 INCHES SQUARE

ALL WORK MUST ADHERE TO THE FOLLOWING STIPULATIONS: 162 168 170 171

162 OVZ	OVERSIZE V NIGHT TIME TRAVEL 10PM TO 5:30AM
168 OVZ	VEHICLES OVER 11 FEET WIDE OR 65 FEET LONG MUST HAVE A REAR ESCORT VEHICLE -EQUIPPED WITH 'OVERSIZED LOAD' SIGNS
170 OVZ	VEHICLES OVER 55 FEET LONG MUST HAVE CLEARANCE LIGHTS AT 20 FOOT INTERVALS -ALONG THE SIDES WHEN TRAVELING AT NIGHT
171 OVZ	VEHICLES OVER 13 FEET 6 INCHES HIGH AND/ OR 14 FEET WIDE AND /OR 80 FEET LONG,MUST HAVE A WARNING SIGN AND TWO STEADY YELLOW LIGHTS ATTACHED TO THE REAR OFTHE LOAD

PERMISSION TO OPERATE AN OVERSIZE OR OVERWEIGHT VEHICLE SUBJECT TO THE POSTED REIGHT WEIGHT RESTRICTIONS, ROUTING, VEHICLE DESCRIPTION, SPECIAL INSTRUCTIONS, AND DATE OF TRAVEL INDICATED ON THIS PERMIT IS
HEREBY GRANTED TO: PERMIT TYPE: 0804
PERMITTEE NAME: TAG TRANSPORT PTEE #: 20523
CONTACT COMPANY NAME: COMDATA TRANSCEIVER NETWORK CONTACT #: 03000
TRACTOR LICENSE#: 82146HY TRAILER LICENSE#: T516872
WIDTH:FT 9 IN 4 LENGTH:FT 70 IN 0 HEIGHT:FT 14 IN 1 WEIGHT: 80000
VALID FROM: DATE: 01/03/2005 TO: DATE: 01/04/2005
TIME: 22:00 TIME: 05:30

APPLICATION/PERMIT APPROVED BY
SUPERVISOR - TRUCK PERMIT PROGRAM

NEW JERSEY MOTOR VEHICLE SERVICES - MOTOR CARRIERS UNIT

225 EAST STATE STREET 4-W (PO 133) TRENTON, NJ 08666-0133
PHONES: VOICE (609) 633-9400 FAX (609) 943-5214

MUST BE COMPLETED BY WIRE SERVICE: X Check if Number 1 of Special Conditions apply. X Check if Number 2 of Special Conditions apply.

C# 1227052 T A G. TRANSPORT HARRIMAN TN (865)882-9715 | TRANSCEIVER (800)325-1336

T#674865-004 Ord by FAX/CHUCK MEAD

STATE OF NEW JERSEY SINGLE TRIP PERMIT

INFORMATION ENTERED ON THIS PERMIT MUST BE TYPED ALL WEIGHTS IN LBS AND DIMENSIONS IN FEET AND INCHES Date: 12/27/04 04:17PM

Name: T A G. TRANSPORT INC.				**Dot Number:**	642202
Address: 2818 ROANE STATE HWY				**Phone:**	PHONE (800)325-1336
City: HARRIMAN		**State:** TN		**Zip:**	37748
Truck Reg.. 8214GHY	**State:** TN	**Trailer Reg..** T516872		**State:**	TN
Overall Width: 8-4		**Overall Height:** 14-1			
Overall Length: 70-0	**Trailer Length:** 48-0		**Load Length:**	37-0	
Starting Point (If Entering NJ Enter Route): NY LINE					287
Destination (If Exiting NJ Enter Route): PA LINE					80

Transporting (If Housetrailer Include Year, Make & Serial Number):
1/EMPTY STEEL TANK

Date(s) of Move: 01/04/05 OR 01/05/05 OR 01/06/05 **Number of Escorts:**

AXLE CONFIGURATION AND WEIGHTS (If "Other" enter type of axle)

Front Axle	X Single	Tan	Tri	Quad	Other	Lbs.
Drive Axle	Single	Y Tan	Tri	Quad	Other	Lbs.
Trailer Axle	Single	Tan	Y Tri	Quad	Other	Lbs.
Add'l Axle	Single	Tan	Tri	Quad	Other	Lbs.
Add'l Axle	☐ Single	☐ Tan	☐ Tri	☐ Quad	☐ Other	Lbs.
Add'l Axle	☐ Single	☐ Tan	☐ Tri	☐ Quad	☐ Other	Lbs.
Add'l Axle	☐ Single	☐ Tan	☐ Tri	☐ Quad	☐ Other	Lbs.
TOTAL OVERALL GROSS WEIGHT (should equal total of all axle weights) →						Lbs. 80,000

SPECIAL CONDITIONS/REQUIREMENTS

1. Permits are NOT VALID for use on the Garden State Parkway or Atlantic City Expressway. Oversize vehicles are PROHIBITED from the New Jersey Turnpike toll section. Access onto the I-95 section of the New Jersey Turnpike between Ridgefield, NJ and the George Washington Bridge (mile post 118 to 122) is obtainable only with permission from the New Jersey Turnpike Authority. Phones: Voice (732) 247-0900 Extension 5429 and Fax (732) 247-3812.
2. Vehicles traveling I-95 to New York via George Washington Bridge MUST CONTACT Patrick C. Kennedy Traffic Safety Officer of the Port Authority of New York/New Jersey prior to arrival - Phone: Voice (201) 242-0118.
3. Weather And/Or Road Conditions Permitting
4. If Over 14 Feet High – Provision 39:4-28 Applies
5. Oversize Moves NOT Permitted After 12:00 Noon On Saturdays or All Day Sunday
6. One Escort Vehicle Required If Over 14 Feet Wide And/Or Over 100 Feet Long
7. Two Escort Vehicles Required If Over 16 Feet Wide And/Or Over 120 Feet Long

SEE REVERSE FOR ADDITIONAL CONDITIONS

☐ If checked see attachment(s) for routing and/or special conditions.

Aaron A. Harrington

INSURANCE ?	X Yes	☐ No
BASE FEE:	10	.00
EXCESS FEE:	/	.00

Apr 6 1996 10 51PM

EXCESS FNo 2393 P 52 .00	
TOTAL FEE:	.00
PERMIT NUMBERS	
141609	
W=	P=

NOT VALID UNLESS STAMPED WITH SEAL OF NEW JERSEY AND DIRECTOR'S SIGNATURE

MC-105 (R2/03)

COMDATA

A Deutsche Company

Transceiver
All Fees Prepaid

PERMIT ACCURACY
RESPONSIBILITY OF
DRIVER

SPECIAL HAULING ROUTE SURVEY FOR OVER DIMENSIONAL LOADS

FOR THE STATE OF: NEW JERSEY

ROUTES SHOWN BELOW FOR THE MOVEMENT OF A.

EMPTY STEEL TANK

OVERALL DIMENSIONS:

HEIGHT: 14 ft. 1 in. LENGTH: 70 ft. 0 in. WIDTH: 9 ft. 4 in.

GROSS VEHICLE WEIGHT: 80,000 POUNDS

FROM: GOETHALS BRIDGE TO: N.J./PA. LINE I80

HAVE BEEN SURVEYED ON: DEC 28, 2004

FOR: T. A. G. TRANSPORT

ROUTES: I 278 – STILES ST – LOWER RD TO RAHWAY – AVE C – US 1 (S) – I 287 – I 80

THIS IS TO CERTIFY THAT THE ROUTE HAS BEEN SURVEYED AND THERE ARE NO OVERHEAD OBSTRUCTIONS INCLUDING WIRES

BY GLASER ESCORTS' GREG GLASER

SIGNATURE:

(570) 688 6885

M-936P

Application Id: A302305057 Permit No: 2004-363-05-28719

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

MOTOR CARRIER NAME AND ADDRESS

TAG TRANSPORT INC
2818 ROANE STATE HIGHWAY
HARRIMAN TN 37748

PERMIT

Permit Office: 05 0
Permit Type: SINGLE TRIP
Date Issued: 12/28/2004
Time Issued: 12:22 PM
Account Name: 31 TRANSCEIVER UNITED INC

MOVE INFORMATION

Move Begins: 01/05/2005
SPC Code: ZMAR
Total Fees: 26.00
Move Ends: 01/11/2005
Meet PSP Date: N/A
Total Miles: 311
Move #: N/A
Meet PSP At: N/A
NATL Park Service Approval #: N/A

POWER AND DRAWN UNITS

Unit #	Equipment Type	Registration/VIN	State	# of Axles
1	P -TRUCK TRACTOR	82146HY	TN	3
2	D -SEMITRAILER	T516872	TN	2

SIZE INFORMATION (Zeros = not specified)

LENGTH	Ft.	In.	WIDTH	Ft.	In.	HEIGHT	Ft.	In.
TOTAL LENGTH:	00070	00	TOTAL WIDTH:	00009	04	TOTAL HEIGHT:	00014	01
Veh Only Length:	00000	00	Veh Only Width:	00000	00	Veh Only Height:	00000	00

Front Overhang: 00000 00
Rear Overhang: 00000 00

LOAD INFORMATION

Load Quantity: 00001
Load Serial ID: 121506
Load Type: 67A-Combination Load General (nondivisible)
Load Description: EMPTY STEEL TANK
Guide Rail Dev #: N/A

WEIGHT INFORMATION

Gross Weight: 80000 lbs.

M-936P

Application Id: A302305057 Permit No: 2004-363-05-28719

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

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1	P -TRUCK TRACTOR	82146HY	TN	3
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SIZE INFORMATION *(Zeros = not specified)*

LENGTH	Ft.	In.	WIDTH	Ft.	In.	HEIGHT	Ft.	In.
TOTAL LENGTH:	00070	00	TOTAL WIDTH:	00009	04	TOTAL HEIGHT.	00014	01
Veh Only Length:	00000	00	Veh Only Width:	00000	00	Veh Only Height:	00000	00

Front Overhang: 00000 00
Rear Overhang: 00000 00

LOAD INFORMATION

Load Quantity: 00001
Load Serial ID: 121506
Load Type: 67A-Combination Load General (nondivisible)
Load Description: EMPTY STEEL TANK
Guide Rail Dev #: N/A

WEIGHT INFORMATION

Gross Weight: 80000 lbs.
Legal Weight: 80000 lbs.

COMDATA

A Cardis Company

Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

Permit Must Be Accompanied By Attachment Or Not Valid

Permit Must Be Accompar By Attachment Or Not Vall

M-936P

Application Id: A502305057 Permit No: 2004-363-05-28719

PENNDOT

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

AXLES

Position	Total Weight (lbs.)	Distance from prev. axle	Vehicle only Weight (lbs.)	Position	Total Weight (lbs.)	Distance from prev. axle	Vehicle only Weight (lbs.)
1	12000	000 ft 00 in	00000	4	17000	032 ft 00 in	00000
2	17000	019 ft 06 in	00000	5	17000	005 ft 00 in	00000
3	17000	004 ft 04 in	00000				

ROUTE INFORMATION

Origin

County: MONROE State: NJ

State Route: 0080

Start Intersection: NEW JERSEY STATE LINE 0 miles from intersection

Destination

County: MERCER State: OH

State Route: 0080

End Intersection: OHIO STATE LINE 0 miles from intersection

AUTHORIZED ROUTES

Outgoing Route - Loaded

Leg	Start County	Travelling on Route	Dir	SR Miles	To Intersection
1	MONROE	SR0080	West	310.80	OHIO STATE LINE

ROUTE RESTRICTIONS - OUTGOING

Restr Code	From/To Intersection Or Bridge Label Route Analysis Restriction
8850	NOTICE: IF ANY LEGAL WEIGHT LIMIT IS EXCEEDED, THEN CONTACT DEL. RIVER BRIDGE COMMISSION, ENGR. DEPT., AT 267-790-1046, FROM 8:30 AM TO 4 PM, MONDAY FRIDAY AT LEAST 48 HOURS PRIOR TO MOVING ACROSS DELAWARE WATER GAP BRIDGE ON I-80 AT NJ LINE.

M-936P	Application Id: A502305057	Permit No: 2004-363-05-28719

PENNDOT

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

PERMIT RESTRICTIONS

Restr Code	Restriction Description
1060	NO MOVEMENT PERMITTED FROM 12 NOON ON DECEMBER 31 2004 TO 9AM ON JANUARY 3, 2005. FOR TURNPIKE RESTRICTIONS, GO TO: WWW.PATURNPIKE.COM-> "TRUCKING/COMMERCIAL > "OVER DIMENSIONAL RULES"
2040	VEHICLE MAY NOT TRAVEL ON LOCAL ROADS AND STREETS WITHOUT PRIOR APPROVAL FROM LOCAL AUTHORITIES.
6000	PRIOR TO MOVEMENT THE DRIVER(S) SHALL THOROUGHLY READ, SIGN AND DATE THIS PERMIT IN THE SPACE PROVIDED BELOW TO ACKNOWLEDGE ALL VEHICLE AND ANY LOAD DATA AS WELL AS SHIPPING DOCUMENTS AND INSURANCE ARE FULLY IN COMPLIANCE WITH THIS PERMIT.
6003	THE DRIVER SHALL CARRY THE PERMIT AND FORM M-938 IN THE PERMITTED VEHICLE. FORM M-938 IS AVAILABLE FROM: PERMIT OFFICES, PERMIT SERVICES AND PENNDOT'S WEB SITE: WWW.DOT.STATE.PA.US->SPECIAL INTEREST AREAS->PERMITS->HAULING PERMITS. FORM MUST BE LEGIBLE.
2027	UNLESS PRIOR PERMISSION HAS BEEN OBTAINED FROM THE APPROPRIATE AUTHORITY PERMITTED VEHICLE MAY NOT EXCEED ANY POSTED SIZE OR WEIGHT LIMIT, INCLUDING POSTINGS ON MOUNTED SIGNS AND ELECTRONIC VARIABLE MESSAGE SIGNS.

The driver shall carry the permit and a copy of the Department Form M-938 in the permitted vehicle.

Driver's Signature: _____ **Date:** _____

Issued By: Amar C. Bhojandas, PE
DISTRICT EXECUTIVE

Issued For: ALLEN D. BIEHLER, P.E.
SECRETARY OF TRANSPORTATION

END OF PERMIT

DEPARTMENT OF TRANSPORTATION
STATE OF OHIO
1610 West Broad Street
Columbus, OH 43223
Telephone (614) 351-2300

Forms/Attachments are available
www dot state oh.us/permits

Special Hauling Permit Issued To:
T A. G. TRANSPORT INC.
2918 ROANE STATE HIGHWAY
HARRIMAN TN 37748
(865) 882-0457
Requested by CHUCK MEAD
FEIN 621638821 ICC-MC DOT

Permit
OH04[illegible]
Issued 28-[illegible]7.11
Fax: (8[illegible]
RE-TRANSMISS[illegible]ED
OS-1A (Rev 7-99) [illegible] ATTACHED

Load. 1 EMPTY STEEL TANK

Conveyance	Loaded	Make	M/S Number

Vehicles	Make	License No	State	Empty Wt	No of Axles
Power Unit	KENW	82146HY	TN	0	3
Vehicle 2	FRUE	T516872	TN	0	2

Sizes	Length	Width	Height
Load	37 0"	11' 11"	10 10"
Power Unit	22 0"	LEGAL	LEGAL
Trailer	48 0"		
Overall	70' 0"	11 11	14 1"

All Weights Legal: Yes
Load Weight. 0
Gross Weight. LEGAL

From PA
To IN
Via 80-76-71-270-70

Comments
BE ALERT FOR OVERHEAD OBSTRUCTIONS
TRAVEL INSIDE THE COLUMBUS OUTERBELT (I-270) PROHIBITED.
Permission to travel county or township roads, local streets not part of the State Route, or the Ohio Turnpike must be obtained from the proper authorities.
All Permitted Loads Must Stop At All Weigh Stations Regardless of In-Cab Transponder Signal

Desired Effective Date 01/04/2005
Permit Effective Date From 01/04/2005- 01/08/2005
OH040231936 REV 1
Type Permit. SINGLE TRIP
Fee. $10 00
Status: Approved TECJB7 Paid By: TA

This is a valid permit issued by the Ohio Department of Transportation in accordance with Section 4513.34 Ohio Revised Code and Section 5501:2-1-1 through 5501:2-1-12 Ohio Administrative Code. Permits Limitation Provisions Form OS-1A (Rev 7-99) must be attached.

Gordon Proctor Director
Ohio Department of Transportation

Office of Maintenance Administration
Special Hauling Permit Section

*NOTE SIGNATURE AND FORM M-233 REQUIREMENTS
INDIANA DEPARTMENT OF TRANSPORTATION PERMITS

START DATE 01/05/05
EXPIR DATE 01/19/05

DATE	PERMIT NO	AMOUNT
12/28/04	2004363015039	$ 30 00

LOG # - 1228040

TYPE OF PERMIT

OVER X SIZE	OVER WEIGHT	OVERSIZE & OVERWEIGHT	MOBILE HOME 8' TO 12'4"	MOBILE HOME 12 4 TO 14'4" WIDE

MOBILE HOME ANNUAL NO-
MOBILE HOME SERIAL NO-

DESCRIPTION OF VEHICLE

TRACTOR X TRAILER	TRUCK TRAILER	SELF PROP EQUIP	AUTO TRUCK	TRAILER	OTHER

MAKE OF TRACTOR.KW	SER. NO 45566	LIC NO 82146HY ST TN	OVERALL LENGTH 70-0	OVERALL WIDTH 9-4	OVERALL HEIGHT 14-1
				GROSS WT	80,000

AXLE WTS	1	2	3	4	5	6	7	8
LOADED								
#TIRES								
SIZE								
AXLE SPACING								

DESCRIPTION OF OVERSIZE AND/OR OVERWEIGHT LOAD WHICH EXCEED THE LEGAL SIZE AND WEIGHT LIMITS AND CANNOT BE REDUCED BY METHOD OF LOADING OR DISASSEMBLY
IS 1/EMPTY STEEL TANK
FROM.OH LINE ORIGIN JCT
TO IL LINE DESTINATION JCT
VIA STATE ROADS I70-X90-I465SBML-X16-I74

MILES 168

No other routes,including detours are authorized by this permit under any condition

---

|Following special provisions apply·

THIS PERMIT VALID ONLY FOR TRANSPORTING COMMODITIES UNDER COMPANY NAME SHOWN
*THE TERMS CONDITIONS AND PROVISIONS OF FORM M-233 REV 8/92 ARE HEREBY INCORPORATED BY REFERENCE INTO THIS PERMIT AND THIS PERMIT IS NOT VALID UNLESS FORM M-233 IS ATTACHED HERETO AND THE DRIVER HAS SIGNED BELOW

DRIVER SIGNATURE IN LIEU OF SIGNATURE ON FORM M-233	T A. G TRANSPORT INC NAME OF TRANSPORTING COMPANY 2818 ROANE STATE HWYHARRIMAN	CITY/STATE TN

FAX TO T A. G TRANSPORT, HARRIMAN TN
999999
(865)882-9715
(800)325-1336

COLLECT ALL FEES LISTED

ORDERED BY FAX/CHUCK MEAD (800)325-1336 DATE-12/28/04 09 05
P*P*P*P UNIT T-2 T#674865-007 UNIT#T-2003 9223 C# 1228040

COMDATA
Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

12/27/04 15:45:58 IDOT PERMITS FAX-> 1-888-749-6858 RightFax Page 001

ILLINOIS PERMIT 5752860 ISSUED TO T A G TRANSPORT INC

ATTN T 2003 AUTHORIZES ONE MOVEMENT OF MAKE

MODEL DESC EMPTY TANK ATTACH

SERIAL NUMBER LOADED ON

AXLES WIDTH 9- 4 LENGTH. 70- HEIGHT 14- 1 GROSS WEIGHT LEGAL

FRONT TANDEM OR AXLE LEGAL NO AXLE EXCEEDS LEGAL
REAR TANDEM OR AXLE LEGAL NO AXLE EXCEEDS LEGAL

FROM INDIANA
OVER INT74-INT474-INT74 INT80

TO IOWA

PERMITTEE MUST COMPLY WITH FORM BT-993 PROVISIONS A, B AND THE FOLLOWING C.

1-5

FECTIVE 01-05 2005 EXPIRES 01-10-2005 FEE PAID $ 19 00

NOTES

TRANS FAX 800-553-3906
FOR THE DEPARTMENT DAVID JOHNSON PERMIT ENGINEER

ISO OF-720-010

Iowa Department of Transportation

Permit Issued By: Office of Motor Carrier Services
Iowa Department of Transportation
Park Fair Mall, 100 Euclid Ave.
P. O. Box 10382
Des Moines, Iowa 50306-0382
(515) 237-3264
Fax No. (515) 237-3257

(Valid For One Power Unit Only)

Permit No.: 2004-45-05801
Issue Date: 12/27/04
Issued By: Brittne
Charge Account Number: 255

Interstate Travel Authority Number:
Intrastate Travel Authority Number: PRIVATE
US DOT Number: 642202
FEIN: 62-1638621

Requested By: FAX/CHUCK MEAD
8007497164

Send To: T. A. G. TRANSPORT,
HARRIMAN TN
(865)882-9715

Single Trip 10.00

Total State Fee Collected 10.00

Valid Dates: Single Trip Permit valid for 01-05-05/01-06-05/01-07-05/01-08-05/01-09-05
Continuous

Issued To T. A. G. TRANSPORT, INC.

Address	City/State/Zip
2818 ROANE STATE HWY	HARRIMAN TN 37748

Power Unit Year & Make	Power Unit License No. & State	Registered Weight	Trailer Make	Trailer License No. & State
00 KW	82146HY TN	80,000	FRUE	T516872 TN

Object or Load	Model Number	VIN	Serial Number	S.M.E. Plate No.
1/EMPTY STEEL TANK		45586		

Overall Length	Width	Height	Total Weight	Trailer Length	Load Length	Projections
70-0	8-4	14-1	80,000	48-0	37-0	Front: 0 Rear: 0

Axle Weights	Single	Tandem	Triple	Quad	Quint	Sextet
	20,000	40,000	80,000			

Axle Spacing

Trip from IL LINE

Trip to NE LINE

Routes 80-680-29-680

General Requirements

See General Provisions For Escort Requirements For Overwidth Vechiles.
Overdimensional Signs And Flags Must Be Displayed On All Over Dimensional Loads Over 75 Feet Long Or 8 Feet 6 Inches Wide Or 14 Feet 4 Inches High.

Must carry copy of permit and general provisions dated 8-97 and comply with them.
* Speed limit: maximum posted limits unless otherwise specified on permit. Minimum 40 mph interstate.
Road must be clear of ice and snow and visibility must be at least 1/4 mile.
No movement allowed on I-235 *(Des Moines,* weekdays from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.
Necessary city and/or county permits must be obtained separately.
Hazardous materials must be transported in compliance with applicable federal regulations.

Disclosure Statement: The information furnished on this application will be used by the Department of Transportation to prepare and issue permits. All information applicable to a given permit is required and is public information. Failure to complete the application as required will result in denial of permit. Permit issuing authorities will not be responsible for any damages that are the result of the move. The State of Iowa, the Iowa Department of Transportation, and any other permit issuing authority assume no responsibility for the property of the permit holder.

From: Nebraska Department of Roads To: (800)5533906 Page: 2/2 Date: 12/27/2004 3:22:15 PM

State of Nebraska Department of Roads
Single Trip Permit
Over Dimensional Only

Carrier: T. A. C. TRANSPORT, INC. Address: 2819 ROANE STATE HIGHWAY HARRIMAN TN 37748

Truck Make: KW Year: 2000 License No.: 62146HY State: TN

Trailer Make: FRUE License No.: T516972 State: TN

Object or Load: 1/EMPTY STEEL TANK

Width: 8' 4" ft. Height: 14 1 ft. Weight: LEGAL lbs. ft. Overall Length: 70' 0" ft.

Trip From: IA To: WY

Highway Routing: I-80 W

Travel Restrictions

Provisions

LINCOLN/OMAHA TRAVEL EMBARGO:
Lincoln-State Highways:
Weekdays: 7:00 a.m. 9:00 a.m. 4:00 p.m. - 6:00 p.m. Saturday/Sunday: After 12:00 Noon
Omaha-State Highways and Interstate:
Weekdays: 7:00 a.m. - 9:00 a.m. 4:00 p.m. - 6:00 p.m. Saturday/Sunday: After 12:00 Noon

Permittee is responsible for the accuracy and legibility of this permit.

Permittee is subject to all provisions stipulated by rules and law; permit is subject to revocation upon noncompliance.

The granting of a permit does not waive any liability or responsibility of the permittee which might accrue for any property damage, including damage to the highways, or for personal injuries.

Permit travel is prohibited if any of the following adverse or inclement weather conditions exist:
* Winds cause a hazard to movement.
* Visibility is less than one-half mile.
* Rain, sleet or snow.
Highway surfaces are slippery due to ice, snow, packed snow, slush or frost.
* Debris from an accident, natural disaster, or emergency on the highway.
Wet pavement, light drizzle, or wind less than 25 miles per hour are not considered inclement weather for purposes of permit movement. If adverse weather or road conditions are encountered during operation, the permitted vehicle must proceed to the next available safe place off the roadway and park until conditions improve. Nebraska State patrol Officers or local law enforcement officers or Nebraska Department of Roads personnel may further restrict or prohibit operation of permitted vehicles during periods, when, in their judgment, weather or other hazardous conditions make continued operation unsafe.

Travel is allowed from 30 minutes before sunrise to 30 minutes after sunset, 7 days a week, unless otherwise stated on this permit.

A local permit may be required for moves on county or city roads. Permittee is responsible for contacting local authorities.

Permittee must bypass any and all clearances that are less than the above listed dimensions. The permittee shall assume the risk of loss to the vehicle or its load and shall be liable for any damages that result to overhead obstructions from operation of a vehicle exceeding 12'6" in height.

Under no circumstances shall permittee bypass any scale site that is open.

Permittee acknowledges that the vehicle or load cannot be dismantled or reduced in size or weight without great difficulty to meet the statutory size and/or weight limits.

Permittee agrees to hold harmless the State of Nebraska, its agents/employees, contractors and subcontractors from all suits, damages, or proceedings of any kind and to indemnify the State of Nebraska, its agents/employees, contractors and subcontractors for any claims it may be required to pay arising from the permitted move.

