

**RMU-2 PROJECT SPECIFIC  
SOIL EXCAVATION  
MONITORING, MANAGEMENT  
AND  
CORRECTIVE ACTION  
PLAN**

*[NOTE: To be added to the Permit in its entirety]*

November 2013



**RMU-2 PROJECT SPECIFIC SOIL  
EXCAVATION MONITORING  
AND  
MANAGEMENT PLAN**

**CWM CHEMICAL SERVICES, LLC.  
MODEL CITY FACILITY**

**November 2009  
Revised November 2013**

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## I Introduction

CWM Chemical Services, LLC (CWM) owns and operates a commercial hazardous waste treatment, storage, and disposal facility (TSDF) located in Model City, Niagara County, New York. The Model City facility began operation in 1972 as ChemTrol Pollution Services, Inc. As a result of corporate acquisitions and name changes, CWM Chemical Services, LLC, a subsidiary of Waste Management, Inc., is the present owner and operator of the facility. The facility is located on Balmer Road in Model City, New York approximately 1.9 miles east of New York State Route 18 (Creek Road) and occupies land in the towns of Lewiston and Porter. All existing treatment, storage, and disposal facilities on the site are located within the Town of Porter.

Prior to being operated as a Treatment, Storage and Disposal Facility (TSDF), the property currently owned by CWM Chemical Services, LLC (CWM), was utilized by the U.S. Government from the early 1940s to the mid 1960s as part of the Lake Ontario Ordinance Works (LOOW). Some of these U.S. Government activities resulted in the contamination of certain areas of the Model City Facility with chemical and radioactive wastes. On April 27, 1972, the New York State Department of Health (NYSDOH) issued an order relating to approximately 614 acres of former LOOW property, which imposed certain restrictions on the use of said property. On June 21, 1974, NYSDOH issued a supplemental order to amend the 1972 order.

As a result of extensive corrective remedial actions taken at the CWM property since the 1972 Order, on May 7, 1992, the Department of Energy (DOE) certified that the majority of the CWM property was “in compliance with applicable (radiological) decontamination criteria and standards” and provided “assurance that future use of the property will result in no radiological exposure above DOE criteria and standards established to protect members of the general public or site occupants”. Decontamination was certified for all properties owned by CWM, with the exception of three properties designated as E, E’ and G. These properties were excluded from the decontamination certification because an area within each property could not be properly assessed due to inaccessibility and the DOE could not confirm that contamination did not exist in these areas. The three inaccessible areas were (1) soil beneath Lagoon 6 and the berm surrounding that lagoon on Property E, (2) soil beneath a roadway and PCB storage tanks on Property E’, and (3) soil beneath the treated wastewater surface impoundment on the western edge of Property G. After reviewing all historical documentation and data related to the areas covered by the Orders, both in the NYSDOH files and files provided by CWM, the NYSDOH determined a potential for residual radiological contamination still exists and that monitoring is necessary prior to and during any excavation activities. In order to address this concern, the NYSDEC included permit condition J.3.b. in Module II (Corrective Action) of CWM’s Sitewide Permit.

As required by Condition D.4.b of Exhibit B (Supplement to Module II - Corrective Action) of CWM’s Sitewide 6 NYCRR Part 373 Permit, a Project Specific Soil Excavation Monitoring and Management Plan is required for all excavations/soil disturbances exceeding 1,000 square meters ( $m^2$ ) or 150 cubic meters ( $m^3$ ). Since CWM is in the process of planning the construction of a new hazardous waste landfill designated Residuals Management Unit No. 2 (RMU-2) at the site, along with a new treated wastewater surface impoundment (Fac Pond 5) and the relocation of

several operations which are currently located within the RMU-2 footprint, which will involve the excavation of soils in volumes greater than the above thresholds, this Project Specific Plan is thus being prepared in anticipation of that construction project.

## II RMU-2 Overview

CWM is proposing to construct and operate additional secure landfill disposal capacity to replace depleted existing hazardous and industrial non-hazardous waste disposal capacity at its site located at the Model City Facility. The proposed facility will be designated Residuals Management Unit 2 (RMU-2) and will be located within the property boundaries of the Model City Facility. The proposed facility is approximately 43.5 acres which will be divided into 6 operating cells. The approximate capacity of the landfill will be 4 million cubic yards. The landfill will be constructed with a double composite liner system (primary and secondary systems) with leachate collections systems for each cell. Other supporting operational units which need to be constructed includes a Facultative Pond for the storage of treated wastewaters, concrete secondary containment structures for the storage of waste containers, a new drum management facility, wetlands mitigation, and finally, a combined heavy equipment and facility maintenance building. All of these construction activities are considered to be part of the RMU-2 Project.

In many of the areas to be excavated as part of the RMU-2 project, a surface radiological survey has been performed as part of the Sitewide Radiological Survey Plan (Sitewide Survey). The only areas not surveyed are currently inaccessible (e.g., Fac Ponds containing water, highly vegetated or wooded areas). In addition, CWM has performed a subsurface investigation of the proposed footprint area of RMU-2, including those of the supporting operating units (Drum Management Building Fac Pond& 5). The subsurface investigation included both radiological and chemical screening of the soils up to the proposed excavation depths of each unit. Reports of both activities have been previously forwarded to the NYSDEC for review.

## III Excavation Methods

In order to complete the construction of RMU-1 and the associated operating units, several types of excavation methods will be utilized. A brief description and examples of each excavation method is as follows:

**Clearing and Grubbing:** Removal of vegetation and trees within the proposed landfill footprint and associated operating units. This activity will utilize tree/stump grinders, bulldozers, excavators, haul trucks, and similar heavy equipment to scrape and/or cut down existing vegetation and trees. This excavation method typically only disturbs the soil within 6 inches of the surface, with the exception of tree stumps.

**Mass Excavation:** This method of excavation will be used for removing large quantities of soil at varying depths over a wide area. Examples of this type of excavation include removing soils to the baseliner subgrades of the landfill or facultative pond, and removing soils from existing soil stockpiles on-site. Bulldozers, excavators, haul trucks, and similar heavy equipment are typically used to complete this activity.

**Deep Trenching:** This method of excavation will be used for removing large quantities of soil at depths greater than 4 feet, but over a narrow width where accessibility to the trench walls and surfaces is not feasible. Examples of this type of excavation include the proposed slurry wall located at the interior bottom toe of slope within the landfill and the construction of the new leachate force main transfer line. Excavators, haul trucks, and similar heavy equipment are typically used to complete this activity.

**Shallow Trenching:** This method of excavation will be used for removing large quantities of soil at depths less than 4 feet, but over a narrow width