Permittee agrees to hold harmless the State of Nebraska, its agents/employees, contractors and subcontractors from all suits, damages, or proceedings of any kind arising from fraudulent use of the user's login/password regarding escrow transactions or unauthorized request for overweight/overdimensional permit.

Valid Dates of Permits: 01/05/2005 01/14/2005

Issued On: 12/27/2004

Permit Fees: $ 10.00 Cash ___ Chk ___ CCrd ___ Adv X Permit Officer: MAIPS Permit

Contact Person: POLINA FaxNo.: (800) 553-3906

Additional Provisions:

Permit No.71193

COMDATA

PERMIT ACCURACY
RESPONSIBILITY OF

State of Nebraska Department of Roads
Single Trip Permit
Over Dimensional Only

Under no circumstances shall permittee bypass any scale site that is open.

Permittee acknowledges that the vehicle or load cannot be dismantled or reduced in size or weight without great difficulty to meet the statutory size and/or weight limits.

Permittee agrees to hold harmless the State of Nebraska, its agents/employees, contractors and subcontractors from all suits, damages, or proceedings of any kind and to indemnify the State of Nebraska, its agents/employees, contractors and subcontractors for any claims it may be required to pay arising from the permitted move.

Permittee agrees to hold harmless the State of Nebraska, its agents/employees, contractors and subcontractors from all suits, damages, or proceedings of any kind arising from fraudulent use of the user's login/password regarding escrow transactions or unauthorized request for overweight/overdimensional permit.

Valid Dates of Permits: 01/05/2005-01/14/2005

Issued On: 12/27/2004

Permit Fees: $ 10.00 Csh ___ Chk ___ CCrd ___ Adv X Permit Officer: NATPS Permit

Contact Person: POLINA FaxNo.: (800) 553-3906

Additional Provisions:

UTAH DEPARTMENT OF TRANSPORTATION
Ports of Entry

No. 427002305

COMBINED TRANSPORTATION AND TAX COMMISSION PERMIT
4501 South 2700 West
Salt Lake City, UT 84119-5998
(801) 965-4508

Company: TRANSCEIVER
Send To: 800-553-3906

OVERSIZE PERMIT

Starts: 01/06/05 **Direction:** Statewide **Expires:** 01/10/05
Load Type: Non-Divisible
Type of Permit: Single Trip 96 Hours
Veh. Yr & Make: 0 KENWORTH **Plate:** 82146HY **State:** TN **Unit** T2003
Company Name: T A G TRANSPORT INC **Reg. Wt..** 80,000
and Address: 18212 HWY 70 EAST **VIN:** 1XKWDB9X4YJ845566
ROCKWOOD, TN 37854
USDOT Number: 0501456

SIZE:	Front Overhang	Rear Overhang	Width	Length	Height
			9'4"	70'	14'1"

Load: EMPTY STEEL TANK **From:** WY I80 **To:** CLIVE

ROUTING:
WY LINE -180 W/B - I84 W/B US89 S/B I15 S/B I215 W/B I80 W/B - EX 49.

RESTRICTIONS:
1) See Utah Regulations for Legal & Permitted Vehicles for bridging, flagging, lighting, sign and pilot/escort vehicle restrictions. (Internet Page- http://www.udot.utah.gov)
2) Prohibited during hours of darkness on vehicles / loads in excess of 10' W 14 'H, 92' L (OAL), 10' front or rear overhang.
3) Prohibited 7 major holidays.
4) Prohibited from 6 a.m. to 9 a.m. and 3:30 p.m. to 6:00 p.m. Monday through Friday in the following counties: Box Elder· All hwys.south of Exit 357-I15 (Perry); Weber, Davis, Salt Lake-Utah County· All hwys.north of SR75- Exit 265-I15 (Ironton)&SR68 MP 16

The permit holder or authorized agent acknowledges that he/she has read and understands all the laws and regulations governing the use of this permit. Violation of any of these laws or regulations shall result in immediate revocation, and the permit shall be surrendered to any peace officer.

SIGNATURE OF PERMIT HOLDER OR AUTHORIZED AGENT:

DISTRICT VALIDATION:

Officer: Hammon, J.
Badge: 048 Station: 98

Issued: 12/27/04 at 14:28 Utah Fees: $25.00

SINGLE TRIP PERMIT IS VOID UPON LEAVING THE STATE. SEE REVERSE SIDE FOR TERMS AND CONDITIONS.

.549 Ports of Entry 7-95

COMDATA Transceiver

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

UTAH DEPARTMENT OF TRANSPORTATION
Ports of Entry

No. 427002305

COMBINED TRANSPORTATION AND TAX COMMISSION PERMIT
4501 South 2700 West
Salt Lake City, UT 84119-5998
(801) 965-4508

Company: TRANSCEIVER
Send To: 800-553-3906

OVERSIZE PERMIT

Starts: 01/06/05 **Direction:** Statewide **Expires:** 01/10/05
Load Type: Non-Divisible
Type of Permit: Single Trip 96 Hours
Veh. Yr & Make: 0 KENWORTH **Plate:** 82146HY **State:** TN **Unit** T2003
Company Name and Address: T A G TRANSPORT INC, 18212 HWY 70 EAST, ROCKWOOD, TN 37854 **Reg. Wt.:** 80,000 **VIN:** 1XKWDB9X4YJ845566
USDOT Number: 0501456

SIZE:	Front Overhang	Rear Overhang	Width	Length	Height
			9'4"	70'	14'1

Load: EMPTY STEEL TANK **From:** WY I80 **To:** CLIVE

ROUTING:
WY LINE -I80 W/B - I84 W/B US89 S/B I15 S/B I215 W/B I80 W/B EX 49.

RESTRICTIONS:
1) See Utah Regulations for Legal & Permitted Vehicles for bridging, flagging, lighting, sign and pilot/escort vehicle restrictions. (Internet Page- http://www.udot.utah.gov)
2) Prohibited during hours of darkness on vehicles / loads in excess of 10' W, 14 'H, 92' L (OAL), 10' front or rear overhang.
3) Prohibited 7 major holidays.
4) Prohibited from 6 a.m. to 9 a.m. and 3:30 p.m. to 6:00 p.m. Monday through Friday in the following counties: Box Elder- All hwys.south of Exit 357-I15 (Perry); Weber, Davis, Salt Lake-Utah County- All hwys.north of SR75- Exit 265-I15 (Ironton)&SR68 MP 16

The permit holder or authorized agent acknowledges that he/she has read and understands all the laws and regulations governing the use of this permit. Violation of any of these laws or regulations shall result in immediate revocation, and the permit shall be surrendered to any peace officer.

SIGNATURE OF PERMIT HOLDER OR AUTHORIZED AGENT:

DISTRICT VALIDATION:

Officer: Hammon, J.
Badge: 048 Station: 98

T-548 Ports of Entry 7-95

Issued: 12/27/04 at 14:28 **Utah Fees:** $25.00

SINGLE TRIP PERMIT IS VOID UPON LEAVING THE STATE. SEE REVERSE SIDE FOR TERMS AND CONDITIONS.

COMDATA Transceiver

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 615-868-9110

ORGANIZATION: First Response, Inc.

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☑ YES ☐ NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST =====>: 2

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number =====> ☐ YES ☑ NO

EPA MANIFEST NUMBER:

5. SHIPPER – NAME AND FACILITY
U.S. DOE c/o Brookhaven National Lab.
Fifth Avenue
Bldg.960
Upton, NY 11973

SHIPPER I.D. NUMBER: 9011-14-0002
☐ COLLECTOR
☐ PROCESSOR

Utah Generator Site Access Permit No.: 0112001235
SHIPMENT NUMBER: W-9011-14-0002
☑ GENERATOR TYPE (Specify) O

CONTACT: Melinda B. Soest
TELEPHONE NUMBER (Include Area Code): 865-712-8337

6. CARRIER – Name and Address
TAG Transport
2818 Roane State Highway
Harriman, TN 37748

EPA I.D. NUMBER: TNR000003111
SHIPPING DATE: 01/04/2005

CONTACT: Chuck Mead
TELEPHONE (Include Area Code): 865-882-0457

SIGNATURE – *Authorized carrier acknowledging waste receipt*
DATE:

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 2 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 9011-14-0002

9. CONSIGNEE - Name and Facility
Envirocare of Utah, Inc.
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving
TELEPHONE (Include Area Code): (435)884-0155

SIGNATURE – *Authorized consignee acknowledging waste receipt*
DATE:

10. CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE | TITLE | DATE

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	1	Solid	Am-241	Co-60	Cs-137	H-3	5.3646E+03	1.4499E+02	LSA-II	5500 LBS; 1200 FT3	TANK A-1
				Pu-239	Ra-226	Sr-90	U-234					
				U-235	U-238							
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	1	Solid	Am-241	Co-60	Cs-137	H-3	5.9611E+03	1.6111E+02	LSA-II	5500 LBS; 1200 FT3	TANK B-3
				Pu-239	Ra-226	Sr-90	U-234					
				U-235	U-238							

FOR CONSIGNEE USE ONLY

____ Record Waste Description Inadequate
____ Contamination or Leakage Detected
____ Unexpected Exposure Rates Detected
____ Labels, Markings, etc. Inadequate
____ Container Integrity Inadequate
____ Other
____ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material __ is (or) * is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST,) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters

FORM 540 (04-03)

FORM 541 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
2	m3 67.9604	kg 4989.5164	NP	2.3130E+01	1.6460E-01	2.3296E+01
	ft3 2400.0000	ton 5.5000		2 Containers	2 Containers	

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)	
MBq	1.1326E+04	1.2469E+02	NP	NP	NP	(kg)	NA
mCi	3.0610E+02	3.3700E+00	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER: 9011-14-0002

3. PAGE 1 OF 2 PAGE

4. SHIPPER NAME: U.S. DOE c/o Brookhaven Nationa Lab.

SHIPMENT ID NUMBER: 9011-14-0002

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) / (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT — RADIONUCLIDES	pCi/gm	MBq	mCi	16. W CLA- CA AS-C St AU-C Uns B-Cl C-Cl
TANK A-1/BNL-9011-14	19 OTHER.	33.9802	2494.7582	1.0000E-01	<3.3400E-07	<1.6700E-05	59-SOLID,OTHER.-H	33.9802	100 100	OXIDE/NP	NP	Am-241	7.99000E+00	1.8130E+01	4.9000E-01	A
												Co-60	1.24000E+00	2.8120E+01	7.6000E-01	
		1200.0000	2.7500	1.0000E+01	<2.0000E+01	<1.0000E+03		1200.0000				Cs-137	1.21000E+02	2.7417E+03	7.4100E+01	
												H-3	2.58000E-05	5.8480E+01	1.5800E+00	
												Pu-239 [8.0700E-02 g]	8.20000E+01	1.8611E+02	5.0300E+00	
												Ra-226	1.63000E-02	3.7000E-01	1.0000E-02	
												Sr-90	1.02000E+02	2.3273E+03	6.2900E+01	
												U-234 [6.4300E-03 g]	6.52000E-02	1.4800E+00	4.0000E-02	
												U-235 [1.8500E+01 g]	6.52000E-02	1.4800E+00	4.0000E-02	
												U-238 [1.2300E+02 g]	1.48000E-06	1.4800E+00	4.0000E-02	
												Subtotal		5.3646E+03	1.4499E+02	
												Total		5.3646E+03	1.4499E+02	
												SNM [1.8581E+01 g]				
TANK B-3/BNL-9011-14	19 OTHER.	33.9802	2494.7582	4.5000E-01	<3.3400E-07	<1.6700E-05	59-SOLID,OTHER.-H	33.9802	100 100	OXIDE/NP	NP	Am-241	8.64000E+00	1.9610E+01	5.3000E-01	A
												Co-60	1.42000E+00	3.2190E+01	8.7000E-01	
												Co-60	1.42000E+00	3.2190E+01	8.7000E-01	
		1200.0000	2.7500	4.5000E+01	<2.0000E+01	<1.0000E+03		1200.0000				Cs-137	1.41000E+02	3.1931E+03	8.6300E+01	
												H-3	2.92000E-05	6.6230E+01	1.7900E+00	
												Pu-239 [8.3800E-02 g]	8.52000E+01	1.9351E+02	5.2300E+00	
												Ra-226	1.63000E-02	3.7000E-01	1.0000E-02	
												Sr-90	1.07000E+01	2.4198E+03	6.5400E+01	
												U-234 [8.0400E-03 g]	8.15000E-02	1.8500E+00	5.0000E-02	
												U-235 [4.6300E+00 g]	1.63000E-02	3.7000E-01	1.0000E-02	
												U-238 [1.5400E+02 g]	8.15000E-02	1.8500E+00	5.0000E-02	
												Subtotal		5.9611E+03	1.6111E+02	
												Total		5.9611E+03	1.6111E+02	

Note 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6. or additional page

Note 1A: Bulk Packaging Description Codes. (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-Dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in Item 11, or additional page

NOTE 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal structural stability requirements, the numerical code must be follow by "-S." and the media vendor and brand name must also be identif

in Item 13. Code 100=NONE REQUIRED.

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required

FORM 541 (04-03)

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

Envirocare of Utah, Inc.

2. MANIFEST NUMBER 9011-14-0002

3. PAGE 2 OF 2 PAGE(S)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER								
							PHYSICAL DESCRIPTION			14 CHEMICAL DESCRIPTION		15 RADIOLOGICAL DESCRIPTION			
5 CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6 CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7 VOLUME (m3) / (ft3)	8 WASTE AND CONTAINER WEIGHT (kg) / (ton)	9 SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10 SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	11 WASTE DESCRIPTOR (See Note 2 & Note 2A)	12 APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13 SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0 1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL, OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT				16 WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
												RADIONUCLIDES	pCi/gm	MBq	mCi	
												SNM [4.7139E+00 g]				
Shipment Totals		67.9604 / 2400.0000	4589.5164 / 5.5000									SNM [2.3295E+01 g]		1.1326E+04	3.0610E+02	

FORM 541A (04-03)

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0002
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	(mCi)
Am-241	3.7740E+01	1.0200E+00
Co-60	9.2500E+01	2.5000E+00
Cs-137	5.9348E+03	1.6040E+02
H-3	1.2469E+02	3.3700E+00
Pu-239	3.7962E+02	1.0260E+01
Ra-226	7.4000E-01	2.0000E-02
Sr-90	4.7471E+03	1.2830E+02
U-234	3.3300E+00	9.0000E-02
U-235	1.8500E+00	5.0000E-02
U-238	3.3300E+00	9.0000E-02

BNL RADIOLOGICAL SURVEY FORM FOR OPEN TRANSPORT VEHICLE

Tractor # T9703 Trailer # 14803 Date: 12/21/04 (mm-dd-yy) Time: 1300

☐ Incoming
☒ Outgoing

MODEL	Tennelec	Rado	Lud 3	Lud 12	N/A	N/A
SERIAL#	42212	3002	44196	105565		
Cal Due Date	11-8-05	10-21-05	11-4-05	3-8-05		
Source Check Results	P	P	P	P		

Contamination (dpm/100cm²)

Dose Rate (Highest Reading)		Alpha	Beta / Gamma	Tritium
In Cab / Sleeper	2.2	<20	<1000	N/A
External Surface	45	<20	<1000	N/A
The 2 Meter Reading	1	N/A	N/A	N/A

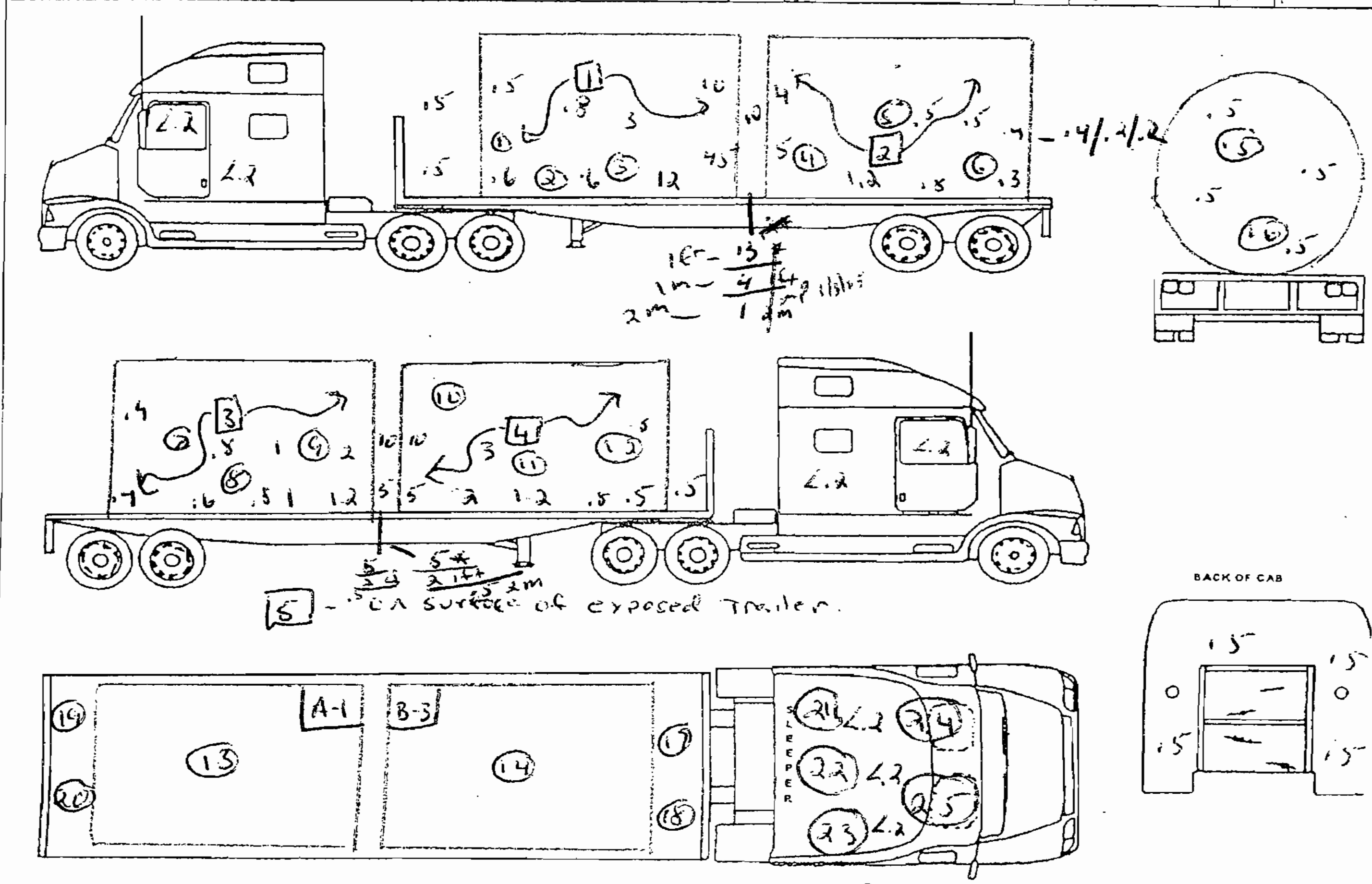
LEGEND:
◯ Smear Survey Results with indicting number
☐ Masslinn Survey Result with indicating number

XXX Y / ZZZ — Y = Radiation Type; ZZZ = Reading @ *2 meters*

☒ All Dose Rates are in mR / hr.
☒ See Attachment for smear survey results
☒ Masslinn Wipes < 1000 dpm / LAS ~~Beta/Gamma~~ – Alpha – ~~Tritium~~ (indicate)

Smear survey Locations / Results (dpm/100cm²) Beta/Gamma – Alpha – Tritium - (indicate on drawing)							
1	See	8.	Attached	15.	Survey	22.	
2	↓	9.	↓	16.	↓	23.	↓
3		10.		17.		24.	
4		11.		18.		25.	
5		12.		19.		26.	N/A
6		13.		20.		27.	
7		14.		21.	CAB	28.	

Masslinn Survey Results in (dpm / LAS)			
1.	<1000	8.	N/A
2.	↓	9.	
3.		10.	
4.		11.	
5.		12.	
6.	N/A	13.	
7.		14.	



21-25 T/S CAB

Surveyed By: M. Plonski (Signature) 12/20/04 (Date) Reviewed By: Cheryl Burns (Signature) 1/3/05 (Date)

File Code HP51SR

12/18/2004
4:38:04PM

Activity Report

SHIPPING SURVEY A-1 B-3

Batch Name:	285	**Acquisition Date:**	12/18/2(
tch ID:	1 MINUTE SMEAR - 200412181612	**Acquisition Time: (minutes)**	1.0
Group:	A		
Device:	ERD Series IV	**Operating Voltage: (volts)**	1,320.0

Selected Geometry: 1/8" Stainless Steel

Efficiency Factors

Alpha Efficiency: (%)	0.31	±	0.00	**Beta Efficiency: (%)**	0.20	±	0.00

Sample ID	Quantity	Alpha Activity (DPM)	2σ	Alpha MDA (DPM)	Beta Activity (DPM)	2σ	Beta MDA (DPM)
20041218161237-A1	0.00	-0.97	0.79	14.52	-1.63	10.19	32.06
20041218161407-A2	0.00	-0.97	0.79	14.54	8.23	17.27	32.06
20041218161527-A3	0.00	-0.97	0.79	14.54	8.23	17.27	32.06
20041218161637-A4	0.00	-0.96	0.79	14.51	-6.56	2.56	32.06
20041218161757-A5	0.00	-0.97	0.79	14.52	-1.63	10.19	32.06
20041218161908-A6	0.00	-0.97	0.79	14.52	-1.63	10.19	32.06
`0041218162028-A7	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
.41218162138-A8	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218162258-A9	0.00	-0.98	0.79	14.55	18.09	22.20	32.06
20041218162408-A10	0.00	2.26	6.49	14.51	-6.87	2.64	32.51
20041218162528-A11	0.00	-0.97	0.79	14.52	-1.63	10.19	32.06
20041218162638-A12	0.00	-0.97	0.79	14.52	-1.63	10.19	32.06
20041218162758-A13	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218162908-A14	0.00	-0.97	0.79	14.52	-1.63	10.19	32.06
20041218163028-A15	0.00	-0.96	0.79	14.51	-6.56	2.56	32.06
20041218163138-A16	0.00	-0.97	0.79	14.54	8.23	17.27	32.06
20041218163258-A17	0.00	-0.97	0.79	14.53	3.30	14.18	32.06
20041218163408-A18	0.00	2.25	6.49	14.53	2.99	14.19	32.51
20041218163528-A19	0.00	-0.97	0.79	14.52	-1.63	10.19	32.06
20041218163638-A20	0.00	-0.97	0.79	14.53	3.30	14.18	32.06

Reviewed by: Cheryl Burns

Activity Report

811 TRUCK CABS

Batch Name:	13,882	**Acquisition Date:**	1/3/05
Batch ID:	1 Minute Smear Analysis - 200501031320	**Acquisition Time: (minutes)**	1.0
Group:	E		
Device:	S5 XLB	**Operating Voltage: (volts)**	1,380.0
Selected Geometry:	1/8" Stainless Steel		

Efficiency Factors

Alpha Efficiency: (%)	0.27	±	0.00	**Beta Efficiency: (%)**	0.18	±	0.00

Sample ID	Quantity	Alpha (DPM)	2σ	Alpha MDA (DPM)	Beta Activity (DPM)	2σ	Beta MDA (DPM)
20050103132028-E1	0.00	-0.63	0.68	15.10	5.74	16.37	34.72
20050103132159-E2	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103132319-E3	0.00	-0.77	0.73	15.10	17.17	23.01	34.72
20050103132439-E4	0.00	[illegible]	0.67	15.10	0.02	11.72	34.72
20050103132549-E5	0.00	2.85	7.57	15.10	28.46	28.12	34.72
20050103132709-E6	0.00	-0.77	[illegible]	15.10	17.17	23.01	34.72
20050103132819-E7	0.00	-0.77	0.73	15.10	17.17	23.01	34.72
20050103132939-E8	0.00	-0.63	0.68	15.10	5.74	16.37	34.72
20050103133049-E9	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133209-E10	0.00	-0.63	0.68	15.10	5.74	16.37	34.72
20050103133329-E11	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133439-E12	0.00	-0.77	0.73	15.10	17.17	23.01	34.72
20050103133559-E13	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133709-E14	0.00	-0.70	0.70	15.10	11.46	19.97	34.72
20050103133829-E15	0.00	3.20	7.56	15.10	-0.12	11.72	34.72

Reviewed by: Cheryl Burns

Memo

To: TAG Transport, Inc.

From: Melinda B. Soest

CC: WESKEM LLC.

Date: January 4, 2005

Re: Contact Info

Goethals Bridge Notification: (718) 390-2502

Please contact bridge authority upon arrival @ holding area for police escort.

Shipper Notification: Cell (865) 712-8337 or (865) 712-8401 Office (631) 344-2423

2X daily contact from each driver to report on status of loads.

BROOKHAVEN NATIONAL LAB ENVIROCARE OF UTAH

Account #: 43362	COMDATA TRANSCEIVER SERVICES OVERSIZE/WEIGHT FAX-IN PERMIT APPLICATION	Workorder #	121504
P.O.#:		Order Date:	12/27/04
Ordered By: CHUCK MEAD		Time:	08:30
Phone #: 800-325-1336	**T. A. G. FAX # 865-882-9715**	Operator:	~~GARY KINDRICK~~ [illegible handwriting]

Bill To:	T. A. G. TRANSPORT, INC.	Issued To:	T.A.G. TRANSPORT
Address:	2818 ROANE STATE HWY	Address:	2818 ROANE STATE HWY
City, State, Zip:	HARRIMAN, TN 37748	City, State, Zip:	HARRIMAN,TN 37748
Trip Origin:	**UPTON,NY**	Trip Destination:	**CLIVE,UT**

STATE	ROUTE	EFFECTIVE DATE
✓ NY	5TH AVE/RAILROAD AVE.- RAILROAD AVE.(S)-BROOKHAVEN AVE.(W)-UPTON BLVD.(S)-I-495(W)	01/03/05
✓ NYC	~~I-495 - I-295 - THROGS NECK BRIDGE - I-295 - I-695 - I-95~~ Route Changed	01/03/05
~~NYTH~~	~~I-95 - I-287~~	01/04/05
✓ NJ	I-287 - I-80	01/04/05
✓ PA	I-80(W)	01/04/05
✓ OH	I-80 - I-76 - I-77 - I-277 - I-76 - I-71 - I-270 - I-70	01/04/05
✓ IN	I-70 - I-465 - I-74	01/05/05
✓ IL	I-74 - I-474 - I-74 - I-80	01/05/05
✓ IA	I-80 - I-680	01/05/05
✓ NE	I-80	01/05/05
✓ UT	I-80 - I-84 - I-15 - I-215 - I-80 - EXIT 49 ACCESS RD.	01/06/05
		/ /

Load Description:	EMPTY STEEL TANK			Make:		Model:		Serial #	
Load Length:	37-0	Height:	10-11	Width:	9-4	Weight:	45000	Registered Weight:	80000
Overall Length:	70-0	Height:	13-11	Width:	9-4	Weight:	80000		

Trct Unit:	T-9703	Year:	1997	Make:	KENW	Serial #:	34846	Lic. #:	82167HY	St.:	TN	# Axles:	3
Trct Length:		Trct Width:		Trct Height		Trct Empty Weight							
Trlr Unit:	14803	Year:	2001	Make:	FRUEHAUF	Serial #:	93436	Lic. #:	T674370	St:	TN	# Axles:	2
Trlr Length:	48	Trlr Width	8-0	Trlr Height:	3-0	Trlr Empty Weight							
Front Overhang:	N/A	Rear Overhang:	N/A	# Additional Vehicles:	N/A								
If Overweight:													

Axle Spacing 1-2:	19-6	2-3:	4-4	3-4:	32-0	4-5:	10-0	5-6:	N/A	6-7:	N/A	7-8:	
Axle Weights 1:	12000	2:	17000	3:	17000	4:	17000	5:	17000	6:		7:	8:

Tire Size Tractor: 11RX24.5	Tire Size Trailer: 11RX24.5
Send Permit To:865-882-9715	Truck Stop Code:F43362

Special Comments:**USDOT #: 642202, FED ID #: 62-1638821, ICC/MC #: 304079, IN ACCT. CODE: 53050M (PAYING BY COMCHECK)**

Please fax back to 631-344-2423

MTA Bridges and Tunnels
Verrazano Narrows Bridge

One Verrazano Bridge Plaza
Staten Island, NY 10305
Phone: (718) 390-8409
FAX: (718) 390-8812

OVERSIZE / OVERWEIGHT VEHICLE PERMIT APPLICATION

DATE OF REQUEST: 1/3/05

REQUEST MADE BY (Company): Tibbs Transport, Inc.

Contact Person: Chuck Meade

Address: 2819 Roane State Highway Harriman, TN 37748

Phone Number: (865)882-0457 Fax Permit to: (865-882-9715 / 631-344-2423

DATE OF TRAVEL: 1/3/05 TIME OF TRAVEL: (Must be btw. 10:00 p.m. & 5:00 a.m.) 2:00 am

DIRECTION OF TRAVEL: (Eastbound or Westbound) West bound

Truck Towing Vehicle Lic. No: 82167 NY State: TN Trailer Lic. No: T674370

Description of Load: Empty School Trucks

☐ Overweight vehicle

Total Gross Weight: 80,000 Pounds. Number of axles OF AXLES: 5

Axle #:	Steering	2	3	4	5	6	7	8	9	10	11
Axle Weights (22,400 lb max)	12000	17000	17000	17000	17000						
Axle Spacing (4' min.)	19-6		4-4	32-0	10-0						

☒ Oversize vehicle

VEHICLE DIMENSIONS: Overall Width 9-4 Overall Length 70 Overall Height 13-11

On the basis of the above stated loading conditions and or dimensions this vehicle may cross the Verrazano Narrows Bridge, subject to all New York State, New York City, and TBTA rules and regulations, and special instructions listed below (if any).

For official use only

Approved by: [signature]
Verrazano Narrows Bridge Operations.

Date: 1/3/04

Special Instructions: PERMIT NOT REQUIRED
FROM VN, ONLY DOT
PERMIT REQUIRED

Revised 3/13/02

12/27/04
04:35PM

183

STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION
SPECIAL HAULING PERMIT

AFTER VALIDATION THIS PERMIT AUTHORIZES MOVEMENT ONLY ON HIGHWAYS UNDER THE JURISDICTION OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION OF A VEHICLE OR COMBINATION OF VEHICLES THE DIMENSIONS AND/OR WEIGHTS OF WHICH EXCEED THOSE SPECIFIED IN ARTICLE 10 SECTION385 OF THE VEHICLE AND TRAFFIC LAW. BY ACCEPTING THIS PERMIT, PERMITEE AGREES TO CONTACT AND SECURE PERMISSION TO OPERATE PERMIT VEHICLE FROM ANY AUTHORITIES HAVING PERMIT ISSUE JURISDICTION OF ANY ROUTES OTHER THAN THOSE ROUTES UNDER THE JURISDICTION OF THE STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION. ALL MOVES MUST CONFORM WITH PART 194-1 TITLE 17 OF THE NEW YORK COMPILATION CODES, RULES AND REGULATIONS. BY ACCEPTING THIS PERMIT, PERMITTEE CERTIFIES THAT THIS PERMITTED VEHICLE IS PROPERLY CONSTRUCTED TO SAFELY CARRY THE PERMITTED LOAD AND THAT THE PERMITTED VEHICLE IS IN CONFORMANCE WITH ALL NEW YORK STATE LAWS.

574701-001 **PERMIT INVALID IF ALL PROVISIONS OF THE PERMIT ARE NOT ADHERED TO**

PERMIT ACCOUNT NO:	PERMIT EFFECTIVE DATE
38398	FROM: 01/03/05
APPLICATION NO: 28 8	TO: 01/07/05

OVERALL	FEET	INCHES	OVERALL	FEET	INCHES
LENGTH	70	0	HEIGHT	13	11
WIDTH	9	4	OVERHANG		

LOAD DESCRIPTION: MAKE, MODEL, SERIAL No. or B.H.L OF LADING No.
0000 1 EMPTY STEEL TANK

X X

GROSS WEIGHT: 80,000 — FRONT 0 — REAR 0

FEIN / SS No. 62-1838821 — PERMIT TYPE: 1

MOTOR CARRIER'S NAME AND ADDRESS
T. A. G. TRANSPORT, INC.
918 ROANE STATE HWY
HARRIMAN TN 37748
USDOT# 642202

VEHICLE	ST / JUR	REGISTRATION OR VEHICLE ID	NO OF AXLES	REGD GVW
POWER UNIT	TN	82167HY	3	80,000
TRAILER	TN	TE74370	2	

IF ROUTING IS INCORRECT, DO YOU WANT THE STATE TO CORRECT FOR AN ADDITIONAL FEE? YES ____ NO X

AXLE NO.	STEER AXLE	2	3	4	5	6	7	8	9	10	11
AXLE WTS	12,000	17,000	17,000	17,000	17,000						
MFG TIRE	12000	17000	17000	17000	17000						
AXLE SPACINGS FEET(') / INCHES(")		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11
		19-6	4-4	32-0	10-0						

SPECIFIC ADDRESS OF TRIP ORIGIN: UPTON, NY 5TH AVE/RAILROAD AVE

SPECIFIC ADDRESS OF TRIP DESTINATION: NYC LINE

ROUTING:
SEE ROUTE SHEET

FOR OFFICIAL USE ONLY

DATE AND TIME RECD: 12/28 7:57

PERMIT PREVIOUSLY REJECTED AS RESULT OF ERROR BY: TRANSMISSION CO. ____ STATE ____

STATE FEE: ING: $4.00 TOTAL: $44.00

THIS PERMIT NOT VALID ON NYS THRUWAY

GENERAL RESTRICTIONS: X
No Travel 7-9 am and 4-6 pm for vehicles exceeding the size shown below in the area described:
Wider than 10 ft. and/or longer than 72 ft. in Binghamton
Wider than 10 ft. and/or longer than 86 ft. within a 10 mile radius of Syracuse
Wider than 11 ft. in the cities of Hudson, Kingston, Newburgh and Poughkeepsie
Wider than 12 ft. in the cities of Utica and Amsterdam (Contact police prior to move)
Wider than 13 ft. in Albany and Rensselaer Counties on Route 87, 90 and 787
18" x 18" minimum, red or orange fluorescent flags on staffs at extremities of vehicle/load required on all overdimensional loads. Warning signs and appropriate lights are required on permitted load.

VALIDATION

SPECIAL REQUIREMENTS INDICATED BY X:

2004 DEC 28 AM 8:37(2)

PERMIT NO. 051854

D X C ___ W ___

Initials SRS

Time Approved 8:25

___ Certified escort vehicle to precede on two lane highways
___ Lead escort vehicle to have proper height pole attached
___ Certified escort vehicle to follow on highways of more than two lanes
___ Third certified escort required: Front ___ Rear ___
___ Police escort required on _____, contact police 48 hours prior to move
X No travel business districts 7-9 am & 4-6 pm
___ No travel in New York State 7-9 am & 4-6 pm
___ Cross no "R" posted structures
___ Cross all "R" posted structures at less than 5 miles per hour
___ Cross all non-interstate structures at less than 5 miles per hour
___ Thruway permit required
___ Night move allowed
___ Continuous travel authorized
___ Night travel authorized: Nassau & Suffolk counties only, notify police prior to move
___ Saturday move allowed until 12 noon
___ See attached - Page ___ of ___
X Other

NO WEEKEND TRAVEL

MAXIMUM SPEED 55MPH

County & Local Permit May Be Required

NYC Permit Required If Traveling NYC Routes

COMDATA

A Deutsche Company

Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

TAG TRANSPORT

PAGE 2 OF 3

LOG# 28-8

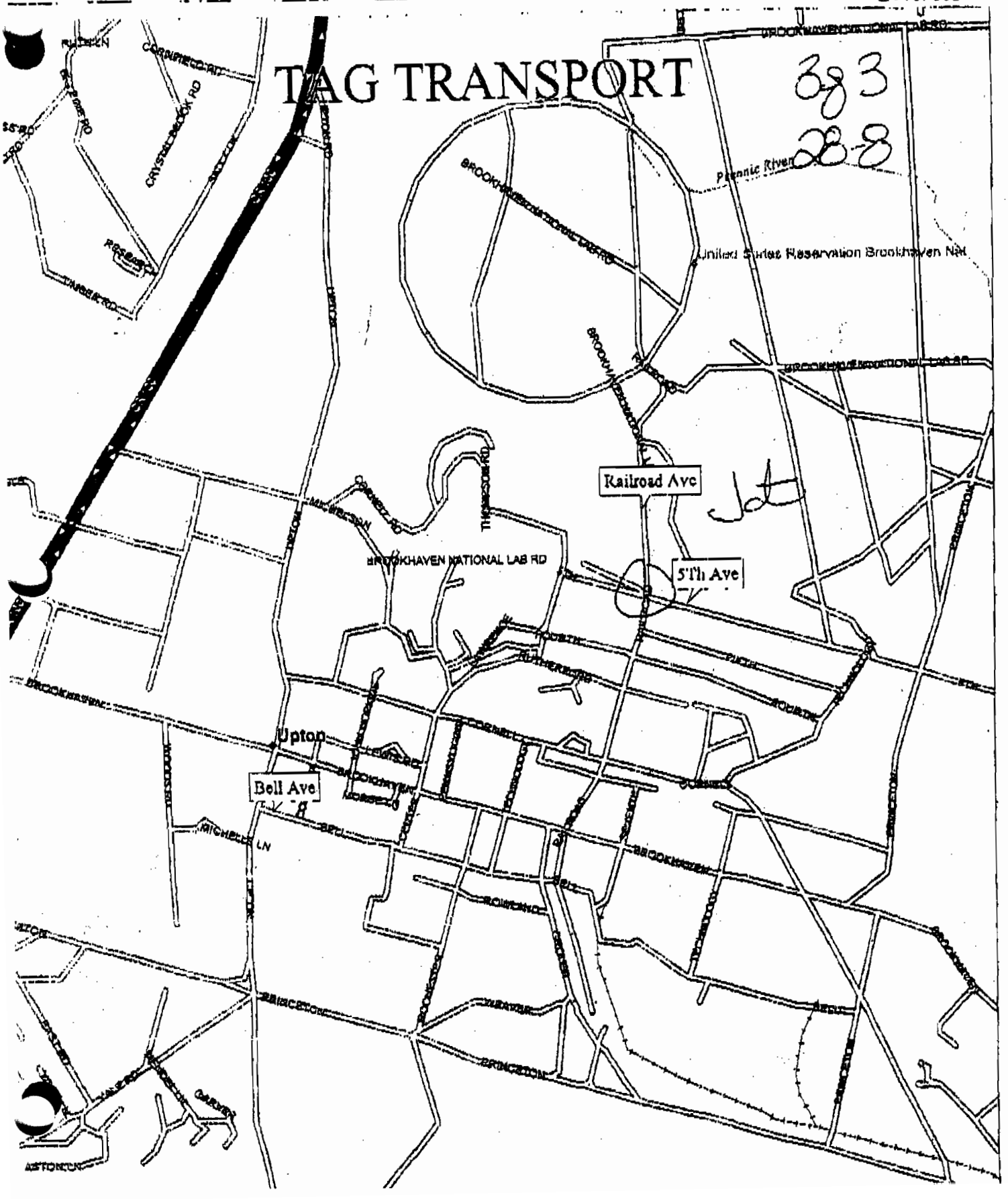
ROUTES:

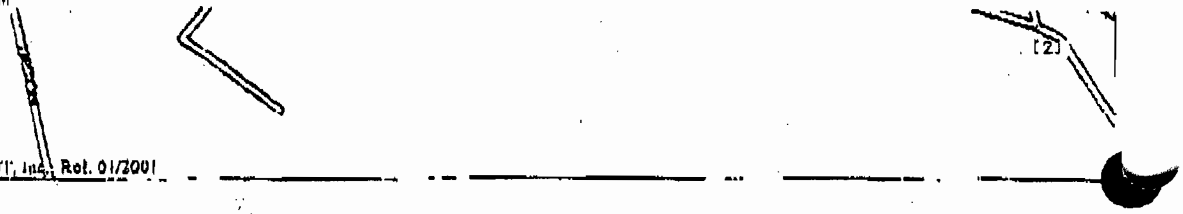
[RAILROAD AVE S], [BROOKHAVEN AVE W], [UPTON BLVD S], [PRINCETON AVE W], [LONGWOOD RD W], [SMITH RD N], SR25(W), SR347(W), SR454(W), SR25(W), [OLD COUNTRY RD S], [MINEOLA BLVD N], SR25(W)

051854

TAG TRANSPORT

393
28-8





051854

NEW YORK CITY
DEPARTMENT OF TRANSPORTATION
D.O.T.BRIDGES/TRUCK UNIT
PERMIT FOR OVER DIMENSIONAL LOAD VEHICLE

DATE ISSUED: 12/28/2004

PERMIT #: M08-2004363-026

RECORDED PERMIT/
LOG #.....: CT2805
TOTAL FEE: $****25.00

ROUTE:
RT. 25-JAMAICA-BRADDOCK-HILLSIDE-QUEENS BLVD-GRAND AVE-FLUSHING-NASSAU ST-GOLD-TILLARY-FLATBUSH-3RDAVE-HAMILTON-U TURN AT 2ND AVE-HAMILTON-3RD AVE-60TH ST-FORT HAMILTON-7TH AVE-92ND ST-I278-WHEN CROSSING VERRAZANO NARROWS BRIDGE, USE TOLL LANE #22 AND UPPER LEVEL-I278-NARROWS ROAD SOUTH-LITTLE CLOVE-I278
STARTING POINT: NASSAU-RT. 25
ENDING POINT: NJ-OUTERBRI9DGE CROSSING

RED WARNING FLAGS MUST BE DISPLAYED ON THE FRONT AND EXTREME END OF ALL OVERSIZE VEHICLES. SUCH FLAGS SHALL BE AT LEAST 24 INCHES SQUARE.

ALL WORK MUST ADHERE TO THE FOLLOWING STIPULATIONS: 160 168 171

162 OVZ	OVERSIZE V NIGHT TIME TRAVEL 10PM TO 5:30AM
168 OVZ	VEHICLES OVER 11 FEET WIDE OR 65 FEET LONG MUST HAVE A REAR ESCORT VEHICLE -EQUIPPED WITH 'OVERSIZED LOAD' SIGNS
171 OVZ	VEHICLES OVER 13 FEET 6 INCHES HIGH AND/ OR 14 FEET WIDE AND /OR 80 FEET LONG,MUST HAVE A WARNING SIGN AND TWO STEADY YELLOW LIGHTS ATTACHED TO THE REAR OFTHE LOAD

PERMISSION TO OPERATE AN OVERSIZE OR OVERWEIGHT VEHICLE SUBJECT TO THE POSTED HEIGHT, WEIGHT RESTRICTIONS, ROUTING, VEHICLE DESCRIPTION, SPECIAL INSTRUCTIONS, AND DATE OF TRAVEL INDICATED ON THIS PERMIT IS HEREBY GRANTED TO:

PERMIT TYPE: 0804
PERMITTEE NAME: TAG TRANSPORT PTEE #: 20523
CONTACT COMPANY NAME: COMDATA TRANSCEIVER NETWORK CONTACT #: 03000
TRACTOR LICENSE#: 82167HX TRAILER LICENSE#: T674370
WIDTH:FT 9 IN 4 LENGTH:FT 70 IN 0 HEIGHT:FT 13 IN 11 WEIGHT: 80000
VALID FROM: DATE: 01/03/2005 TO: DATE: 01/04/2005
TIME: 22:00 TIME: 05:30

APPLICATION/PERMIT APPROVED BY

SUPERVISOR, TRUCK PERMIT PROGRAM

COMDATA
Transceiver
All Fees Prepaid

NEW JERSEY MOTOR VEHICLE SERVICES - MOTOR CARRIERS UNIT

225 EAST STATE STREET 4-W (PO 133) TRENTON, NJ 08666-0133
PHONES: VOICE (609) 633-9400 FAX (609) 943-5214

MUST BE COMPLETED BY WIRE SERVICE: X Check if Number 1 of Special Conditions apply. Check if Number 2 of Special Conditions apply.

C# 1227049 T. A. G. TRANSPORT, HARRIMAN TN (865)882-9715 | TRANSCEIVER (800)325-1336

T#674701-004 Ord by - FAX/CHUCK MEAD

STATE OF NEW JERSEY SINGLE TRIP PERMIT

INFORMATION ENTERED ON THIS PERMIT MUST BE TYPED ALL WEIGHTS IN LBS AND DIMENSIONS IN FEET AND INCHES | **Date:** 12/27/04 03:30PM

Name: T. A. G. TRANSPORT, INC.				**Dot Number:**	642202
Address: 2818 ROANE STATE HWY				**Phone:**	PHONE (800)325-1336
City: HARRIMAN		**State:** TN		**Zip:**	37748
Truck Reg.: 82167HY	**State:** TN	**Trailer Reg.:** T674370		**State:**	TN
Overall Width: 9-4		**Overall Height:** 13-11			
Overall Length: 70-0	**Trailer Length:** 48-0	**Load Length:** 37-0			
Starting Point (If Entering NJ Enter Route): NY LINE					287
Destination (If Exiting NJ Enter Route): PA LINE					80

Transporting (If Housetrailer Include Year, Make & Serial Number):
EMPTY STEEL TANK

Date(s) of Move: 01/04/05 OR 01/05/05 OR 01/06/05 **Number of Escorts:**

AXLE CONFIGURATION AND WEIGHTS (If "Other" enter type of axle)

Front Axle	X Single	Tan	Tri	Quad	Other:	Lbs.
Drive Axle	Single	T Tan	Tri	Quad	Other:	Lbs.
Trailer Axle	Single	Tan	Y Tri	Quad	Other:	Lbs.
Add'l Axle	Single	Tan	Tri	Quad	Other:	Lbs.
Add'l Axle	☐ Single	☐ Tan	☐ Tri	☐ Quad	☐ Other:	Lbs.
Add'l Axle	☐ Single	☐ Tan	☐ Tri	☐ Quad	☐ Other:	Lbs.
Add'l Axle	☐ Single	☐ Tan	☐ Tri	☐ Quad	☐ Other:	Lbs.
TOTAL OVERALL GROSS WEIGHT (should equal total of all axle weights) →						Lbs. 80,000

SPECIAL CONDITIONS/REQUIREMENTS

1. Permits are NOT VALID for use on the Garden State Parkway or Atlantic City Expressway. Oversize vehicles are PROHIBITED from the New Jersey Turnpike toll section. Access onto the I-95 section of the New Jersey Turnpike between Ridgefield, NJ and the George Washington Bridge (mile post 116 to 122) is obtainable only with permission from the New Jersey Turnpike Authority. Phones: Voice (732) 247-0900 Extension 5420 and Fax (732) 247-3612.
2. Vehicles traveling I-95 to New York via George Washington Bridge MUST CONTACT Patrick C. Kennedy Traffic Safety Officer of the Port Authority of New York/New Jersey prior to arrival - Phone: Voice (201) 242-6116.
3. Weather And/Or Road Conditions Permitting
4. If Over 14 Feet High – Provision 39:4-28 Applies
5. Oversize Moves NOT Permitted After 12:00 Noon On Saturdays or All Day Sunday
6. One Escort Vehicle Required If Over 14 Feet Wide And/Or Over 100 Feet Long
7. Two Escort Vehicles Required If Over 16 Feet Wide And/Or Over 120 Feet Long

[redacted]

If checked see attachment(s) for routing and/or special conditions. | **INSURANCE ?** X Yes ☐ No

BASE FEE:	10	.00
EXCESS FEE:		.00

EXCESS FEE:		.00
TOTAL FEE:		.00
PERMIT NUMBERS		
141608		
W =	D =	

NOT VALID UNLESS STAMPED WITH SEAL OF NEW JERSEY AND DIRECTOR'S SIGNATURE

MC-105 (R2/03)

COMDATA

Transceiver
All Fees Prepaid

PERMIT ACCURACY
RESPONSIBILITY OF
DRIVER

M-936P

Application Id: A502305145 Permit No: 2004-363-05-28720

PENNDOT

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

MOTOR CARRIER NAME AND ADDRESS

TAG TRANSPORT INC
2818 ROANE STATE HIGHWAY
HARRIMAN TN 37748

PERMIT

Permit Office: 05 - 0 **Permit Type:** SINGLE TRIP
Date Issued: 12/28/2004
Time Issued: 12:22 PM **Account Name:** 31 TRANSCEIVER UNITED INC

MOVE INFORMATION

Move Begins: 12/30/2004 **SPC Code:** VMAR **Total Fees:** 26.00
Move Ends: 01/05/2005 **Meet PSP Date:** N/A **Total Miles:** 311
Move #: N/A
Meet PSP At: N/A
NATL Park Service Approval #: N/A

POWER AND DRAWN UNITS

Unit #	Equipment Type	Registration/VIN	State	# of Axles
1	P -TRUCK TRACTOR	82167HY	TN	3
2	D -SEMITRAILER	T674370	TN	2

SIZE INFORMATION *(Zeros = not specified)*

LENGTH	Ft.	In.	WIDTH	Ft.	In.	HEIGHT	Ft.	In.
TOTAL LENGTH:	00070	00	TOTAL WIDTH:	00009	04	TOTAL HEIGHT:	00013	11
Veh Only Length:	00000	00	Veh Only Width:	00000	00	Veh Only Height:	00000	00

Front Overhang: 00000 00 **Rear Overhang:** 00000 00

LOAD INFORMATION

Load Quantity: 00001 **Load Serial ID:** 121505
Load Type: 67A-Combination - Load - General (nondivisible)
Load Description: STEEL TANK (EMPTY)
Guide Rail Dev #: N/A

WEIGHT INFORMATION

Gross Weight: 80000 lbs. **Legal Weight:** 80000 lbs.

COMDATA

A Corsair Company

Transceiver
All Fees Prepaid

PERMIT ACCURACY
RESPONSIBILITY OF
DRIVER

Permit Must Be Accompanied
By Attachment Or Not Valid

Permit Must Be Accomp
By Attachment Or Not Va

M-936P

Application Id: A502305145 Permit No: 2004-363-05-28720

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

AXLES

Position	Total Weight (lbs.)	Distance from prev. axle	Vehicle only Weight (lbs.)	Position	Total Weight (lbs.)	Distance from prev. axle	Vehicle only Weight (lbs.)
1	12000	000 ft 00 in	00000	4	17000	032 ft 00 in	00000
2	17000	019 ft 06 in	00000	5	17000	010 ft 00 in	00000
3	17000	004 ft 04 in	00000				

ROUTE INFORMATION

Origin

County: MONROE **State:** NJ

State Route: 0080

Start Intersection: NEW JERSEY STATE LINE 0 miles from intersection

Destination

County: MERCER **State:** OH

State Route: 0080

End Intersection: OHIO STATE LINE 0 miles from intersection

AUTHORIZED ROUTES

Outgoing Route - Loaded

Leg	Start County	Travelling on Route	Dir	SR Miles	To Intersection
1	MONROE	SR0080	West	310.80	OHIO STATE LINE

ROUTE RESTRICTIONS - OUTGOING

Restr Code	From/To Intersection Or Bridge Label Route Analysis Restriction
8850	NOTICE: IF ANY LEGAL WEIGHT LIMIT IS EXCEEDED, THEN CONTACT DEL. RIVER BRIDGE COMMISSION, ENGR. DEPT., AT 267-790-1046, FROM 8:30 AM TO 4 PM, MONDAY - FRIDAY AT LEAST 48 HOURS PRIOR TO MOVING ACROSS DELAWARE WATER GAP BRIDGE ON I-80 AT NJ LINE.

M-936P

Application Id: A502305145 Permit No: 2004-363-05-28720

PENNDOT

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

PERMIT RESTRICTIONS

Restr Code	Restriction Description
1060	NO MOVEMENT PERMITTED FROM 12 NOON ON DECEMBER 31, 2004 TO 9AM ON JANUARY 3, 2005. FOR TURNPIKE RESTRICTIONS, GO TO: WWW.PATURNPIKE.COM-> "TRUCKING/COMMERCIAL"-> "OVER DIMENSIONAL RULES".
2040	VEHICLE MAY NOT TRAVEL ON LOCAL ROADS AND STREETS WITHOUT PRIOR APPROVAL FROM LOCAL AUTHORITIES.
6000	PRIOR TO MOVEMENT, THE DRIVER(S) SHALL THOROUGHLY READ, SIGN AND DATE THIS PERMIT IN THE SPACE PROVIDED BELOW TO ACKNOWLEDGE ALL VEHICLE AND ANY LOAD DATA AS WELL AS SHIPPING DOCUMENTS AND INSURANCE ARE FULLY IN COMPLIANCE WITH THIS PERMIT.
6003	THE DRIVER SHALL CARRY THE PERMIT AND FORM M-938 IN THE PERMITTED VEHICLE. FORM M-938 IS AVAILABLE FROM: PERMIT OFFICES, PERMIT SERVICES AND PENNDOT'S WEB SITE: WWW.DOT.STATE.PA.US->SPECIAL INTEREST AREAS->PERMITS->HAULING PERMITS. FORM MUST BE LEGIBLE.
2027	UNLESS PRIOR PERMISSION HAS BEEN OBTAINED FROM THE APPROPRIATE AUTHORITY, PERMITTED VEHICLE MAY NOT EXCEED ANY POSTED SIZE OR WEIGHT LIMIT, INCLUDING POSTINGS ON MOUNTED SIGNS AND ELECTRONIC VARIABLE MESSAGE SIGNS.

The driver shall carry the permit and a copy of the Department Form M-938 in the permitted vehicle.

Driver's Signature: _____ **Date:** _____

Issued By: Amar C. Bhojandas, PE
DISTRICT EXECUTIVE

Issued For: ALLEN D. BIEHLER, P.E.
SECRETARY OF TRANSPORTATION

END OF PERMIT

DEPARTMENT OF TRANSPORTATION
STATE OF OHIO
...10 West Broad Street
...olumbus, OH 43223
...elephone: (614) 351-2300

Forms/Attachments are available
www.dot.state.oh.us/permits

Special Hauling Permit Issued To:
T. A. G. TRANSPORT INC.
2818 ROANE STATE HIGHWAY
HARRIMAN **TN 37748**
(865) 882-0457
Requested by:CHUCK MEAD
FEIN:621638821 ICC-MC: DOT:

Permit
OH040...
Issued 27-...3:37
Fax: (86...
RE-TRANSMISS...
OS-1A (Rev 7-99) ...ATTACHED

Load: **1 EMPTY STEEL TANK**
Conveyance: Loaded Make: M/S Number:

Vehicles	Make	License No.	State	Empty Wt	No. of Axles
Power Unit	KENW	82167HY	TN	0	3
Vehicle 2	FRUE	T674370	TN	0	3

Sizes	Length	Width	Height
Load	37' 0"	11' 11"	10' 10"
Power Unit	22' 0"	LEGAL	LEGAL
Trailer	48' 0"		
Overall	70' 0"	11' 11"	13' 11"

All Weights Legal: Yes
Load Weight: 0
Gross Weight: LEGAL

From **PA**
To **IN**
Via **80-76-77-277-76-71-270-70**

...mments
...AVEL INSIDE THE COLUMBUS OUTERBELT (I-270) PROHIBITED.
Permission to travel county or township roads, local streets not part of the State Route, or the Ohio Turnpike must be obtained from the proper authorities.
All Permitted Loads Must Stop At All Weigh Stations Regardless of In-Cab Transponder Signal.

Desired Effective Date: 01/04/2005
Permit Effective Date: **From 01/04/2005- 01/08/2005**
OH040231867 REV 1
Type Permit: SINGLE TRIP
Fee: $10.00
Status: **Approved** TECRJ Paid By: TA

This is a valid permit issued by the Ohio Department of Transportation in accordance with Section 4513.34 Ohio Revised Code and Section 5501:2-1-1 through 5501:2-1-12 Ohio Administrative Code. Permits Limitation Provisions Form OS-1A (Rev 7-99) must be attached.

Gordon Proctor, Director
Ohio Department of Transportation

Office of Maintenance Administration
Special Hauling Permit Section

*NOTE: SIGNATURE AND FORM M-233 REQUIREMENTS
INDIANA DEPARTMENT OF TRANSPORTATION PERMITS

START DATE....01/05/05
EXPIR.DATE....01/19/05

DATE	PERMIT NO.	AMOUNT
12/28/04	2004363015036	$ 30.00

LOG # - 1228037

TYPE OF PERMIT:
OVER X SIZE | OVER WEIGHT | OVERSIZE & OVERWEIGHT | MOBILE HOME 8' TO 12'4" | MOBILE HOME 12'4 TO 14'4" WIDE
MOBILE HOME ANNUAL NO- MOBILE HOME SERIAL NO-

DESCRIPTION OF VEHICLE:
TRACTOR X TRAILER | TRUCK TRAILER | SELF PROP. EQUIP | AUTO TRUCK | TRAILER | OTHER

MAKE OF TRACTOR:KW SER. NO:34846 LIC NO:82167HY ST:TN

OVERALL LENGTH	OVERALL WIDTH	OVERALL HEIGHT
70-0	9-4	13-11

GROSS WT. 80,000

AXLE WTS	1	2	3	4	5	6	7	8
LOADED								
#TIRES								
SIZE								
AXLE SPACING								

DESCRIPTION OF OVERSIZE AND/OR OVERWEIGHT LOAD WHICH EXCEED THE LEGAL SIZE AND WEIGHT LIMITS AND CANNOT BE REDUCED BY METHOD OF LOADING OR DISASSEMBLY IS: 1/EMPTY STEEL TANK

FROM:OH LINE ORIGIN JCT:
TO: IL LINE DESTINATION JCT:
STATE ROADS:I70-X90-I465SBML-X16-I74

MILES : 168

No other routes,including detours,are authorized by this permit under any condition

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|Following special provisions apply:

THIS PERMIT VALID ONLY FOR TRANSPORTING COMMODITIES UNDER COMPANY NAME SHOWN
*THE TERMS,CONDITIONS AND PROVISIONS OF FORM M-233 REV. 8/92 ARE HEREBY INCORPORATED BY REFERENCE INTO THIS PERMIT AND THIS PERMIT IS NOT VALID UNLESS FORM M-233 IS ATTACHED HERETO AND THE DRIVER HAS SIGNED BELOW.

DRIVER SIGNATURE IN LIEU OF SIGNATURE ON FORM M-233	T. A. G. TRANSPORT, INC. NAME OF TRANSPORTING COMPANY 2818 ROANE STATE HWY	HARRIMAN CITY/STATE TN

FAX TO T. A. G. TRANSPORT, HARRIMAN TN
999999
(865)882-9715
(800)325-1336

COLLECT ALL FEES LISTED

ORDERED BY: FAX/CHUCK MEAD (800)325-1336 DATE-12/28/04 09:04
P*P*P*P UNIT T-9 T#674701-007 UNIT#T-9703 9223 C# 1228037

COMDATA
Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

NOIS PERMIT 5752380 ISSUED TO T. A. G. TRANSPORT, INC.

ATTN: T-9703 AUTHORIZES ONE MOVEMENT OF: MAKE

MODEL DESC EMPTY TANK ATTACH

SERIAL NUMBER LOADED ON

AXLES: WIDTH: 9- 4 LENGTH: 70- HEIGHT: 14- GROSS WEIGHT: LEGAL

FRONT TANDEM OR AXLE: LEGAL , NO AXLE EXCEEDS: LEGAL
REAR TANDEM OR AXLE: LEGAL , NO AXLE EXCEEDS: LEGAL

FROM INDIANA
VIA INT74-INT474-INT74-INT80

TO IOWA

PERMITTEE MUST COMPLY WITH FORM BT-993 PROVISIONS A, B, AND THE FOLLOWING C:

1-5

EFFECTIVE: 01-05-2005 EXPIRES: 01-10-2005 FEE PAID: $ 19.00

TRANS: FAX 800-553-3906
FOR THE DEPARTMENT: DAVID JOHNSON, PERMIT ENGINEER

ISO OF-720-010

Iowa Department of Transportation

(Valid For One Power Unit Only)

Permit No.: 2004-03-05198
Issue Date: 12/27/04
Issued By: Larry
Charge Account Number: 255

Permit Issued By: Office of Motor Carrier Services
Iowa Department of Transportation
Park Fair Mall, 100 Euclid Ave.
P. O. Box 10382
Des Moines, Iowa 50306-0382
(515) 237-3264
Fax No. (515) 237-3257

Requested By: FAX/CHUCK MEAD
6007497164

Send To: T. A. G. TRANSPORT,
HARRIMAN TN
(865)882-9715

Interstate Travel Authority Number:
Intrastate Travel Authority Number: PRIVATE
US DOT Number: 642202
FEIN: 62-1638821

Single Trip 10.00

Total State Fee Collected 10.00

Valid Dates: Single Trip Permit valid for 01-06-05/01-06-05/01-07-05/01-06-05/01-09-05
Continuous -

Issued To T. A. G. TRANSPORT, INC.

Address	City/State/Zip
2819 ROANE STATE HWY	HARRIMAN TN 37748

Power Unit Year & Make	Power Unit License No. & State	Registered Weight	Trailer Make	Trailer License No. & State
97 KW	82167HY TN	80,000	FRUE	T674370 TN

Object or Load	Model Number	VIN	Serial Number	S.M.E. Plate No.
1/EMPTY STEEL TANK		34848		

Overall Length	Width	Height	Total Weight	Trailer Length	Load Length	Projections
70-0	8-4	13-11	80,000	48-0	37-0	Front: 0 Rear: 0

Axle Weights	Single	Tandem	Triple	Quad	Quint	Sextet
	20,000	40,000	80,000			

Axle Spacing

Trip from IL LINE

Trip to NE LINE

Routes 80-680

General Requirements

See General Provisions For Escort Requirements For Overwidth Vachiles.
Overdimensional Signs And Flags Must Be Displayed On All Over Dimensional Loads Over 75 Feet Long Or 8 Feet 6 Inches Wide Or 14 Feet 4 Inches High.

* Must carry copy of permit and general provisions dated 8-97 and comply with them.
* Speed limit: maximum posted limits unless otherwise specified on permit. Minimum 40 mph interstate.
* Road must be clear of ice and snow and visibility must be at least 1/4 mile.
* No movement allowed on I-235 *(Des Moines,* weekdays from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.
* Necessary city and/or county permits must be obtained separately.
* Hazardous materials must be transported in compliance with applicable federal regulations.

Disclosure Statement: The information furnished on this application will be used by the Department of Transportation to prepare and issue permits. All information applicable to a given permit is required and is public information. Failure to complete the application as required will result in denial of permit. Permit issuing authorities will not be responsible for any damages that are the result of the move. The State of Iowa, the Iowa Department of Transportation, and any other permit issuing authority assume no responsibility for the property of the permit holder.

State of Nebraska Department of Roads
Single Trip Permit
Over Dimensional Only

er: T. A. O. TRANSPORT, INC Address: 2818 ROANE STATE HIGHWAY HARRIMAN TN 37748

Truck Make: KW Year: 1997 License No.: 82167HY State: TN

Trailer Make: FRUE License No.: T674370 State: TN

Object or Load: 1/EMPTY STEEL TANK

Width: 9' 4" ft. Height: 13' 11" ft. Weight: LEGAL lbs. ft. Overall Length: 70' 0" ft.

Trip From: IA LINE To: WY LINE

Highway Routing: I-80 W

Travel Restrictions

Provisions

LINCOLN/OMAHA TRAVEL EMBARGO:
Lincoln–State Highways:
Weekdays: 7:00 a.m. – 9:00 a.m. 4:00 p.m. – 6:00 p.m. Saturday/Sunday: After 12:00 Noon
Omaha–State Highways and Interstate:
Weekdays: 7:00 a.m. – 9:00 a.m. 4:00 p.m. – 6:00 p.m. Saturday/Sunday: After 12:00 Noon

- Permittee is responsible for the accuracy and legibility of this permit.
- Permittee is subject to all provisions stipulated by rules and law; permit is subject to revocation upon noncompliance.
- The granting of a permit does not waive any liability or responsibility of the permittee which might accrue for any property damage, including damage to the highways, or for personal injuries.

Permit travel is prohibited if any of the following adverse or inclement weather conditions exist:
* Winds cause a hazard to movement.
* Visibility is less than one–half mile.
* ...in, sleet or snow.
* ...hway surfaces are slippery due to ice, snow, packed snow, slush or frost.
* ...ons from an accident, natural disaster, or emergency on the highway.
...t pavement, light drizzle, or wind less than 25 miles per hour are not considered inclement weather for purposes of permit movement. If adverse weather or road conditions are encountered during operation, the permitted vehicle must proceed to the next available safe place off the roadway and park until conditions improve. Nebraska State patrol Officers or local law enforcement officers or Nebraska Department of Roads personnel may further restrict or prohibit operation of permitted vehicles during periods, when, in their judgment, weather or other hazardous conditions make continued operation unsafe.

- Travel is allowed from 30 minutes before sunrise to 30 minutes after sunset, 7 days a week, unless otherwise stated on this permit.
- A local permit may be required for moves on county or city roads. Permittee is responsible for contacting local authorities.
- Permittee must bypass any and all clearances that are less than the above listed dimensions. The permittee shall assume the risk of loss to the vehicle or its load and shall be liable for any damages that result to overhead obstructions from operation of a vehicle exceeding 12'6" in height.
- Under no circumstances shall permittee bypass any scale site that is open.
- Permittee acknowledges that the vehicle or load cannot be dismantled or reduced in size or weight without great difficulty to meet the statutory size and/or weight limits.
- Permittee agrees to hold harmless the State of Nebraska, its agents/employees, contractors and subcontractors from all suits, damages, or proceedings of any kind and to indemnify the State of Nebraska, its agents/employees, contractors and subcontractors for any claims it may be required to pay arising from the permitted move.

Permittee agrees to hold harmless the State of Nebraska, its agents/employees, contractors and subcontractors from all suits, damages, or proceedings of any kind arising from fraudulent use of the user's login/password regarding escrow transactions or unauthorized request for overweight/overdimensional permit.

Valid Dates of Permit: 01/06/2005 01/15/2005

Issued On: 12/27/2004

Permit Fees: $ 10.00 Cash ___ Chk ___ CCrd ___ Adv X Permit Officer: NATIS Permit

Contact Person: KATHY FaxNo.: (800) 553-3906

...nal Provisions:

Permit No.71177 Page 1 of 1

COMDATA PERMIT ACCURACY

UTAH DEPARTMENT OF TRANSPORTATION
Ports of Entry

No. 427002304

COMBINED TRANSPORTATION AND TAX COMMISSION PERMIT
4501 South 2700 West
Salt Lake City, UT 84119-5998
(801) 965-4508

OVERSIZE PERMIT

Starts: 01/06/05 **Direction:** Statewide **Expires:** 01/10/05
Load Type: Non-Divisible
Type of Permit: Single Trip 96 Hours
Veh. Yr. & Make: 97 KENWORTH **Plate:** 82167HY **State:** TN **Unit :** T-9703
Company Name: T A G TRANSPORT INC **Reg. Wt.:** 80,000
and Address: 18212 HWY 70 EAST **VIN:** 1XKWDB9X9VJ734846
ROCKWOOD, TN 37854
USDOT Number: 0501456

SIZE:	Front Overhang	Rear Overhang	Width	Length	Height
			9'4"	70'	13'11"

Load: EMPTY STEEL TANK **From:** WY I80 **To:** CLIVE

ROUTING:
WY LINE - I80 W/B - I84 W/B - US89 S/B - I15 S/B - I215 W/B - I80 W/B - EX49

RESTRICTIONS:
1) See Utah Regulations for Legal & Permitted Vehicles for bridging, flagging, lighting, sign and pilot/escort vehicle restrictions. (Internet Page- http://www.udot.utah.gov)

COMDATA
A Division Company
Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

The permit holder or authorized agent acknowledges that he/she has read and understands all the laws and regulations governing the use of this permit. Violation of any of these laws or regulations shall result in immediate revocation, and the permit shall be surrendered to any peace officer.

SIGNATURE OF PERMIT HOLDER OR AUTHORIZED AGENT:

DISTRICT VALIDATION:

Officer: Mikohl Minkler
Badge: CD4 **Station:** 27

Issued: 12/27/04 at 14:03 **Utah Fees:** $25.00

SINGLE TRIP PERMIT IS VOID UPON LEAVING THE STATE. SEE REVERSE SIDE FOR TERMS AND CONDITIONS.

Form S of Entry 1-95

FORM 540 — **Envirocare of Utah, Inc.**

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1 EMERGENCY TELEPHONE NUMBER *(Include Area Code)*: 615-888-9110

ORGANIZATION: First Response, Inc.

2 IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☑ YES ☐ NO

3 TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 2

4 DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "Yes," provide Manifest Number =====>

EPA MANIFEST NUMBER

5. SHIPPER – NAME AND FACILITY
U.S. DOE c/o Brookhaven National Lab.
Fifth Avenue
Bldg.860
Upton, NY 11973

Utah Generator Site Access Permit No: 0112001235

SHIPMENT NUMBER: W-9011-14-0003

CONTACT: Melinda B. Soest

TELEPHONE NUMBER (Include Area Code): 865-712-8337

6 CARRIER – Name and Address
TAG Transport
2818 Roane State Highway
Harriman, TN 37748

EPA I D NUMBER: TNR000003111

SHIPPING DATE: 01/04/2005

CONTACT: Chuck Mead

TELEPHONE (Include Area Code): 865-882-0457

SIGNATURE – *Authorized carrier acknowledging waste receipt*

DATE

SHIPPER I.D NUMBER: 9011-14-0003

☐ COLLECTOR

☐ PROCESSOR

☑ GENERATOR TYPE

(Specify) G

7 FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 2 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER
(Use this number on all continuation pages)
9011-14-0003

9. CONSIGNEE - Name and Facility
Envirocare of Utah, Inc.
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

TELEPHONE (Include Area Code): (435)884-0155

SIGNATURE – *Authorized consignee acknowledging waste receipt*

DATE

10 CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations

AUTHORIZED SIGNATURE | TITLE | DATE

11 U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16 TOTAL PACKAGE ACTIVITY MBq	16 TOTAL PACKAGE ACTIVITY mCi	17 LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19 IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	20	Solid	Am-241	Co-60	Cs-137	H-3	1.1369E+04	3.0727E+02	LSA-II	6500 LBS; 1200 FT3	TANK A-3
				Pu-239	Ra-226	Sr-90	U-234					
				U-235	U-238							
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	15	Solid	Am-241	Co-60	Cs-137	Pu-239	1.1193E+04	3.0251E+02	LSA-II	6500 LBS; 1200 FT3	TANK B-1
				Ra-226	Sr-90	U-234	U-235					
				U-238								

FOR CONSIGNEE USE ONLY

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
___ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material __ is (or) • is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1

B. TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah Inc.'s facility license

D. INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST.) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters

FORM 540 (04-03)

FORM 541 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
2	m3 67.9604	kg 4989.5164	NP	3.7000E+01	2.3000E-01	3.7230E+01
	ft3 2400.0000	ton 5.5000		2 Containers	2 Containers	

ACTIVITY	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)	
MBq	2.2562E+04	1.4171E+02	NP	NP	NP	(kg)	NA
mCi	6.0978E+02	3.8300E+00	NP	NP	NP	(tons)	NA

2. MANIFEST NUMBER: 9011-14-0003

3. PAGE 1 OF 2 PAGE

4. SHIPPER NAME: U.S. DOE c/o Brookhaven National Lab.

SHIPMENT ID NUMBER: 9011-14-0003

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) / (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT — RADIONUCLIDES	pCi/gm	MBq	mCi
TANK A-3/BNL-9011-14	19 OTHER.	33.9802	2494.7582	2.5000E+00	<3.3400E-07	<1.6700E-05	59-SOLID,OTHER.-H	33.9802	100 100	OXIDE/NP	NP	Am-241	1.48000E+01	3.3670E+01	9.1000E-01
												Co-60	3.10000E+00	7.0300E+01	1.9000E+00
		1200.0000	2.7500	2.5000E+02	<2.0000E+01	<1.0000E+03		1200.0000				Cs-137	3.33000E+02	7.5480E+03	2.0400E+02
												H-3	6.24000E-05	1.4171E+02	3.8300E+00
												Pu-239 [1.1500E-01 g]	1.17000E+02	2.6603E+02	7.1900E+00
												Ra-226	6.52000E-02	1.4800E+00	4.0000E-02
												Sr-90	1.45000E+01	3.3004E+03	8.9200E+01
												U-234 [1.2900E-02 g]	1.30000E-01	2.9600E+00	8.0000E-02
												U-235 [1.8500E+01 g]	6.52000E-02	1.4800E+00	4.0000E-02
												U-238 [2.4700E+02 g]	1.30000E-01	2.9600E+00	8.0000E-02
												Subtotal		1.1369E+04	3.0727E+02
												Total		1.1369E+04	3.0727E+02
												SNM [1.8615E+01 g]			
TANK B-1/BNL-9011-14	19 OTHER.	33.9802	2494.7582	3.0000E+00	<3.3400E-07	<1.6700E-05	59-SOLID,OTHER.-H	33.9802	100 100	OXIDE/NP	NP	Am-241	1.48000E+01	3.3670E+01	9.1000E-01
												Co-60	3.08000E+00	6.9930E+01	1.8900E+00
		1200.0000	2.7500	3.0000E+02	<2.0000E+01	<1.0000E+03		1200.0000				Cs-137	3.31000E+02	7.5110E+03	2.0300E+02
												Pu-239 [1.1500E-01 g]	1.17000E+02	2.6529E+02	7.1700E+00
												Ra-226	6.52000E-02	1.4800E+00	4.0000E-02
												Sr-90	1.46000E+01	3.3041E+03	8.9300E+01
												U-234 [1.2900E-02 g]	1.30000E-01	2.9600E+00	8.0000E-02
												U-235 [1.8500E+01 g]	1.30000E-01	1.4800E+00	4.0000E-02
												U-238 [2.4700E+02 g]	1.30000E-01	2.9600E+00	8.0000E-02
												Subtotal		1.1193E+04	3.0251E+02
												Total		1.1193E+04	3.0251E+02
												SNM [1.8815E+01 g]			

Note 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethlene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page

Note 1A: Bulk Packaging Description Codes. (Choose one code as may be applicable.)

A Gondola
B Intermodal
C End-Dump
D Roll-off
E Seavan

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/ Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in Item 11, or additional page

NOTE 2A: Specific Waste Descriptions (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal structural stability requirements, the numerical code must be follow by "-S." and the media vendor and brand name must also be identif

In Item 13, Code 100=NONE REQUIRED.

Solidification
90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional page
100. None Required.

FORM 541 (04-03)

FORM 541A

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

Envirocare of Utah, Inc.

2. MANIFEST NUMBER 9011-14-0003

3. PAGE 2 OF 2 PAGE(

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER						16 W CLA: CA AS-C St AU-C Uns B-Cl C-Cl
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15 RADIOLOGICAL DESCRIPTION	
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) / (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) / (ton)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) / (dpm/100cm2) ALPHA	BETA-GAMMA	11 WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) / (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT	
												RADIONUCLIDES	pCi/gm	MBq	mCi
Shipment Totals		**67.9604**	**4999.5164**									**SNM [3.7230E+01 g]**		**2.2562E+04**	**6.0978E+02**
		2400.0000	**5.5000**												

FORM 541A (04-03)

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
ISOTOPES REPORT

For Manifest # 9011-14-0003
Envirocare of Utah, Inc.

Isotope	Total Activity (MBq)	Total Activity (mCi)
Am-241	6.7340E+01	1.8200E+00
Co-60	1.4023E+02	3.7900E+00
Cs-137	1.5059E+04	4.0700E+02
H-3	1.4171E+02	3.8300E+00
Pu-239	5.3132E+02	1.4360E+01
Ra-226	2.9600E+00	8.0000E-02
Sr-90	6.6045E+03	1.7850E+02
U-234	5.9200E+00	1.6000E-01
U-235	2.9600E+00	8.0000E-02
U-238	5.9200E+00	1.6000E-01

BNL RADIOLOGICAL SURVEY FORM FOR CLOSED TRANSPORT VEHICLE

[ ] Incoming [X] Outgoing

Tractor # T2009 Trailer # 901 Date: 1-3-05 (mm-dd-yy) Time: 1400

MODEL	Tennelec	LB20	LB 3	LB 12		
SERIAL#	42212	3002	44196	10892		
Cal Due Date	11-8-05	11-21-05	11-4-05	5-8-05		
Source Check Results	P	P	P	P		

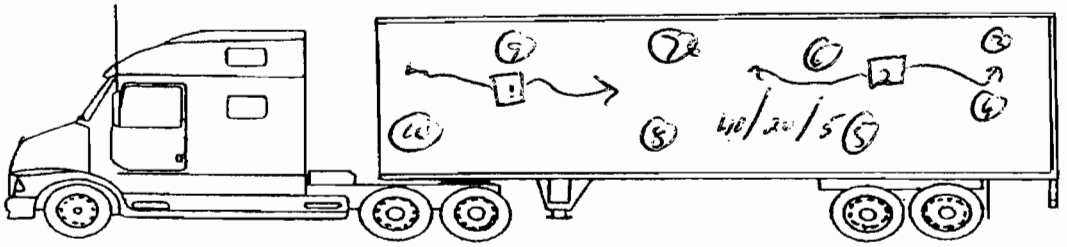
Dose Rate (Highest Reading)		Contamination (dpm/100cm²)		
		Alpha	Beta / Gamma	Tritium
In Cab / Sleeper	.8			
External Surface	70	L2C	L1000	NA
The 2 Meter Reading	8	L2C	L100	NA

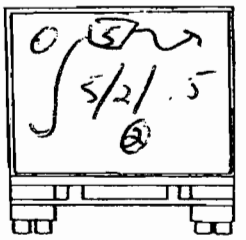
LEGEND:
- ○ Smear Survey Results with indicting number
- □ Masslinn Survey Result with indicating number
- XXX Y / ZZZ — Y = Radiation Type; ZZZ = Reading @ *2 meters*

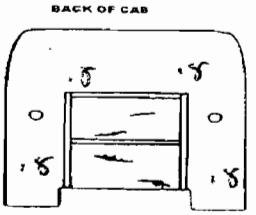
[Y] All Dose Rates are in mR / hr.
[Y] See Attachment for smear survey results

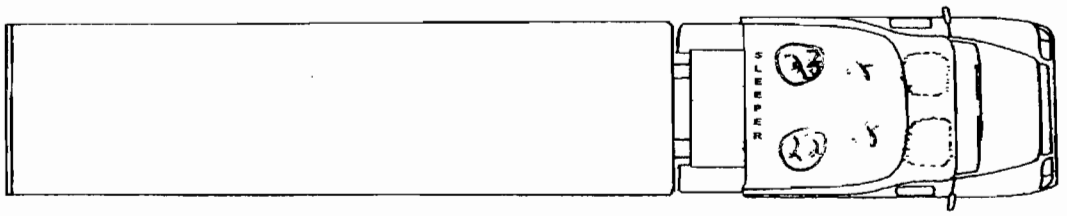
[X] Masslinn Wipes < 1000 dpm / LSA Beta/Gamma – Alpha – Tritium (indicate)

Smear survey Locations / Results (dpm/100cm²) Beta/Gamma – Alpha – Tritium (indicate on drawing)								Masslinn Survey Results in (dpm / LAS)			
1		8.		15.		22.		1.	L1K	8.	
2		9.		16.		23.		2.		9.	
3		10.		17.		24.		3.		10.	N/A
4	N/A	11.	N/A	18.	N/A	25.	N/A	4.		11	
5		12.		19.		26.		5.		12.	
6		13.		20.		27.		6.		13.	
7		14.		21.		28.		7.		14	









Surveyed By: M. Plonski Signature 1/3/05 Date: Reviewed By: Cheryl Burns Signature: 1/3/05 Date:

BROOKHAVEN NATIONAL LA | **ENVIROCARE OF UTAH**

Account #:	43362	COMDATA TRANSCEIVER SERVICES		Workorder #	121506
P.O.#:		OVERSIZE/WEIGHT FAX-IN PERMIT		Order Date:	12/27/04
Ordered By:	CHUCK MEAD	APPLICATION		Time:	08:30
Phone #:	800-325-1336	T. A. G. FAX # 865-882-9715		Operator:	JAMES (TOO TALL) JONES
Bill To:	T. A. G. TRANSPORT, INC.		Issued To:	T.A.G. TRANSPORT	
Address:	2818 ROANE STATE HWY		Address:	2818 ROANE STATE HWY	
City, State, Zip:	HARRIMAN, TN 37748		City, State, Zip:	HARRIMAN,TN 37748	
Trip Origin:	**UPTON,NY**		Trip Destination:	**CLIVE,UT**	

	STATE	ROUTE	EFFECTIVE DATE
✓	NY	5TH AVE/RAILROAD AVE.- RAILROAD AVE.(S)-BROOKHAVEN AVE.(W)-UPTON BLVD.(S)-I-495(W)	01/03/05
✓	NYC	~~I-495 - I-295 - THROGS NECK BRIDGE - I-295 - I-695 - I-95~~ Route Changed	01/03/05
✓	~~NYTH~~	~~I-95 - I-287~~	01/04/05
✓	NJ	I-287 - I-80	01/04/05
✓	PA	I-80(W)	01/04/05
✓	OH	I-80 - I-76 - I-77 - I-277 - I-76 - I-71 - I-270 - I-70	01/04/05
✓	IN	I-70 - I-465 - I-74	01/05/05
✓	IL	I-74 - I-474 - I-74 - I-80	01/05/05
✓	IA	I-80 - I-680	01/05/05
✓	NE	I-80	01/05/05
✓	UT	I-80 - I-84 - I-15 - I-215 - I-80 - EXIT 49 ACCESS RD.	01/06/05
			/ /

Load Description:	EMPTY STEEL TANK			Make:		Model:		Serial #			
Load Length:	37-0	Height:	10-10	Width:	11-11	Weight:	45000	Registered Weight:	80000		
Overall Length:	70-0	Height:	13-10	Width:	11-11	Weight:	**80000**				

Trct Unit:	**T-2009**	Year:	20000	Make:	KENW	Serial #:	47136	Lic. #:	**82134HY**	St.:	TN	# Axles:	3
Trct Length:		Trct Width:		Trct Height		Trct Empty Weight							
Trlr Unit:	**901**	Year:	1997	Make:	TRAIL KING	Serial #:	01277	Lic. #:	**T516870**	St:	TN	# Axles:	3
Trlr Length:	48	Trlr Width	8-0	Trlr Height:	3-0	Trlr Empty Weight							
Front Overhang:	N/A	Rear Overhang:	N/A	# Additional Vehicles:	N/A								

If Overweight:

Axle Spacing 1-2:	19-6	2-3:	4-4	3-4:	32-0	4-5:	5-0	5-6:	5-0	6-7:	N/A	7-8:				
Axle Weights 1:	12000	2:	13600	3:	13600	4:	13600	5:	13600	6:	13600	7:		8:		
Tire Size Tractor:	11RX24.5					Tire Size Trailer:	11RX22.5									

Send Permit To:865-882-9715 | Truck Stop Code:F43362

Special Comments:**USDOT #: 642202, FED ID #: 62-1638821, ICC/MC #: 304079, IN ACCT. CODE: 53050M (PAYING BY COMCHECK)**

12/27/04
04:36PM

183

STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION
SPECIAL HAULING PERMIT

AFTER VALIDATION THIS PERMIT AUTHORIZES MOVEMENT ONLY ON HIGHWAYS UNDER THE JURISDICTION OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION OF A VEHICLE OR COMBINATION OF VEHICLES THE DIMENSIONS AND/OR WEIGHTS OF WHICH EXCEED THOSE SPECIFIED IN ARTICLE 10 SECTION385 OF THE VEHICLE AND TRAFFIC LAW. BY ACCEPTING THIS PERMIT, PERMITEE AGREES TO CONTACT AND SECURE PERMISSION TO OPERATE PERMIT VEHICLE FROM ANY AUTHORITIES HAVING PERMIT ISSUE JURISDICTION OF ANY ROUTES OTHER THAN THOSE ROUTES UNDER THE JURISDICTION OF THE STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION. ALL MOVES MUST CONFORM WITH PART 154-1 TITLE 17 OF THE NEW YORK COMPILATION CODES, RULES AND REGULATIONS. BY ACCEPTING THIS PERMIT, PERMITTEE CERTIFIES THAT THIS PERMITTED VEHICLE IS PROPERLY CONSTRUCTED TO SAFELY CARRY THE PERMITTED LOAD AND THAT THE PERMITTED VEHICLE IS IN CONFORMANCE WITH ALL NEW YORK STATE LAWS.

674247-001 **PERMIT INVALID IF ALL PROVISIONS OF THE PERMIT ARE NOT ADHERED TO**

PERMIT ACCOUNT NO: 36398	PERMIT EFFECTIVE DATE FROM: 01/03/05	OVERALL	FEET	INCHES	OVERALL	FEET	INCHES
		LENGTH	70	0	HEIGHT	13	10
APPLICATION NO: 28 7	TO: 01/07/05	WIDTH	11	11	OVERHANG		

LOAD DESCRIPTION; MAKE, MODEL, SERIAL No. or BILL OF LADING No.: 0000 1 EMPTY STEEL TANK
X X

GROSS WEIGHT: 80,000 — OVERHANG FRONT: 0, REAR: 0

FEIN / SS No. 62-1638821 PERMIT TYPE: 1

MOTOR CARRIER'S NAME AND ADDRESS
T. A. G. TRANSPORT, INC.
2818 ROANE STATE HWY
HARRIMAN TN 37748
USDOT# 642202

VEHICLE	ST / JUR	REGISTRATION OR VEHICLE ID	NO OF AXLES	REGD GVW
POWER UNIT	TN	82134HY	3	80,000
TRAILER	TN	T516870	3	

IF ROUTING IS INCORRECT, DO YOU WANT THE STATE TO CORRECT FOR AN ADDITIONAL FEE? YES ___ NO X

AXLE NO.	STEER AXLE	2	3	4	5	6	7	8	9	10	11
AXLE WTS	12,000	13,600	13,600	13,600	13,600	13,600					
MFG TIRE	12000	13600	13600	13600	13600	13600					

AXLE SPACINGS FEET(') / INCHES(")	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11
	19-6	4-4	32-0	5-0	5-0					

SPECIFIC ADDRESS OF TRIP ORIGIN: UPTON, NY 5TH AVE/RAILROAD AVE

SPECIFIC ADDRESS OF TRIP DESTINATION: NYC LINE

ROUTING: SEE ROUTE SHEET

FOR OFFICIAL USE ONLY

DATE AND TIME REC'D: 12/28 7 51

PERMIT PREVIOUSLY REJECTED AS RESULT OF ERROR BY: TRANSMISSION CO. ___ STATE ___

STATE FEE: INS: $4.00 TOTAL: $44.00

THIS PERMIT NOT VALID ON NYS THRUWAY

GENERAL RESTRICTIONS:
No Travel 7-9 am and 4-6 pm for vehicles exceeding the size shown below in the area described:
- Wider than 10 ft. and/or longer than 72 ft. in Binghampton
- Wider than 10 ft. and/or longer than 85 ft. within a 10 mile radius of Syracuse
- Wider than 11 ft. in the cities of Hudson, Kingston, Newburgh and Poughkeepsie
- Wider than 12 ft. in the cities of Utica and Amsterdam (Contact police prior to move)
- Wider than 13 ft. in Albany and Rensselaer Counties on Route I87, I90 and I787

18" x 18" minimum, red or orange fluorescent flags on stalls at extremities of vehicle/load required on all overdimensional loads. Warning signs and appropriate lights are required on permitted load.

VALIDATION
2004 DEC 28 AM 8 48

SPECIAL REQUIREMENTS:

[2]

2006 DEC 20 AM 9:13

051855

NEW YORK CITY
DEPARTMENT OF TRANSPORTATION
D.O.T.BRIDGES/TRUCK UNIT
PERMIT FOR OVER DIMENSIONAL LOAD VEHICLE

DATE ISSUED: 12/28/2004

PERMIT #: M08-2004363-031

RECORDED PERMIT/
LOG #.....: CT2807
TOTAL FEE: $****25.00

ROUTE:
RT. 25-JAMAICA-BRADDOCK-HILLSIDE-QUEENS BLVD-GRAND AVE-FLUSHING-METROPOLITAN-GRAND ST-UNION AVE-LORIMER-WALLABOUT-LEE-NOSTRAND-MYRTLE-FLATBUSH-3RD AVE-HAMILTON-U TURN AT 2ND AVE-HAMILTON-3RD AVE-60TH ST-FORT HAMILTON-7TH AVE-92ND ST-I278-WHEN CROSSING V/Z NARROWS BRIDGE, SUE TOLL LANE #7 AND UPPER LEVEL-I278-NARROWS ROAD NORTH-LITTLE CLOVE-I278-RT. 440
STARTING POINT: NASSAU-RT. 25
ENDING POINT: NJ-OUTERBRIDGE CROSSING

RED WARNING FLAGS MUST BE DISPLAYED ON THE FRONT AND EXTREME END OF ALL OVERSIZE VEHICLES. SUCH FLAGS SHALL BE AT LEAST 24 INCHES SQUARE.

ALL WORK MUST ADHERE TO THE FOLLOWING STIPULATIONS: 162 167 168 170 171

162 OVZ	OVERSIZE V NIGHT TIME TRAVEL 10PM TO 5:30AM
167 OVZ	VEHICLES OVER 10 FEET WIDE MUST HAVE TWO FLASHING YELLOW --- LIGHTS AT EACH END
168 OVZ	VEHICLES OVER 11 FEET WIDE OR 65 FEET LONG MUST HAVE A REAR ESCORT VEHICLE -EQUIPPED WITH 'OVERSIZED LOAD' SIGNS
170 OVZ	VEHICLES OVER 55 FEET LONG MUST HAVE CLEARANCE LIGHTS AT 20 FOOT INTERVALS -ALONG THE SIDES WHEN TRAVELING AT NIGHT
171 OVZ	VEHICLES OVER 13 FEET 6 INCHES HIGH AND/ OR 14 FEET WIDE AND /OR 80 FEET LONG,MUST HAVE A WARNING SIGN AND TWO STEADY YELLOW LIGHTS ATTACKED TO THE REAR OFTHE LOAD

PERMISSION TO OPERATE AN OVERSIZE OR OVERWEIGHT VEHICLE SUBJECT TO THE POSTED HEIGHT, WEIGHT RESTRICTIONS, ROUTING, VEHICLE DESCRIPTION, SPECIAL INSTRUCTIONS, AND DATE OF TRAVEL INDICATED ON THIS PERMIT IS
HEREBY GRANTED TO: PERMIT TYPE: 0804
PERMITTEE NAME: TAG TRANSPORT PTEE #: 20523
CONTACT COMPANY NAME: COMDATA TRANSCEIVER NETWORK, CONTACT #: 03000
TRACTOR LICENSE#: 82134HY TRAILER LICENSE#: T516870
WIDTH:FT 11 IN 11 LENGTH:FT 70 IN 0 HEIGHT:FT 13 IN 10 WEIGHT: 80000
VALID FROM: DATE: 01/03/2005 TO: DATE: 01/04/2005
TIME: 22:00 TIME: 05:30

APPLICATION/PERMIT APPROVED BY

SUPERVISOR, TRUCK PERMIT PROGRAM

M-936P

Application Id: A502306599 Permit No: 2004-364-05-28756

PENNDOT

COMMONWEALTH OF PENNSYLVANIA

Special Hauling Permit

Subject to all the conditions, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapter 179) and subject to the special conditions or restrictions set forth herein or attached hereto.

MOTOR CARRIER NAME AND ADDRESS

TAG TRANSPORT INC
2818 ROANE STATE HIGHWAY
HARRIMAN TN 37748

PERMIT

Permit Office: 05 - D
Permit Type: SINGLE TRIP
Date Issued: 12/29/2004
Time Issued: 08:50 AM
Account Name: 31 TRANSCEIVER UNITED INC

MOVE INFORMATION

Move Begins: 12/30/2004
SPC Code: FMAA
Total Fees: 26.00
Move Ends: 01/05/2005
Meet PSP Date: N/A
Total Miles: 311
Move #: N/A
Meet PSP At: N/A
NATL Park Service Approval #: N/A

POWER AND DRAWN UNITS

Unit #	Equipment Type	Registration/VIN	State	# of Axles
1	P -TRUCK TRACTOR	82134HY	TN	3
2	D -SEMITRAILER	T516870	TN	3

SIZE INFORMATION *(Zeros = not specified)*

LENGTH	Ft.	In.	WIDTH	Ft.	In.	HEIGHT	Ft.	In.
TOTAL LENGTH:	00070	00	TOTAL WIDTH:	00011	11	TOTAL HEIGHT:	00013	10
Veh Only Length:	00000	00	Veh Only Width:	00000	00	Veh Only Height:	00000	00

Front Overhang: 00000 00
Rear Overhang: 00000 00

LOAD INFORMATION

Load Quantity: 00001
Load Serial ID: 121506
Load Type: 67A-Combination - Load - General (nondivisible)
Load Description: EMPTY STEEL TANK
Guide Rail Dev #: N/A

WEIGHT INFORMATION

Gross Weight: 80000 lbs.
Legal Weight: 80000 lbs.

COMDATA

A Chrysler Company

Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

Permit Must Be Accompanied By Attachment Or Not Valid

Permit Must Be Accompa By Attachment Or Not Va

DEPARTMENT OF TRANSPORTATION
STATE OF OHIO
1610 West Broad Street
Columbus, OH 43223
Telephone: (614) 351-2300

Forms/Attachments are available
www.dot.state.oh.us/permits

Special Hauling Permit Issued To:
T. A. G. TRANSPORT INC.
2818 ROANE STATE HIGHWAY
HARRIMAN TN 37748
(865) 882-0457
Requested by:CHUCK MEAD
FEIN:621638821 ICC-MC: DOT:

Permit
OH040
Issued 27-
Fax: (8
RE-TRANSMISSION
OS-1A (Rev 7-99) MUST BE ATTACHED

Load: 1 **EMPTY STEEL TANK**
Conveyance: Loaded Make: M/S Number:

Vehicles	Make	License No.	State	Empty Wt	No. of Axles
Power Unit	KENW	82134HY	TN	0	3
Vehicle 2	TLKG	T516870	TN	0	3

Sizes	Length	Width	Height
Load	37' 0"	11' 11"	10' 10"
Power Unit	22' 0"	LEGAL	LEGAL
Trailer	48' 0"		
Overall	70' 0"	11' 11"	13' 10"

All Weights Legal: Yes
Load Weight: 0
Gross Weight: LEGAL

From **PA**
To **IN**
Via **80-76-71-270-70**

Comments
TRAVEL INSIDE THE COLUMBUS OUTERBELT (I-270) PROHIBITED.
Permission to travel county or township roads, local streets not part of the State Route, or the Ohio Turnpike must be obtained from the proper authorities.
All Permitted Loads Must Stop At All Weigh Stations Regardless of In-Cab Transponder Signal.

Desired Effective Date: 01/04/2005
Permit Effective Date: **From 01/04/2005- 01/08/2005**
OH040231851 REV 1
Type Permit: SINGLE TRIP
Fee: $10.00
Status: **Approved** TECRJ Paid By: TA

This is a valid permit issued by the Ohio Department of Transportation in accordance with Section 4513.34 Ohio Revised Code and Section 5501:2-1-1 through 5501:2-1-12 Ohio Administrative Code. Permits Limitation Provisions Form OS-1A (Rev 7-99) must be attached.

Gordon Proctor, Director
Ohio Department of Transportation

Office of Maintenance Administration
Special Hauling Permit Section

COMDATA TRANSCEIVER TEL:800-749-6858 Dec 28,04 09:00 P.001

*NOTE: SIGNATURE AND FORM M-233 REQUIREMENTS START DATE....01/05/05
INDIANA DEPARTMENT OF TRANSPORTATION PERMITS EXPIR.DATE....01/19/05

DATE	PERMIT NO.	AMOUNT
12/28/04	2004363015024	$ 30.00

LOG # - 1228025

TYPE OF PERMIT:

OVER X SIZE	OVER WEIGHT	OVERSIZE & OVERWEIGHT	MOBILE HOME 8' TO 12'4"	MOBILE HOME 12'4 TO 14'4" WIDE

MOBILE HOME ANNUAL NO- MOBILE HOME SERIAL NO-

DESCRIPTION OF VEHICLE:

TRACTOR X TRAILER	TRUCK TRAILER	SELF PROP. EQUIP	AUTO TRUCK	TRAILER	OTHER

	OVERALL LENGTH	OVERALL WIDTH	OVERALL HEIGHT
MAKE OF TRACTOR:KW SER. NO:47136 LIC NO:82134HY ST:TN	70-0	11-11	13-10
		GROSS WT.	80,000

AXLE WTS	1	2	3	4	5	6	7	8
LOADED								
#TIRES								
SIZE								
AXLE SPACING								

DESCRIPTION OF OVERSIZE AND/OR OVERWEIGHT LOAD WHICH EXCEED THE LEGAL SIZE AND WEIGHT LIMITS AND CANNOT BE REDUCED BY METHOD OF LOADING OR DISASSEMBLY IS: 1/EMPTY STEEL TANK

FROM:OH LINE ORIGIN JCT:
TO: IL LINE DESTINATION JCT:
VIA STATE ROADS:I70-X90-I465SBML-X16-I74

MILES : 168

No other routes,including detours,are authorized by this permit under any condition

---

|Following special provisions apply: |

THIS PERMIT VALID ONLY FOR TRANSPORTING COMMODITIES UNDER COMPANY NAME SHOWN
*THE TERMS,CONDITIONS AND PROVISIONS OF FORM M-233 REV. 8/92 ARE HEREBY INCORPORATED BY REFERENCE INTO THIS PERMIT AND THIS PERMIT IS NOT VALID UNLESS FORM M-233 IS ATTACHED HERETO AND THE DRIVER HAS SIGNED BELOW.

DRIVER SIGNATURE IN LIEU OF SIGNATURE ON FORM M-233	T. A. G. TRANSPORT, INC. NAME OF TRANSPORTING COMPANY	CITY/STATE 2818 ROANE STATE HWYHARRIMAN TN

FAX TO T. A. G. TRANSPORT, **COLLECT ALL FEES LISTED**
HARRIMAN TN
999999
(865)882-9715
(800)325-1336

ORDERED BY: FAX/CHUCK MEAD (800)325-1336 DATE-12/28/04 08:58
P*P*P*P WORKORDE T#674247-007 UNIT#T-2009 9223 C# 1228025

COMDATA
Transceiver
All Fees Prepaid

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

Apr. 6. 1996 10:47PM No.2393 P. 38

ILLINOIS PERMIT 5752280 ISSUED TO T. A. G. TRANSPORT, INC.

ATTN: T-2009 AUTHORIZES ONE MOVEMENT OF: MAKE

MODEL DESC EMPTY TANK ATTACH

SERIAL NUMBER LOADED ON

AXLES: WIDTH: 12- LENGTH: 70- HEIGHT: 13-10 GROSS WEIGHT: LEGAL

FRONT TANDEM OR AXLE: LEGAL , NO AXLE EXCEEDS: LEGAL
REAR TANDEM OR AXLE: LEGAL , NO AXLE EXCEEDS: LEGAL

FROM INDIANA
OVER INT74-INT474-INT74-INT80

TO IOWA

PERMITTEE MUST COMPLY WITH FORM BT-993 PROVISIONS A, B, AND THE FOLLOWING C:

1-5

ECTIVE: 01-05-2005 EXPIRES: 01-10-2005 FEE PAID: $ 26.00

NOTES:

TRANS: FAX 800-553-3906
FOR THE DEPARTMENT: DAVID JOHNSON,PERMIT ENGINEER

ISQ OF-720-010

Iowa Department of Transportation

(Valid For One Power Unit Only)

Permit Issued By: Office of Motor Carrier Services
Iowa Department of Transportation
Park Fair Mall, 100 Euclid Ave.
P. O. Box 10382
Des Moines, Iowa 50306-0382
(515) 237-3264
Fax No. (515) 237-3257

Permit No.: 2004-45-05788
Issue Date: 12/27/04
Issued By: BRUCE
Charge Account Number: 255

Requested By: FAX/CHUCK MEAD
8007497164

Send To: T. A. G. TRANSPORT, HARRIMAN TN
(865)882-9716

Interstate Travel Authority Number:
Intrastate Travel Authority Number: PRIVATE
US DOT Number: 842202
FEIN: 62-1838621

Single Trip 10.00

Total State Fee Collected 10.00

Valid Dates: Single Trip Permit valid for 01-05-05/01-06-05/01-07-05/01-08-05/01-09-05
1/2 Hour Before Sunrise To 1/2 Hour After Sunset

Issued To T. A. G. TRANSPORT, INC.

Address 2819 ROANE STATE HWY | City/State/Zip HARRIMAN TN 37748

Power Unit Year & Make	Power Unit License No. & State	Registered Weight	Trailer Make	Trailer License No. & State
00 KW	82134HY TN	80,000	TRLKG	T618870 TN

Object or Load	Model Number	VIN	Serial Number	S.M.E. Plate No.
1/EMPTY STEEL TANK		47135		

Overall Length	Width	Height	Total Weight	Trailer Length	Load Length	Projections
70-0	11-11	13-10	80,000	48-0	37-0	Front: 0 Rear: 0

Axle Weights	Single	Tandem	Triple	Quad	Quint	Sextet
	20,000	40,000	80,000			

Axle Spacing

Trip from IL LINE | Trip to NE LINE

Routes 80-680-29-680

General Requirements

See General Provisions For Escort Requirements For Overwidth Vechiles.
Overdimensional Signs And Flags Must Be Displayed On All Over Dimensional Loads Over 75 Feet Long Or 8 Feet 6 Inches Wide Or 14 Feet 4 Inches High.

- Must carry copy of permit and general provisions dated 8-97 and comply with them.
- Speed limit: maximum posted limits unless otherwise specified on permit. Minimum 40 mph Interstate.
- Road must be clear of ice and snow and visibility must be at least 1/4 mile.
- No movement allowed on I-235 *(Des Moines,* weekdays from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.
- Necessary city and/or county permits must be obtained separately.
- Hazardous materials must be transported in compliance with applicable federal regulations.

Disclosure Statement: The information furnished on this application will be used by the Department of Transportation to prepare and issue permits. All information applicable to a given permit is required and is public information. Failure to complete the application as required will result in denial of permit. Permit issuing authorities will not be responsible for any damages that are the result of the move. The State of Iowa, the Iowa Department of Transportation, and any other permit issuing authority assume no responsibility for the property of the permit holder.

State of Nebraska Department of Roads
Single Trip Permit
Over Dimensional Only

Carrier: T. A. O. TRANSPORT, INC Address: 2818 ROANE STATE HIGHWAY HARRIMAN TN 37748

Truck Make: KW Year: 2000 License No.: 82134KY State: TN

Trailer Make: TRLXC License No.: T516870 State: TN

Object or Load: 1/EMPTY STEEL TANK

Width: 11' 11" ft. Height: 13' 10" ft. Weight: LEGAL lbs. ft. Overall Length: 70' 0" ft.

Trip From: IA To: WY

Highway Routing: I-80 W

Travel Restrictions

Provisions

ESCORT VEHICLE REQUIREMENTS:
On loads more than 10 feet in width, signs stating "OVERSIZE LOAD" must be displayed to the front of the hauling vehicle and the rear of the load. On loads more than 12 feet in width, red flags, not less than 18 inches square must be displayed on all four corners of the vehicle or vehicles.

Escort vehicles conforming to the Department Rules and Regulations are required for all loads exceeding 12 feet in width.
Position of escort vehicles:

- To the front of the overdimensional vehicle or load on all undivided highways.
- To the rear of the overdimensional vehicle or load on divided highways.
- A light bar conforming to Department Rules and Regulations may be used in lieu of an escort vehicle on divided highways.

Vehicles permitted for travel on Interstate 80 may follow approved permitted detour route without an escort vehicle as long as they meet the light bar requirements for the following areas only:

- Milepost 0.00 on US-30 at the Wyoming State Line east on US-30 to Milepost 312.93 at the intersection of US-30 and US-281 in Grand Island.
- Milepost 291.16 on US-34 at the intersection of US-34 and US-281 in Grand Island east on US-34 to Milepost 320.96 at the intersection of US-34 and I-80 north of Lincoln.
  Milepost 323.35 on US-6 at the intersection of US-6 and I-80 west of Waverly east on US-6 to Milepost 346.47 at the intersection of US-6 and I-80 south of Gretna.

LINCOLN/OMAHA TRAVEL EMBARGO:
Lincoln-State Highways:
Weekdays: 7:00 a.m. - 9:00 a.m. 4:00 p.m. - 6:00 p.m. Saturday/Sunday: After 12:00 Noon
Omaha-State Highways and Interstate:
Weekdays: 7:00 a.m. - 9:00 a.m. 4:00 p.m. - 6:00 p.m. Saturday/Sunday: After 12:00 Noon

- Permittee is responsible for the accuracy and legibility of this permit.
- Permittee is subject to all provisions stipulated by rules and law; permit is subject to revocation upon noncompliance.
- The granting of a permit does not waive any liability or responsibility of the permittee which might accrue for any property damage, including damage to the highways, or for personal injuries.

Permit travel is prohibited if any of the following adverse or inclement weather conditions exist:
* Winds cause a hazard to movement.
* Visibility is less than one-half mile.
* Rain, sleet or snow.
* Highway surfaces are slippery due to ice, snow, packed snow, slush or frost.
* Debris from an accident, natural disaster, or emergency on the highway.
Wet pavement, light drizzle, or wind less than 25 miles per hour are not considered inclement weather for purposes of permit movement. If adverse weather or road conditions are encountered during operation, the permitted vehicle must proceed to the next available safe place off the roadway and park until conditions improve. Nebraska State patrol Officers or local law enforcement officers or Nebraska Department of Roads personnel may further restrict or prohibit operation of permitted vehicles during periods, when, in their judgment, weather or other hazardous conditions make continued operation unsafe.

- Travel is allowed from 30 minutes before sunrise to 30 minutes after sunset, 7 days a week, unless otherwise stated on this permit.
- A local permit may be required for moves on county or city roads. Permittee is responsible for contacting local authorities.
- Permittee must bypass any and all clearances that are less than the above listed dimensions. The permittee shall assume the risk of loss to the vehicle or its load and shall be liable for any damages that result to overhead obstructions from operation of a vehicle exceeding 12'6" in height.

Permit No.71165

COMDATA

PERMIT ACCURACY RESPONSIBILITY OF DRIVER

UTAH DEPARTMENT OF TRANSPORTATION
Ports of Entry

No. 427002303

COMBINED TRANSPORTATION AND TAX COMMISSION PERMIT
4501 South 2700 West
Salt Lake City, UT 84119-5998
(801) 965-4508

Company: TRANSCEIVER
Send To: 800-553-3906

OVERSIZE PERMIT

Starts: 01/06/05 **Direction:** Statewide **Expires:** 01/10/05
Load Type: Non-Divisible
Type of Permit: Single Trip 96 Hours
Veh. Yr. & Make: 0 KENWORTH **Plate:** 82134HY **State:** TN **Unit :** K-2002
Company Name: T A G TRANSPORT INC **Reg. Wt.:** 80,000
and Address: 18212 HWY 70 EAST **VIN:** 1XKWDB9X0YJ847136
ROCKWOOD, TN 37854
USDOT Number: 0501456

SIZE:	Front Overhang	Rear Overhang	Width	Length	Height
			11'11"	70'	13'10"

Load: EMPTY STEEL TANK **From:** WY I80 **To:** CLIVE

ROUTING:
WY LINE - I80 W/B - I84 W/B - US89 S/B - I15 S/B - I215 W/B - I80 W/B - EX49

RESTRICTIONS:
1) See Utah Regulations for Legal & Permitted Vehicles for bridging, flagging, lighting, sign and pilot/escort vehicle restrictions. (Internet Page- http://www.udot.utah.gov)
2) Prohibited during hours of darkness on vehicles / loads in excess of 10' W, 14 'H, 92' L (OAL), 10' front or rear overhang.
3) Prohibited 7 major holidays.
4) Prohibited from 6 a.m. to 9 a.m. and 3:30 p.m. to 6:00 p.m. Monday through Friday in the following counties: Box Elder: All hwys.south of Exit 357-I15 (Perry); Weber, Davis, Salt Lake-Utah County: All hwys.north of SR75- Exit 265-I15 (Ironton)&SR68 MP.16

The permit holder or authorized agent acknowledges that he/she has read and understands all the laws and regulations governing the use of this permit. Violation of any of these laws or regulations shall result in immediate revocation, and the permit shall be surrendered to any peace officer.

SIGNATURE OF PERMIT HOLDER OR AUTHORIZED AGENT:

DISTRICT VALIDATION:

Officer: Hammon, J.
Badge: 048 Station: 98

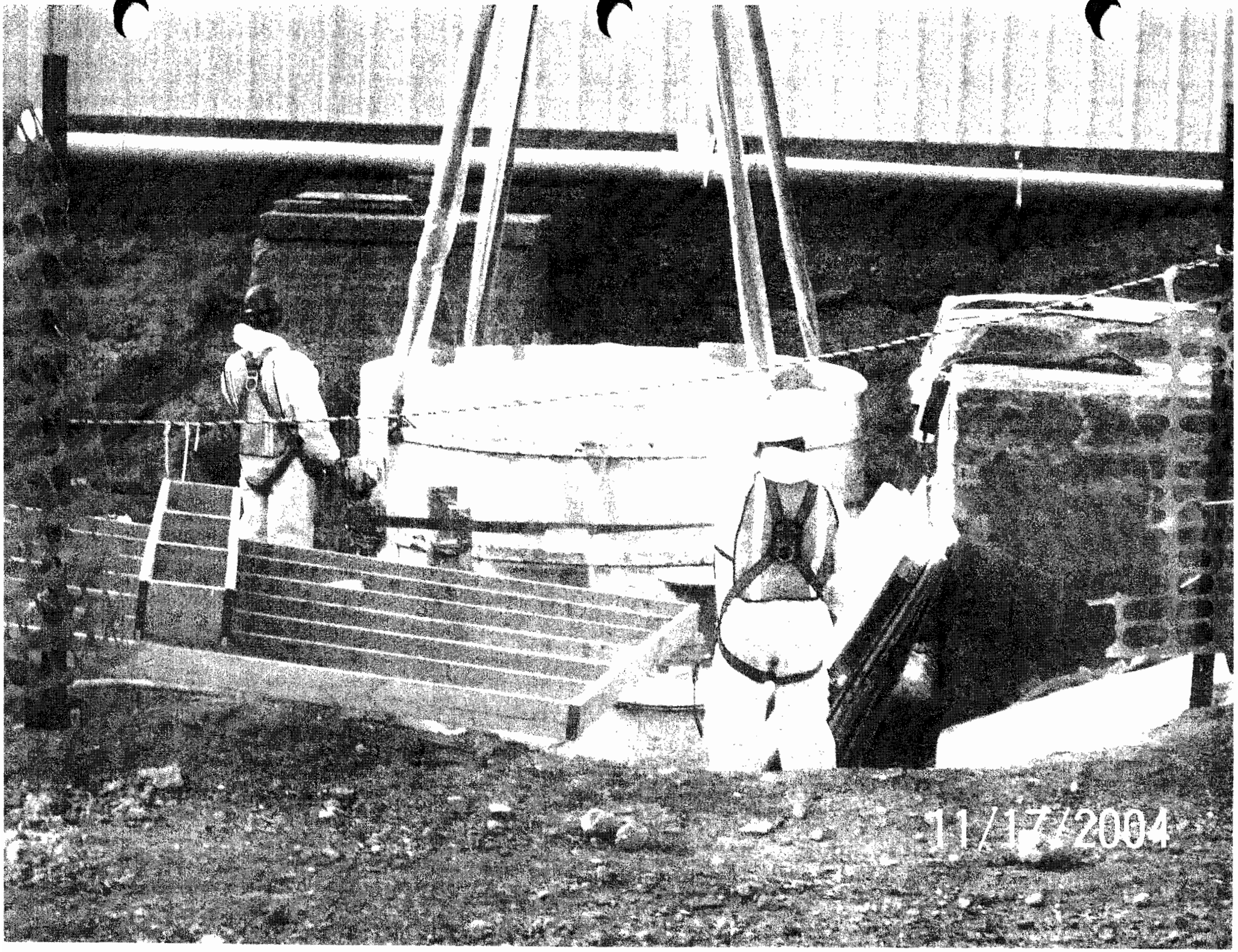
Issued: 12/27/04 at 14:26

Utah Fees: $25.00

SINGLE TRIP PERMIT IS VOID UPON LEAVING THE STATE.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS.

PERMIT ACCURACY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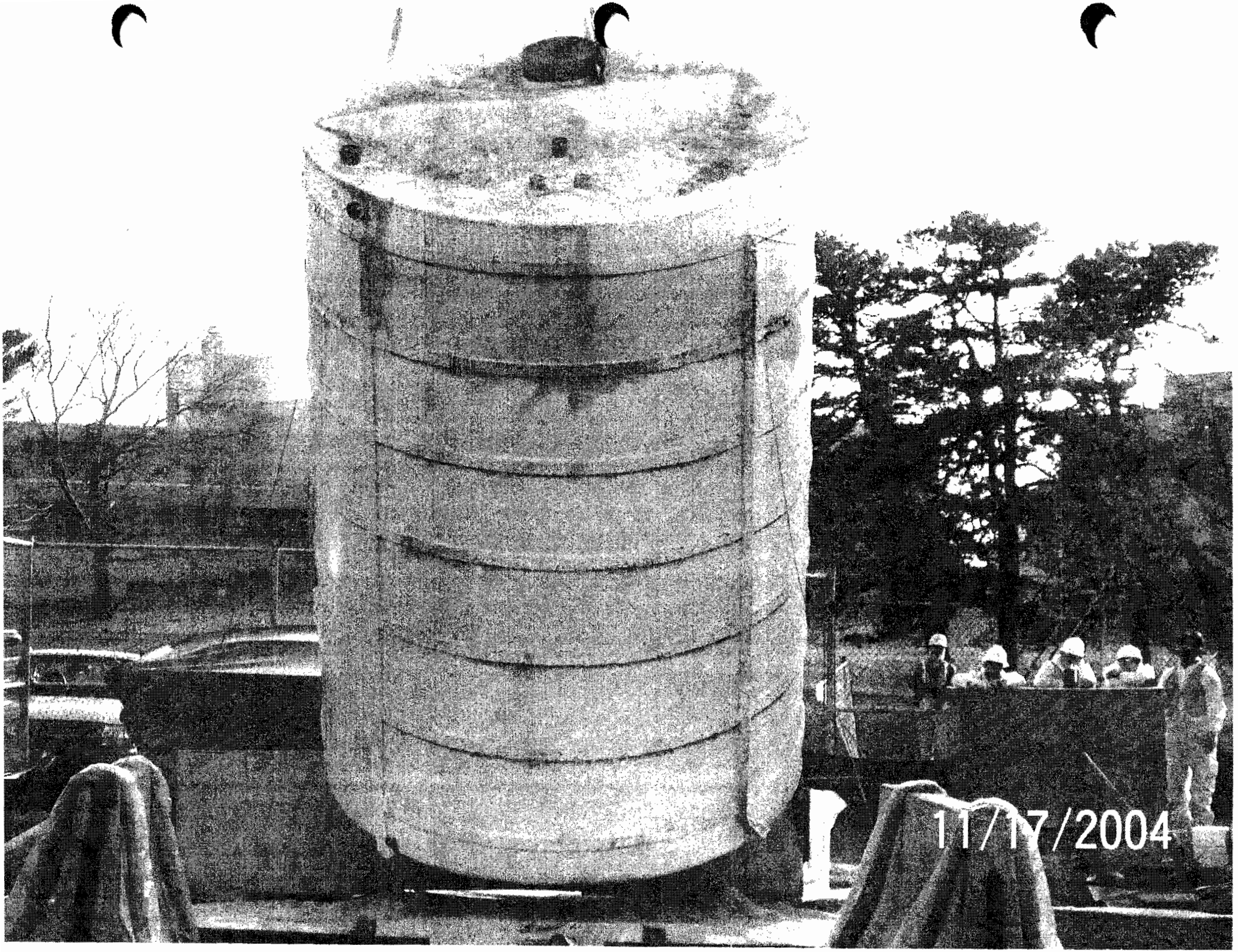
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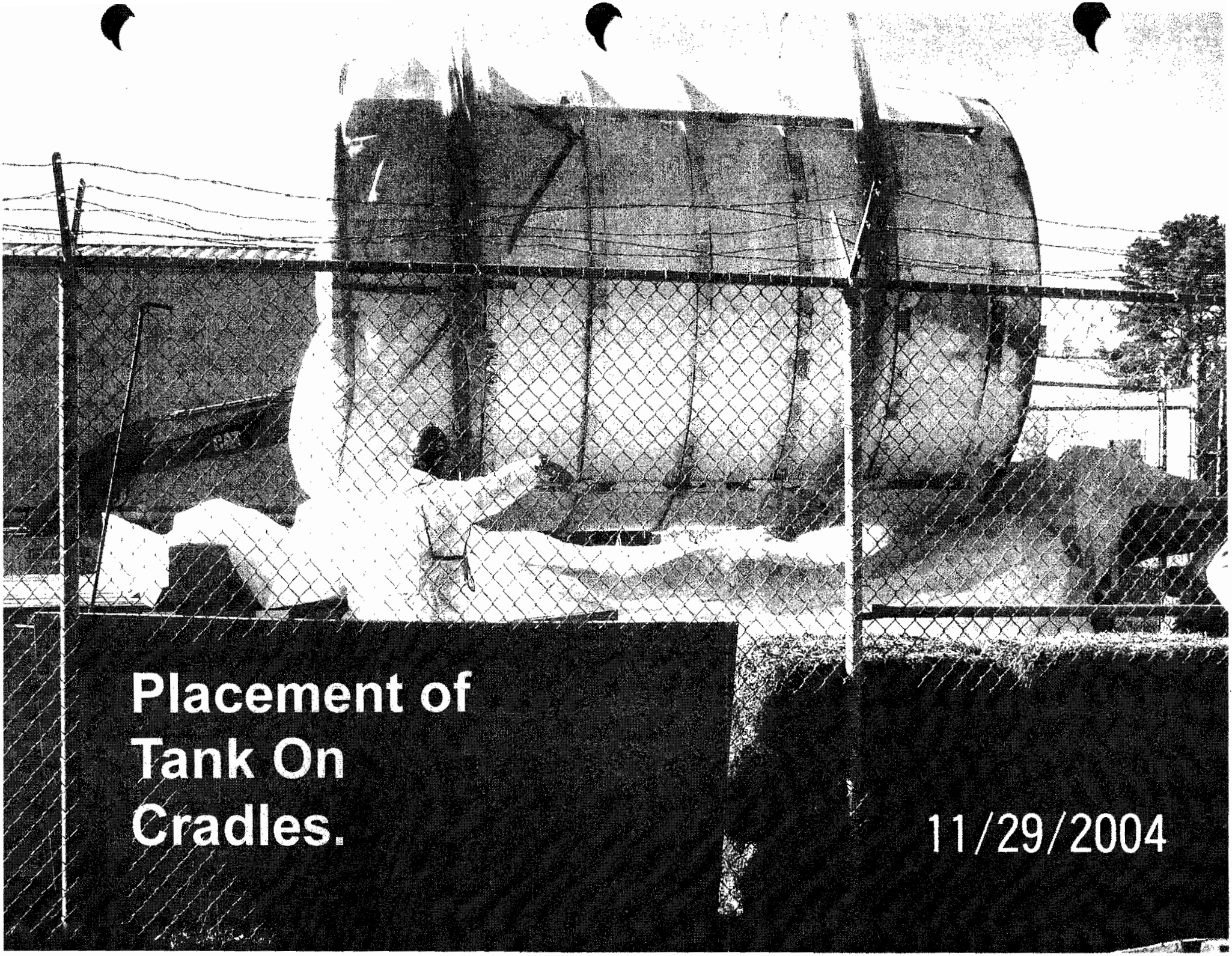
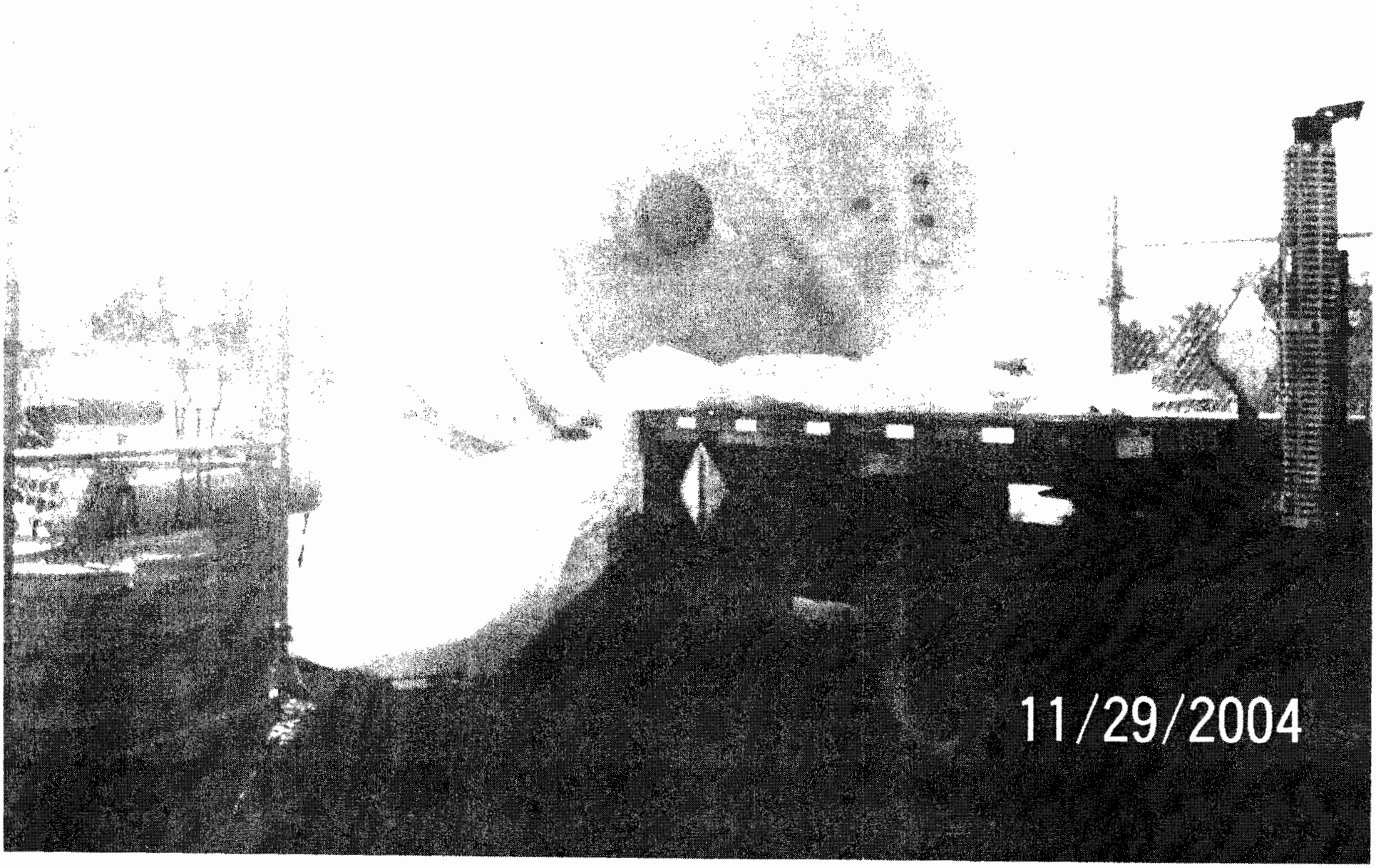

Placement of
Tank On
Cradles.
11/29/2004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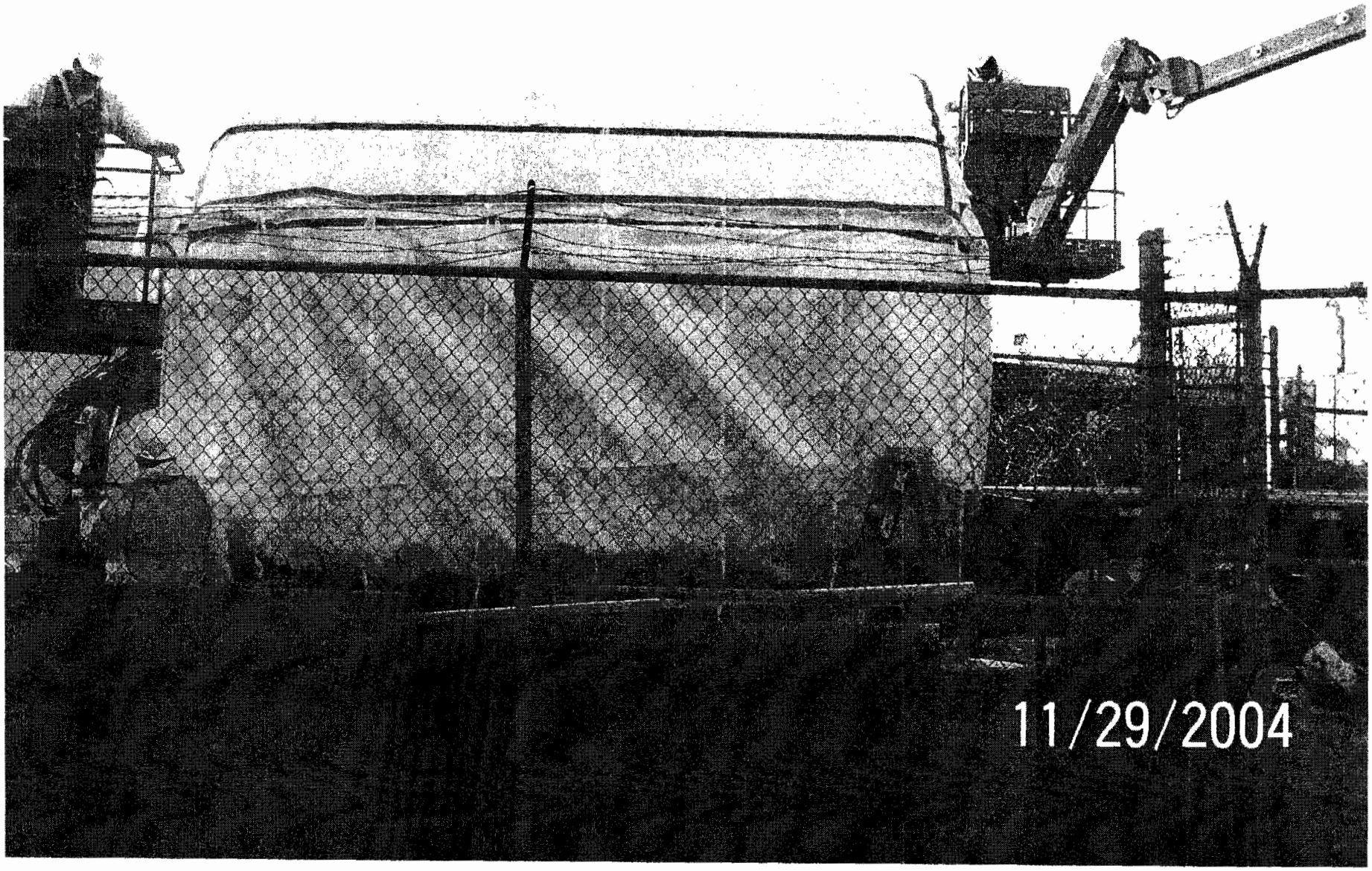
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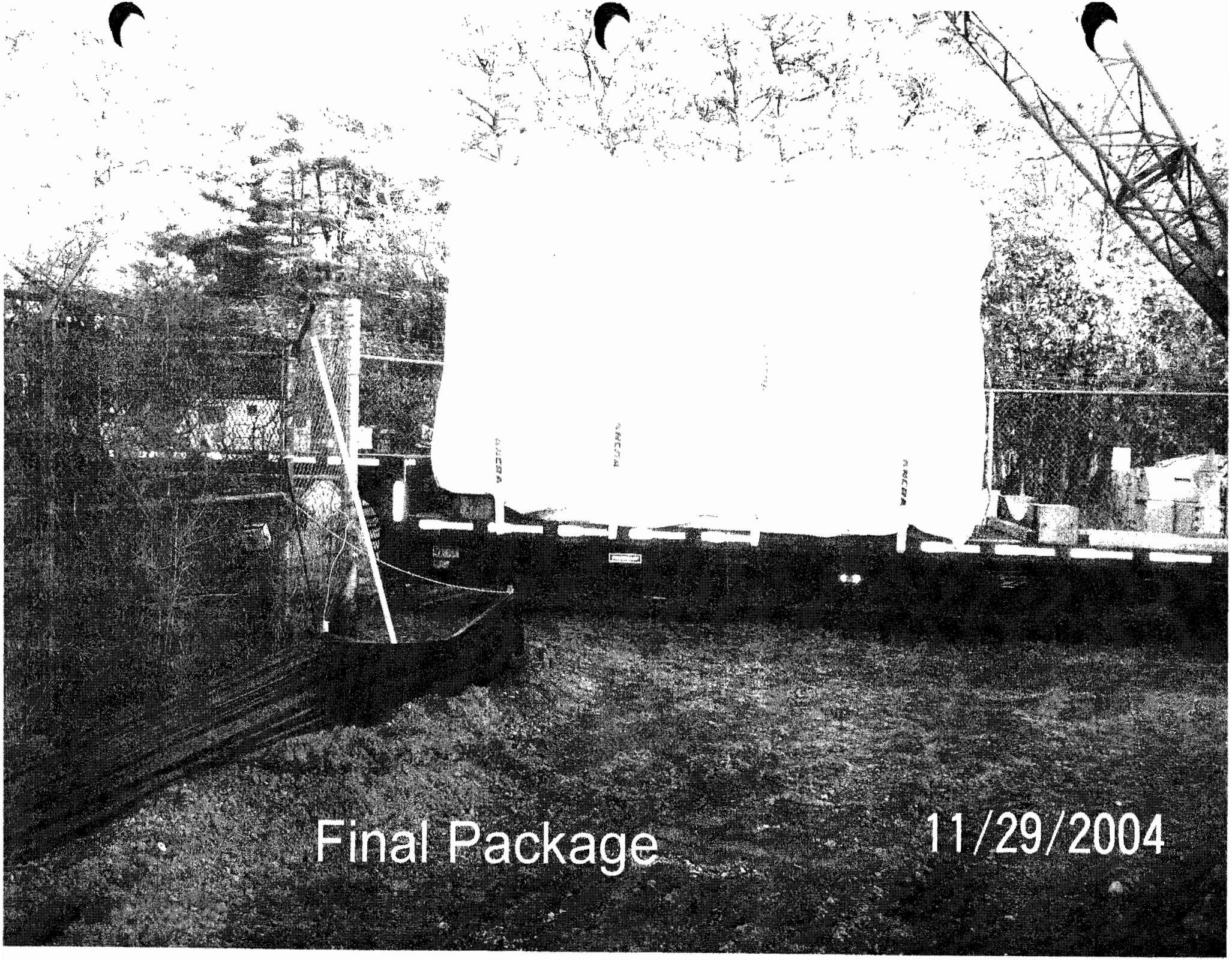
Final Package
11/29/2004

ENVIROCARE OF UTAH, INC.
The Safe Alternative

5 WORKING-DAY SHIPMENT NOTIFICATION

(EC-98096) Revision 3

Generator Name: BNL - U.S. DOE c/o Brookhaven Date: 1/4/2004

Gen # - Waste Stream #: 9011-14 Utah Site Access Permit No.: 0112001235T2003

Contact Name: Melinda B. Soest Waste Profile Rev#: 0 Rev. Date: NA

Contact E-mail Address: soestsb@aol.com Contact Phone #: 865-712-8337

Carrier Company: TAG Transport, Inc. Phone #: 865-882-0457

Waste Type: NORM ☐ LLRW ☒ 11e. (2) ☐ Mixed Waste ☐ MW Requiring Treatment ☐
PCB Radioactive ☐ PCB Mixed Waste ☐ Other: Bulk

REQUESTED DATE OF DELIVERY: 1/11/2005

Shipment delivery dates are subject to change. The shipment is not scheduled unless confirmed by Envirocare's Scheduling Dept.

Shipment Number (gen#-ws#-ship#)	Physical Description of Waste (e.g. soil, metal, wood, sludge, etc.)	Number & Type of Containers	Truck/Trailer or Railcar Numbers	Bulk Container ID Number (For Intermodal, Sealand, etc.)
W-9011-14-0001	Steel	(2) UST	T2003 / 01480	A-2, B-2
W-9011-14-0002	Steel	(2) UST	T9703 / 14803	A-1, B-3
W-9011-14-0003	Steel	(2) UST	T2009 / 901	A-3, B-1

SPECIAL HANDLING INFORMATION (Please check all items)

		Yes	No	Comments - If "Yes", please specify:
1.	Do any of the containers have contact dose rates greater than 100 mrem/hr?	☒	☐	Maximum contact dose rate on container (mrem/hr): 1600
2.	Are there items inside the container with contact dose rates exceeding 100 mrem/hr?	☐	☒	Maximum contact dose rate on item (mrem/hr): NA
3.	Are you shipping containers other than a B12, B25, 55-gal drum, sealand, intermodal, or gondola?	☒	☐	Container type: TANK Dimensions (ft): 14
4.	If applicable, are drums palletized?	☐	☐	☒ Not Applicable
5.	Is there oversized debris (i.e., no dimension <10" or any dimension >12') in any of the containers?	☐	☒	Describe oversized debris in the above table under "Physical Description"
6.	Is any of the waste potentially dusty?	☐	☒	
7.	For shipments in an enclosed trailer, do any of the containers weigh >7,000 lbs.?	☐	☒	Max Weight (lbs.): NA
8.	For shipments, on a flatbed trailer, do any of the containers weigh > 14,000 lbs.?	☐	☒	Max Weight (lbs.): NA
9.	For bulk containers (e.g., Intermodal, Sea Land, etc.), does the container weigh > 65,000 lbs.?	☐	☒	Max Weight (lbs.): NA
10.	Does the shipping container include other containers within (e.g., drums inside an intermodal)?	☐	☒	Shipment/Container configuration: NA
11.	Does the waste contain asbestos?	☐	☒	Friable ☐ or Non-Friable ☐ (Must comply with 40 CFR Part 61)
12.	Any other special handling requirements?	☐	☒	Specify: NA

Email 5-Day Notice to scheduling@envirocareutah.com or fax to (435) 884-3549, Attention Scheduling Dept.
Email manifest to manifest@envirocareutah.com or fax to (801) 413-5643, Shipping & Receiving Dept.

Subj: **9011-14-0001 through 0003 truck shipments. 1/4/05 (4:54 pm)**
Date: 1/4/2005 6:55:16 PM Eastern Standard Time
From: keaston@envirocareutah.com
To: Soestsb@aol.com

Good afternoon Melinda,

I am confirming the following shipment(s) for arrival at EOU:

Shipment(s) # :	Scheduled arrival
9011-14-0001 through 0003	1/11/05

CONTAINER RETURN CONFIRMATION NUMBER:
(for truck shipments only)

If you have any questions, please let me know. Thank you.

Karen D. Easton
Shipment Scheduler, Extraordinaire
scheduling@envirocareutah.com
keaston@envirocareutah.com
801.649.2088

**** Please send scheduling/shipment information to scheduling@envirocareutah.com ****

LLRW Mission Statement:
LLRW Operations will provide quality customer service by processing waste shipments in a manner that maximizes efficiency without compromising safety or compliance.

-----Original Message-----
From: Soestsb@aol.com [mailto:Soestsb@aol.com]
Sent: Tuesday, January 04, 2005 11:03 AM
To: scheduling@envirocareutah.com
Cc: kepperson@weskem.com
Subject: 5 Day Notification

Please schedule the attached.

Thank You

ENVIROCARE OF UTAH, INC.
The Safe Alternative

5 WORKING-DAY SHIPMENT NOTIFICATION

(EC-98096) Revision 3

Generator Name: BNL - U.S. DOE c/o Brookhaven Date: 1/4/2004

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Contact Name: Melinda B. Soest Waste Profile Rev#: 0 Rev. Date: NA

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Carrier Company: TAG Transport, Inc. Phone #: 865-882-0457

Waste Type: NORM ☐ LLRW ☒ 11e. (2) ☐ Mixed Waste ☐ MW Requiring Treatment ☐
PCB Radioactive ☐ PCB Mixed Waste ☐ Other: Bulk

REQUESTED DATE OF DELIVERY: 1/11/2005

Shipment delivery dates are subject to change. The shipment is not scheduled unless confirmed by Envirocare's Scheduling Dept.

Shipment Number (gen#-ws#-ship#)	Physical Description of Waste (e.g. soil, metal, wood, sludge, etc.)	Number & Type of Containers	Truck/Trailer or Railcar Numbers	Bulk Container ID Number (For Intermodal, Sealand, etc.)
W-9011-14-0001	Steel	(2) UST	T2003 / 01480	A-2, B-2
W-9011-14-0002	Steel	(2) UST	T9703 / 14803	A-1, B-3
W-9011-14-0003	Steel	(2) UST	T2009 / 901	A-3, B-1

SPECIAL HANDLING INFORMATION (Please check all items)

		Yes	No	Comments - If "Yes", please specify:
1.	Do any of the containers have contact dose rates greater than 100 mrem/hr?	☒	☐	Maximum contact dose rate on container (mrem/hr): 1600
2.	Are there items inside the container with contact dose rates exceeding 100 mrem/hr?	☐	☒	Maximum contact dose rate on item (mrem/hr): NA
3.	Are you shipping containers other than a B12, B25, 55-gal drum, sealand, intermodal, or gondola?	☒	☐	Container type: TANK Dimensions (ft): 14
4.	If applicable, are drums palletized?	☐	☐	☒ Not Applicable
5.	Is there oversized debris (i.e., no dimension <10" or any dimension >12') in any of the containers?	☐	☒	Describe oversized debris in the above table under "Physical Description"
6.	Is any of the waste potentially dusty?	☐	☒	
7.	For shipments in an enclosed trailer, do any of the containers weigh >7,000 lbs.?	☐	☒	Max Weight (lbs.): NA
8.	For shipments, on a flatbed trailer, do any of the containers weigh > 14,000 lbs.?	☐	☒	Max Weight (lbs.): NA
9.	For bulk containers (e.g., Intermodal, Sea Land, etc.), does the container weigh > 65,000 lbs.?	☐	☒	Max Weight (lbs.): NA
10.	Does the shipping container include other containers within (e.g., drums inside an intermodal)?	☐	☒	Shipment/Container configuration: NA
11.	Does the waste contain asbestos?	☐	☒	Friable ☐ or Non-Friable ☐ (Must comply with 40 CFR Part 61)
12.	Any other special handling requirements?	☐	☒	Specify: NA

Email 5-Day Notice to scheduling@envirocareutah.com or fax to (435) 884-3549, Attention Scheduling Dept.
Email manifest to manifest@envirocareutah.com or fax to (801) 413-5643, Shipping & Receiving Dept.

Subj: **9011-14-0001 through 0003 truck shipments. 1/4/05 (4:54 pm)**
Date: 1/4/2005 6:55:16 PM Eastern Standard Time
From: keaston@envirocareutah.com
To: Soestsb@aol.com

Good afternoon Melinda,

I am confirming the following shipment(s) for arrival at EOU:

Shipment(s) # :	Scheduled arrival
9011-14-0001 through 0003	1/11/05

CONTAINER RETURN CONFIRMATION NUMBER:
(for truck shipments only)

If you have any questions, please let me know. Thank you.

Karen D. Easton
Shipment Scheduler, Extraordinaire
scheduling@envirocareutah.com
keaston@envirocareutah.com
801.649.2088

**** Please send scheduling/shipment information to scheduling@envirocareutah.com ****

LLRW Mission Statement:
LLRW Operations will provide quality customer service by processing waste shipments in a manner that maximizes efficiency without compromising safety or compliance.

-----Original Message-----
From: Soestsb@aol.com [mailto:Soestsb@aol.com]
Sent: Tuesday, January 04, 2005 11:03 AM
To: scheduling@envirocareutah.com
Cc: kepperson@weskem.com
Subject: 5 Day Notification

Please schedule the attached.

Thank You

Attachment 9: ELECTRONIC SHIPMENT NOTIFICATION FORM

ELECTRONIC SHIPMENT NOTIFICATION FORM

DATE: 01/05/2005

E-Mail To: Building 50 Security Desk (**Lbutera@bnl.Gov**), Public Affairs (**Mrowe@Bnl.Gov**) **and** (**Genzer@Bnl.gov**) **BNL Transportation Safety Officer** (**hoey@bnl.gov**). Forward copies to the following WM Managers: FO&S Manager, Operations Manager, Project Administration & Control Manager and DOE Facility Representatives (Kneitel@bnl.gov, dikeakos@bnl.gov) **Emergency Management Personnel** Royce@bnl.gov, leighman@bnl.gov, searing@bnl.gov.

WM SHIPMENT NUMBER(s): W9011-14-0001

MANIFEST DOCUMENT NUMBER: W9011-14-0001

STATE MANIFEST NUMBER: N/A

WASTE BEING SHIPPED: **X RADIOACTIVE** ☐ HAZARDOUS ☐ MIXED ☐ DOT Non-Regulated

NUMBER OF PACKAGES: 2 – IP Bags on a Flatbed

Type of packages: ☐ Drums ☐ Bins ☐ Sea/Land ☐ Tanker ☐ Cask

☐ Lab-Pack ☐ Roll-off X **IP Bags on a Flatbed**

Departure Date and Time: 01/05/2005, 1100

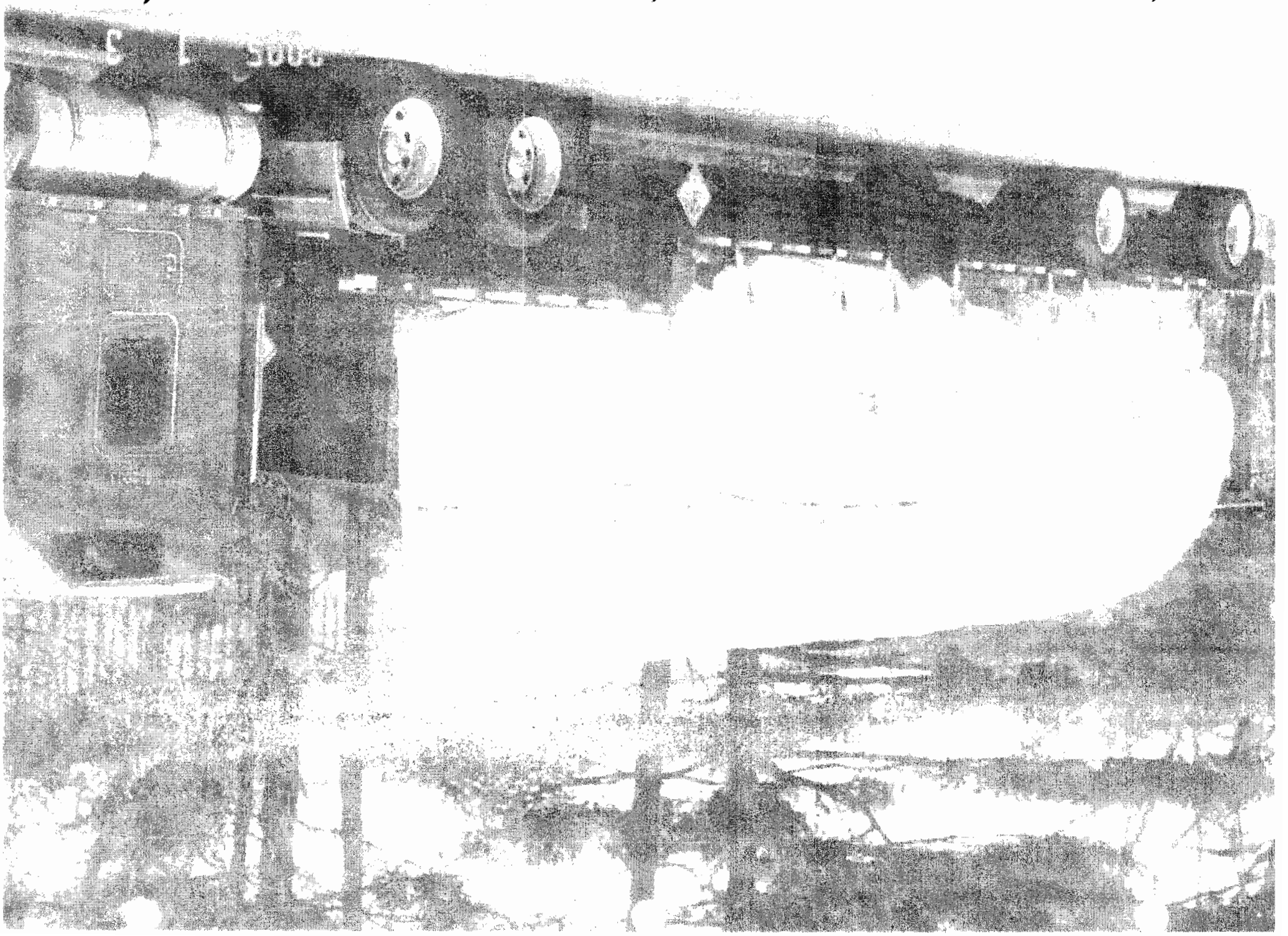
Destination of Planned Shipment: ENVIROCARE, UTAH

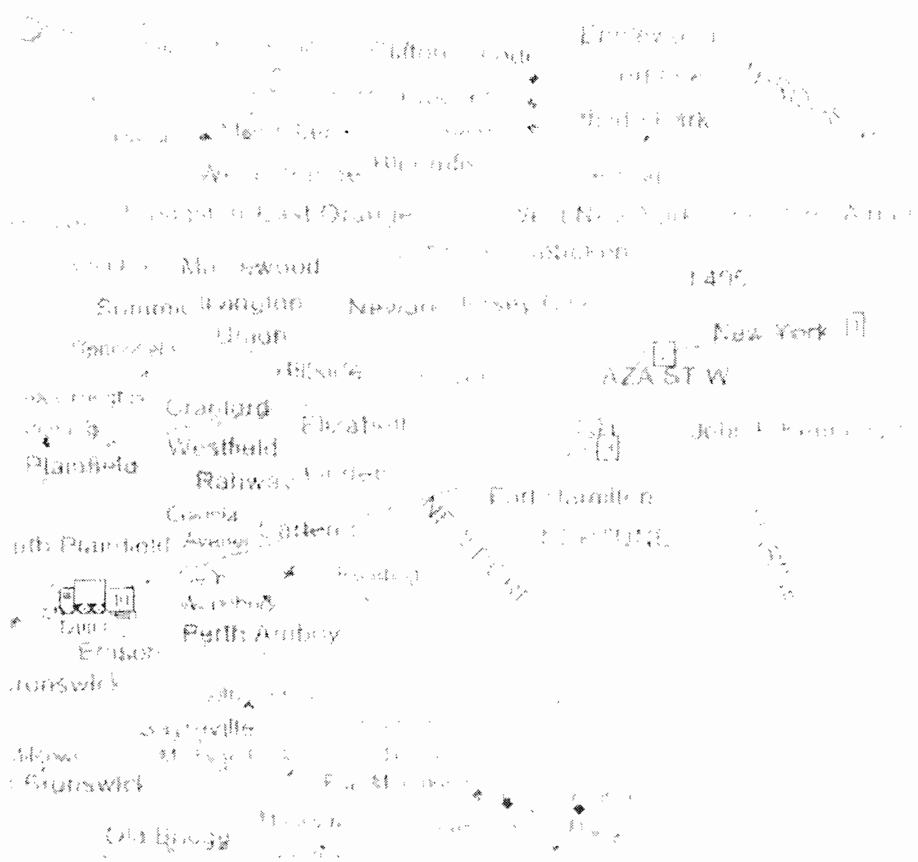
Planned date of arrival: 01/12/2005

Emergency contact number: 631-344-2238

Contact Person: BNL 24-Hour Security

Please contact Mike Clancy at 631-344-7651 or Steven Coleman 631-344-8705 for non-emergency questions.





Unit # T2003 **Total: 34** Page 1 of 4

Pos #	Time	Type	Position	Ign.	Action
10	01/05 11:04 PM EST	Regular	2 Mi NE of Piscataway, NJ	On	
9	01/05 10:04 PM EST	Regular	3 Mi WSW of Brooklyn, NY	On	
8	01/05 09:01 PM EST	Regular	4 Mi WSW of Brooklyn, NY	On	
7	01/05 08:01 PM EST	Regular	3 Mi WSW of Brooklyn, NY	On	
6	01/05 07:01 PM EST	Regular	3 Mi WSW of Brooklyn, NY	On	
5	01/05 06:00 PM EST	Regular	3 Mi WSW of Brooklyn, NY	On	
4	01/05 05:00 PM EST	Regular	3 Mi WSW of Brooklyn, NY	On	
3	01/05 04:00 PM EST	Regular	3 Mi WSW of Brooklyn, NY	On	
2	01/05 02:59 PM EST	Regular	2 Mi NNW of Brooklyn, NY	On	
1	01/05 01:56 PM EST	Regular	At Borough Hall, NY	On	

Page 1 of 4

Dates: 12/23/2004 to 1/6/2005 mm/dd/yyyy

12 AM 11 PM

Newest at top

Oldest at top

Attachment 9: ELECTRONIC SHIPMENT NOTIFICATION FORM

ELECTRONIC SHIPMENT NOTIFICATION FORM

DATE: 01/04/2005

E-Mail To: Building 50 Security Desk ( ), Public Affairs ( ) and ( ) **BNL Transportation Safety Officer** ( ). Forward copies to the following WM Managers: FO&S Manager, Operations Manager, Project Administration & Control Manager and DOE Facility Representatives (,) **Emergency Management Personnel** , , .

WM SHIPMENT NUMBER(s): W9011-14-0002 and 0003

MANIFEST DOCUMENT NUMBER: W9011-14-0002 and 0003

STATE MANIFEST NUMBER: N/A

WASTE BEING SHIPPED: **X RADIOACTIVE** ☐ HAZARDOUS ☐ MIXED ☐ DOT Non-Regulated

NUMBER OF PACKAGES: 4 – IP Bags on 2 Flatbeds

Type of packages: ☐ Drums ☐ Bins ☐ Sea/Land ☐ Tanker ☐ Cask

☐ Lab-Pack ☐ Roll-off X IP Bags on 2 Flatbeds

Departure Date and Time: 01/04/2005, 1230

Destination of Planned Shipment: ENVIROCARE, UTAH

Planned date of arrival: 01/11/2005

Emergency contact number: 631-344-2238

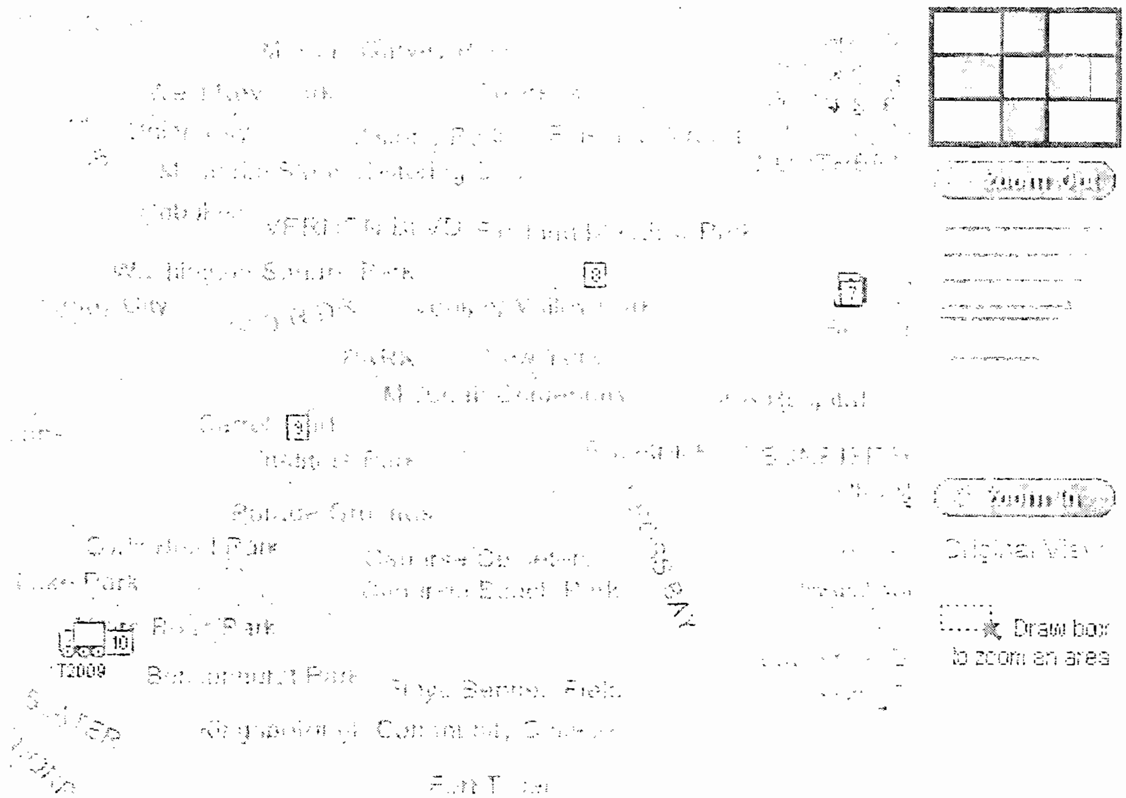
Contact Person: BNL 24-Hour Security

Please contact Mike Clancy at 631-344-7651 or Steven Coleman 631-344-8705 for non-emergency questions.

2005 3

OVER SIZE LOAD

2005



Unit # T2009 **Total: 53** Page 3 of 6

Pos #	Time	Type	Position	Ign.	Action
1	01/04 04:45 PM EST	Regular	At Queens Village, NY	On	Map
2	01/04 05:45 PM EST	Regular	At Queens Village, NY	On	Map
3	01/04 06:45 PM EST	Regular	At Queens Village, NY	On	Map
4	01/04 07:46 PM EST	Regular	At Queens Village, NY	On	Map
5	01/04 07:46 PM EST	Regular	At Queens Village, NY	Off	Map
6	01/04 09:04 PM EST	Regular	At Queens Village, NY	On	Map
7	01/04 09:39 PM EST	Regular	At Queens Village, NY	Off	Map
8	01/04 10:39 PM EST	Regular	At Rego Park, NY	On	Map
9	01/04 11:40 PM EST	Regular	2 Mi NW of Brooklyn, NY	On	Map
10	01/05 12:13 AM EST	Regular	2 Mi NW of Fairview, NJ	On	Map

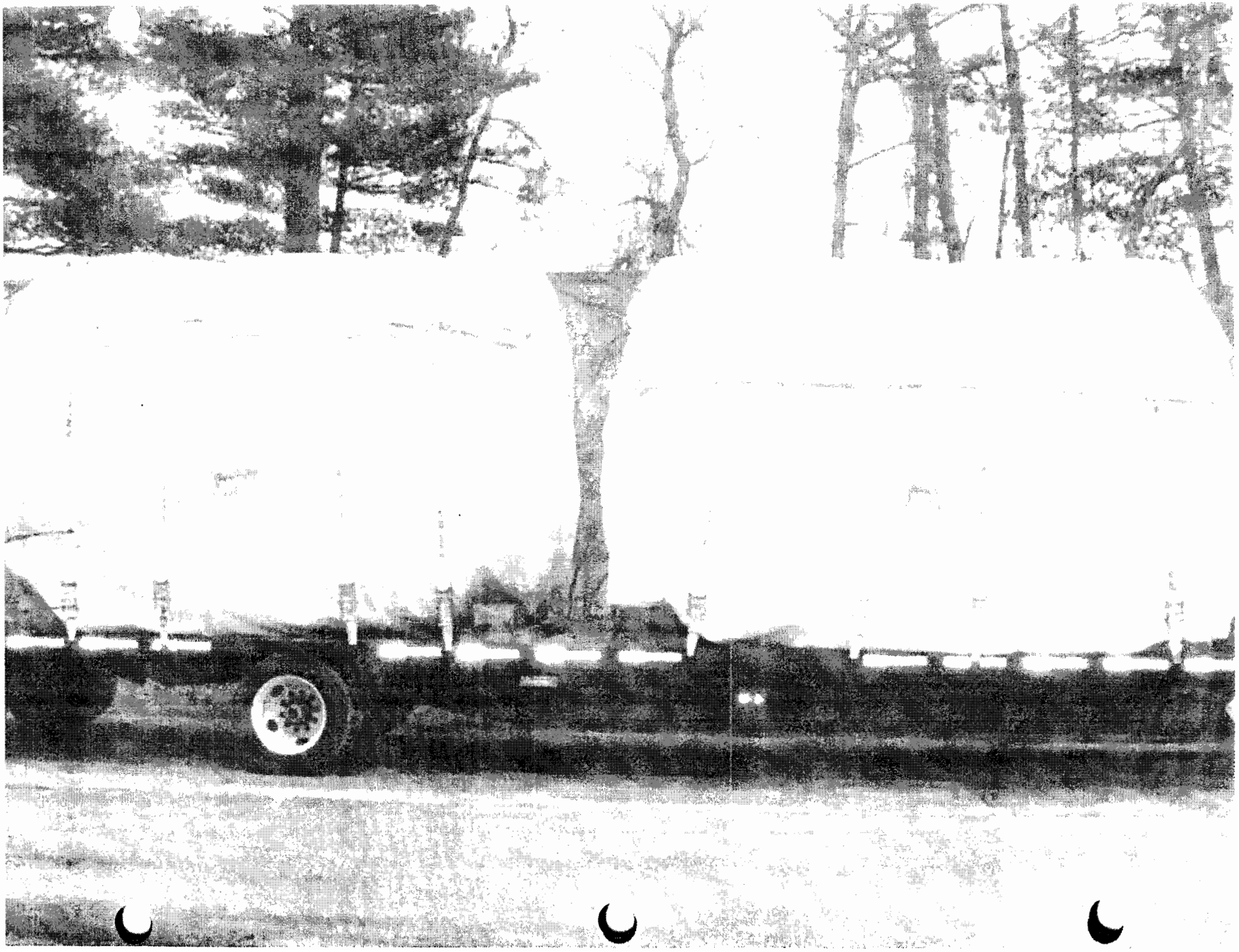
Page 3 of 6

Dates: 12/23/2004 to 1/6/2005 (mm/dd/yyyy)

12 AM to 11 PM

Newest at top

Oldest at top



Unit # T9703 **Total: 48** Page 3 of 5

Pos #	Time	Type	Position	Ign.	Action
1	01/04 07:59 PM EST	Regular	1 Mi WNW of Queens Village, NY	On	
2	01/04 08:17 PM EST	Regular	At Queens Village, NY	Off	
3	01/04 09:50 PM EST	Regular	At Queens Village, NY	On	
4	01/04 10:51 PM EST	Regular	1 Mi ENE of Maspeth, NY	On	
5	01/04 11:51 PM EST	Regular	2 Mi W of Brooklyn, NY	On	
6	01/05 12:51 AM EST	Regular	1 Mi WNW of Edison, NJ	On	
7	01/05 01:53 AM EST	Regular	2 Mi WNW of Edison, NJ	On	
8	01/05 02:53 AM EST	Regular	2 Mi NE of Piscataway, NJ	On	
9	01/05 03:54 AM EST	Regular	2 Mi S of South Plainfield, NJ	On	
10	01/05 04:54 AM EST	Regular	2 Mi S of South Plainfield, NJ	On	

Page 3 of 5

Dates: 12/23/2004 to 1/6/2005 (mm/dd/yyyy)

12 AM to 11 PM

Newest at top

Oldest at top

Subj: 9011 signed Form 540's
Date: 1/12/2005 12:51:28 PM Eastern Standard Time
From: "Sara DeRyke" <slderyke@envirocareutah.com>
To: <Soestsb@aol.com>, "Singledecker, Steven" <singledecker@bnl.gov>
File: 2005.01.13.PDF
Sent from the Internet (Details)

The attached signed Form 540(s) is/are to acknowledge receipt of the shipment(s).

You will no longer receive Form 540's by mail unless it is requested.

Call or email me if you have questions or need additional paperwork.

Thank you,

Sara DeRyke
Transportation Compliance Department
Phone: (435) 884-0163 or (435) 884-0129 - ext. 2037
Direct: (801) 649-2037 Fax: (801) 413-5643
Website: www.envirocareutah.com
Please send all manifest related emails to: manifest@envirocareutah.com

-----Original Message-----
From: Your Name [mailto:your_email@here.com]
Sent: Thursday, January 13, 2005 1:51 AM
To: slderyke@envirocareutah.com
Subject: Scanned from CL-ARCS-SR-IM80 [E-Mail_Recipients]

Scanned from CL-ARCS-SR-IM80
Public Scan
E-Mail_Recipients
Date:2005/01/13
Pages:3
Resolution:200

#2

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER

1 EMERGENCY TELEPHONE NUMBER (Include Area Code): 616-868-9110

ORGANIZATION: First Response, Inc.,

2 IS THIS AN "EXCLUSIVE USE" SHIPMENT? [✓] YES [ ] NO

3 TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 2

4 DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [✓] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER

5 SHIPPER -- NAME AND FACILITY
U.S. DOE c/o Brookhaven National Lab.
Fifth Avenue
Bldg.869
Upton, NY 11973

Utah Generator Site Access Permit No: 0112001235

SHIPMENT NUMBER: W-9011-14-0001

CONTACT: Melinda B Soest

6 CARRIER -- Name and Address
TAG Transport, Inc.
2818 Rosne State Highway
Harriman, TN 37748

CONTACT: Chuck Mead

SIGNATURE -- Authorized carrier acknowledging waste receipt

SHIPPER I.D. NUMBER: 9011-14-0001
[ ] COLLECTOR
[ ] PROCESSOR
[✓] GENERATOR TYPE (Specify) O
TELEPHONE NUMBER (Include Area Code): 865-712-0337

EPA I.D. NUMBER: TNR000003111

SHIPPING DATE: 12/27/2004 1/3/05

TELEPHONE (Include Area Code): 865-882-0457

DATE: 12-27-04

7 FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 2 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8 MANIFEST NUMBER (Use this number on all continuation pages): 9011-14-0001

9 CONSIGNEE - Name and Facility
Envirocare of Utah, Inc.
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029
L79733

CONTACT: Shipping and Receiving

TELEPHONE (Include Area Code): (435)884-0155

SIGNATURE -- Authorized consignee acknowledging waste receipt

DATE: 1/11/05

10 CERTIFICATION
This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE

TITLE

DATE: 1/13/2005

11 U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted,RQ	NA	.2	Solid	Am-241	Co-60	Cs-137	H-3	5.3728E+03	1.4521E+02	LSA-II	5500 LBS; 1200 FT3	TANK A-2
				Pu-239	Ra-226	Sr-90	U-234					
				U-236	U-238							
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	7	Solid	Am-241	Co-60	Cs-137	H-3	6.7433E+03	1.8225E+02	LSA-II	5500 LBS; 1200 FT3	TANK B-2
				Pu-239	Ra-226	Sr-90	U-234					
				U-235	U-238							

FOR CONSIGNEE USE ONLY

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
✓ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A HAZARDOUS MATERIALS. Generator represents & warrants that Waste Material __ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1.

B TITLE. Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C WASTE MATERIAL. Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D INDEMNIFICATION. Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) or if the shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (04-03)

FORM 540 — Envirocare of Utah, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1 EMERGENCY TELEPHONE NUMBER (Include Area Code): 615-868-9110

ORGANIZATION: First Response, Inc.

2 IS THIS AN "EXCLUSIVE USE" SHIPMENT? [✓] YES [ ] NO

3 TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 2

4 DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [✓] NO
If "Yes," provide Manifest Number =====>

EPA MANIFEST NUMBER

5 SHIPPER NAME AND FACILITY
U.S. DOE c/o Brookhaven National Lab.
Fifth Avenue
Bldg.860
Upton, NY 11973

Utah Generator Site Access Permit No: 0112001235

SHIPMENT NUMBER: W-9011-14-0002

CONTACT: Melinda B. Soest

TELEPHONE NUMBER (Include Area Code): 865-712-8337

6 CARRIER – Name and Address
TAG Transport
2818 Roane State Highway
Harriman, TN 37748

EPA ID NUMBER: TNR000003111

SHIPPING DATE: 10/31/2004

TELEPHONE (Include Area Code): 865-882-0457

CONTACT: Chuck Mead

SIGNATURE – Authorized carrier acknowledging waste receipt

DATE: 11-8-04

SHIPPER ID NUMBER: 9011-14-0002

[ ] COLLECTOR
[ ] PROCESSOR
[✓] GENERATOR TYPE (Specify): O

7 FORM 540 AND 540A: PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A: 2 PAGE(S)
FORM 542 AND 542A: None PAGE(S)
ADDITIONAL INFORMATION: None PAGE(S)

8 MANIFEST NUMBER (Use this number on all continuation pages): 9011-14-0002

9 CONSIGNEE - Name and Facility
Envirocare of Utah, Inc.
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029

SIGNATURE – Authorized consignee acknowledging waste receipt

CONTACT: Shipping and Receiving

TELEPHONE (Include Area Code): (435)884-0155

DATE: 1-11-05

10 CERTIFICATION
This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: Melinda B. Soest

TITLE: Senior Transportation Broker

DATE: 1/28/05

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY MBq	16. TOTAL PACKAGE ACTIVITY mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	1	Solid	Am-241	Co-60	Cs-137	H-3	5.3646E+03	1.4499E+02	LSA-II	5500 LBS; 1200 FT3	TANK A-1
				Pu-239	Ra-226	Sr-90	U-234					
				U-235	U-238							
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	1	Solid	Am-241	Co-60	Cs-137	H-3	5.9611E+03	1.6111E+02	LSA-II	5500 LBS; 1200 FT3	TANK B-3
				Pu-239	Ra-226	Sr-90	U-234					
				U-235	U-238							

FOR CONSIGNEE USE ONLY

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc. Inadequate
___ Container Integrity Inadequate
___ Other
✓ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A HAZARDOUS MATERIALS Generator represents & warrants that Waste Material is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land disposal restriction notice and/or certification as required by 40 CFR 268.1.

B TITLE Upon acceptance of the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C WASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D INDEMNIFICATION Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (04-03)

FORM 540 — **Envirocare of Utah, Inc.**

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 515-868-9110

ORGANIZATION: First Response, Inc.

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [✓] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 2

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [✓] NO
If "Yes," provide Manifest Number ==>

EPA MANIFEST NUMBER:

5. SHIPPER -- NAME AND FACILITY
U.S. DOE c/o Brookhaven National Lab
Fifth Avenue
Bldg.660
Upton, NY 11973

Utah Generator Site Access Permit No: 0112001235

SHIPMENT NUMBER: W-9011-14-0003

CONTACT: Melinda B. Scest

6. CARRIER -- Name and Address
TAG Transport
2818 Roane State Highway
Harriman, TN 37748

CONTACT: Chuck Maad

SIGNATURE -- Authorized carrier acknowledging waste receipt

SHIPPER ID NUMBER: 9011-14-0013

[ ] COLLECTOR
[ ] PROCESSOR
[✓] GENERATOR TYPE (Specify) G

TELEPHONE NUMBER (Include Area Code): 865-712-8337

EPA ID NUMBER: TNR000003111

SHIPPING DATE: 12/21/2004 1/8/2005

TELEPHONE (Include Area Code): 865-882-0457

DATE: 1-5-05

7. FORM 540 AND 540A — PAGE 1 OF — 1 PAGE(S)
FORM 541 AND 541A — 2 PAGE(S)
FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 9011-14-0003

9. CONSIGNEE - Name and Facility
Envirocare of Utah, Inc.
Clive Disposal Site (Bulk Waste Facility)
Interstate 80, Exit 49
Clive, UT 84029
L79730

CONTACT: Shipping and Receiving
TELEPHONE (Include Area Code): (435)884-0155

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE: 1-11-05

10. CERTIFICATION
This is to certify that the herein-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations

AUTHORIZED SIGNATURE: Melinda B. Scest

TITLE: Senior Transportation Broker

DATE: 1/8/2005

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. ISA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	20	Solid	Am-241 Co-60 Cs-137 H-3 Pu-239 Ra-226 Sr-90 U-234 U-235 U-238	1.1369E+04	3.0727E+02	LSA-II	5500 LBS; 1200 FT3	TANK A-3
Radioactive material, low specific activity (LSA-II), 7, UN 3321, Fissile Excepted, RQ	NA	15	Solid	Am-241 Co-60 Cs-137 Pu-239 Ra-226 Sr-90 U-234 U-235 U-238	1.1193E+04	3.0251E+02	LSA-II	5500 LBS; 1200 FT3	TANK B-1

FOR CONSIGNEE USE ONLY

___ Record Waste Description Inadequate
___ Contamination or Leakage Detected
___ Unexpected Exposure Rates Detected
___ Labels, Markings, etc Inadequate
___ Container Integrity Inadequate
___ Other
✓ No Violations Detected on this Shipment

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS. Generator represents & warrants that Waste Material __ is (or) ✓ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest along with the appropriate land disposal restriction notice and/or certification as required by 40 CFR 268.7.

B. TITLE. Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in Envirocare of Utah, Inc.

C. WASTE MATERIAL. Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D. INDEMNIFICATION. Generator agrees to indemnify Envirocare of Utah, Inc., its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (04-03)

Attachment 4
Post-Remedial Dose Assessment Analytical Results

Included under separate cover due to size constraints

Attachment 5
ORISE Independent Field Verification Report

To Be Provided By Brookhaven

Attachment 6
Correlation Curves of Instrument Response to Measured Soil Activity

K2 ISOC vs Severn Trent Cs-137 Analytical Correlation
For Building 811
Underground Storage Tank Removal
And Soils Remediation

BROOKHAVEN NATIONAL LABORATORY SITE
BROOKHAVEN, NY

June 7, 2005

Prepared for:
BROOKHAVEN NATIONAL LABORATORY
Upton, New York 11973-5000

Prepared by:
WESTON SOLUTIONS, INC.
205 Campus Drive
Edison, New Jersey 08837-3939

LabCorrelation

Introduction

Samples from D-yard East, the A/B vault yard and B3 Vault area were utilized to develop a correlation between K2 ISOCS results and Severn trent Laboratories. A total of 52 mples were used in the correlations. The data was analyzed using WINKS 4.80 statistics software.

Findings

The data had a correlation coefficient of 0.98.

The Linear regression equation is

STL (pCi/g) = -0.30 + 1.11 * K2 (pCi/g)

Data

D-yard East data comparison

Severn Trent Sample Number	K2 Sample Number	Severn Trent Cs-137 result (pCi/g)	K2 ISOCS Cs-137 result (pCi/g)
20195-001	BNL-737	15.8	16.21
20195-002	BNL-738	0.85	1.16
20195-003	BNL-739	5.08	4.14
20195-004	BNL-740	2.86	3.08
20195-005	BNL-741	8.7	7.83
20195-006	BNL-742	7.8	7.46
20195-007	BNL-743	4.97	3.03
20195-008	BNL-744	5.76	5.89
20195-009	BNL-745	1.56	1.93
20915-010	BNL-746	9.3	7.4
20195-011	BNL-747	0.6	0.89
20195-012	BNL-748	1.57	2.08
20195-013	BNL-749	0.3	0.67
20195-014	BNL-750	5.27	4.61
20195-015	BNL-751	0.77	1.2
20195-016	BNL-752	4.82	3.75
20195-017	BNL-753	0.25	0.75
20195-018	BNL-754	12.3	8.25
20195-019	BNL-755	3.43	4.13
20195-020	BNL-756	2.99	3.13
20195-021	BNL-757	2.48	2.15

B/3 Vault Floor Samples

Severn Trent Sample Number	K2 Sample Number	Severn Trent Cs-137 result (pCi/g)	K2 ISOCS Cs-137 result (pCi/g)
K2-811-5-18-05 A-001	BNL-864	3	5.3
K2-811-5-18-05 A-002	BNL-865	0.16	0.56
K2-811-5-18-05 A-003	BNL-866	0.45	1.67
K2-811-5-18-05 A-004	BNL-867	0.5	0.8
K2-811-5-18-05 A-005	BNL-868	1.1	0.35
K2-811-5-18-05 A-006	BNL-869	0.47	0.87
K2-811-5-18-05 A-007	BNL-870	0.3	1.5
8-11	BNL-896	0.3	0.7
26-11	BNL-897	2.8	3.7
63-11	BNL-898	18.2	16.0
17-27	BNL-899	10.7	5.4
53-27	BNL-900	28.7	26.1
72-27	BNL-901	9.7	8.2
8-43	BNL-902	1.2	1.5
26-43	BNL-903	4.4	5.6
44-43	BNL-904	0.5	0.6
63-43	BNL-905	3.1	2.9
81-43	BNL-906	5.1	5.8
99-43	BNL-907	1.7	1.9
17-59	BNL-908	0.1	0.3
35-59	BNL-909	1.1	1.9
53-59	BNL-910	12.7	13.2
72-59	BNL-911	8.6	8.1
90-59	BNL-912	2.6	2.7
108-59	BNL-913	0.9	1.1
8-75	BNL-914	0.6	0.8
26-75	BNL-915	0.1	0.3
44-75	BNL-916	0.4	0.6
63-75	BNL-917	2.3	3.4
81-75	BNL-918	12.7	12.4
99-75	BNL-919	9.8	8.4

Summary

K2 ISOCS data was a very good indicator of expected laboratory results. All results in the study were similar order of magnitude.

Jeffrey S. Vollmer, CHP

Attachment 7
Final Scan/pCi/g Correlation

Final Scan/pCi/g Correlation
For Building 811
Underground Storage Tank Removal
And Soils Remediation

BROOKHAVEN NATIONAL LABORATORY SITE
BROOKHAVEN, NY

June 2, 2005

Prepared for:
BROOKHAVEN NATIONAL LABORATORY
Upton, New York 11973-5000

Prepared by:
WESTON SOLUTIONS, INC.
205 Campus Drive
Edison, New Jersey 08837-3939

Scan Correlation

Introduction
Samples and surveys for final status survey were utilized to develop a final correlation. The data was analyzed using WINKS 4.80 statistics software.

D Yard correlation
After MARISSM sampling occurred in the D-yard area, a correlation based on scan results in the area and ISOCS analysis was performed. Seventeen samples were used in the correlation.

The data had a correlation coefficient of 0.84.

The Linear regression equation is

CPM = 3020.3 CPM + 377.1 * pCi/g

For 23 pCi/g

CPM = 3020.3 CPM + 377.1 * 23

Scan Value = 11693 CPM

A/B yard correlation
After MARISSM sampling occurred in the A/B yard, an additional correlation based on scan results in that area and ISOCS analysis was performed. Twenty-four samples were used in the correlation.

The data had a correlation coefficient for the A/B yard was 0.61.

The Linear regression equation is

CPM = 5900.24 CPM + 367.78 * pCi/g ISOCS

For 23 pCi/g

CPM = 5900.24 CPM + 367.78 * 23

Scan Value = 14359 CPM

Summary
Our initial estimate of 15,000 CPM would still suffice as the remediation cut line without sampling. 10,000-15,000 CPM should be treated as the gray region with sampling being utilized to determine if additional remediation is necessary.

Jeffrey S. Vollmer, CHP

Attachment 8
Lessons Learned Forms

Lessons Learned Form: Building 811 Remediation
Brookhaven National Lab

The Lessons Learned Form is to be filled out upon identification of any job practice or site condition that warrants attention, or to provide recognition for a good work practice noted at the job site. This form may be filled out by any employee/worker. A copy of this form is to be forwarded to the Project Manager and Safety Officer.

Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 10/18/04

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

Temporary wood fall prevention platforms were installed over openings in the A/B Yard. A subcontractor was seen with one foot atop the temporary platform although all workers had been told that the platforms were for fall protection only and not to support weight-bearing loads, including the workers themselves.

Suggestion or Recommendation for improvement:

Work stopped to discuss proper safety in the vicinity of temporary wood platforms

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

No corrective action required. Addressed upon notice.

Lessons Learned Form: Building 811 Remediation
Brookhaven National Lab

The Lessons Learned Form is to be filled out upon identification of any job practice or site condition that warrants attention, or to provide recognition for a good work practice noted at the job site. This form may be filled out by any employee/worker. A copy of this form is to be forwarded to the Project Manager and Safety Officer.

Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 11/02/04

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

Received notice from BNL of elevated analytical results from Yard work area. Stopped work and assessed current conditions with monitoring equipment to ensure that workers were not in danger of exposure.

Suggestion or Recommendation for improvement:

Direct-read instruments did not detect any elevated rad activity. K2 determined that work could resume and workers were no longer in danger of over-exposure.

Elevated analytical results were from samples collected several weeks prior and Weston was not notified of the elevated readings until well after BNL received data from the lab.

Suggest ensuring that analytical data is released to Weston upon BNL's receipt and notification of exceedences is provided promptly to better protect workers from unnecessary rad exposure.

Job Practice/Person/Condition that deserves recognition:

Kevin Kosko acted promptly and decisively to ensure that workers were protected from potential further exposure until issue was resolved with BNL.

Safety Officer or Site Manager: Corrective Action (if any) and due date.

Lessons Learned Form: Building 811 Remediation
Brookhaven National Lab

The Lessons Learned Form is to be filled out upon identification of any job practice or site condition that warrants attention, or to provide recognition for a good work practice noted at the job site. This form may be filled out by any employee/worker. A copy of this form is to be forwarded to the Project Manager and Safety Officer.

Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 10/25/04

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

New rental excavator brought on-site did not contain lift capacity chart or operator's manual. Did not pass BNL inspection due to missing documentation.

Suggestion or Recommendation for improvement:

Proper documentation obtained from vendor.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

10/26/04 Review and present to BNL all equipment and personnel inspection/training/maintenance records and equipment manuals.

Lessons Learned Form: Building 811 Remediation
Brookhaven National Lab

The Lessons Learned Form is to be filled out upon identification of any job practice or site condition that warrants attention, or to provide recognition for a good work practice noted at the job site. This form may be filled out by any employee/worker. A copy of this form is to be forwarded to the Project Manager and Safety Officer.

Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 03/04/05

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

During scabbling operations, dust control could not be adequately performed due to clogged HEPA filter.

Suggestion or Recommendation for improvement:

Scabbling work suspended until HEPA filter could be replaced and safe dust control procedures could be re-initiated.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

Addressed immediately.

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Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 04/18/05

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

While performing hot work, sparks caused two small grass fires. Both fires were quickly extinguished with a garden hose.

Suggestion or Recommendation for improvement:

Hot work will only be performed in areas which have soil or in shielded areas. Areas with fire potential will be wet down before starting hot work. Fire watch will be provided with garden hose.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

Addressed immediately.

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Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 11/23/04

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

Upon arrival of rental manlift, the authenticity of several bolts holding the wheel cover in place could not be determined by the BNL inspector.

Suggestion or Recommendation for improvement:

Since the bolt function was not load-bearing, BNL determined that the manlift could be utilized for the project. In the future, rental equipment components must be verified as compliant and manufacturer-specified for the task at hand. Equipment inspection per DOE requirements should be performed be a qualified individual with prior S/CI awareness training. Weston personnel should minimally be trained in OSHA 30-hour Construction Safety.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

No corrective action required.

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Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 05/26/05

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

During excavation of soils, a buried telephone wire was broken. The wire was located directly in a hard clay soil. The wire was indicated as being three feet below ground surface, but was actually located ten inches below ground surface.

Suggestion or Recommendation for improvement:

Work stopped and BNL repaired phone line.

Weston had proper dig permit and mark-out of area utilities prior to commencement of excavation activities. Will need to use more care during excavation to probe for mis- or unmarked utility locations.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

Addressed immediately.

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Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 01/26/05

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

K2 RCT sprained ankle while walking on a slick working surface (ramp).

Suggestion or Recommendation for improvement:

Work stopped and entire crew met to discuss issue and prevention methods.

Non-slip tape will be placed on all ramps. All walkways will be cleared and salted to keep free from ice/snow. Ramps will be overturned at end of each work day to prevent snow/ice accumulation overnight.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

Addressed immediately.

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Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 11/19/04

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

As USTs are removed from the ground, they are required to be bagged for shipment. The bags are several layers thick and it is difficult to properly bag the tanks from the ground level.

Suggestion or Recommendation for improvement:

Use of manlifts placed adjacent to the USTs will allow for easier and safer tank bagging.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

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Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 10/22/04

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

During welding activities, the welding arc was visible outside the work area due to inadequate shielding. Work was stopped immediately upon notice.

Suggestion or Recommendation for improvement:

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

No corrective action required. Addressed upon notice.

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Employee Name (optional):	Site Name or Office Location: BNL Building 811 Remediation	Date: 03/10/05

Comments on any Job Practice or Site Condition that you feel needs improvement or requires attention:

During excavation of soils, a buried, unmarked electrical wire was broken. The wire was not encased in a conduit and was not shown or identified on any figures.

Suggestion or Recommendation for improvement:

Work stopped and electrician brought out to determine wire's purpose and potential damage. Wire may or may not be in use as part of a cathodic protection system for the USTs. Electrical capacity of wire is in millivolts. Highest voltage in system is 110 volts. Wire cannot be repaired, must be replaced. Work resumed after lines better identified with electrician's assistance.

Weston had proper dig permit and mark-out of area utilities prior to commencement of excavation activities. Will need to use more care during excavation to probe for mis- or unmarked utility locations.

Job Practice/Person/Condition that deserves recognition:

Safety Officer or Site Manager: Corrective Action (if any) and due date.

Addressed immediately.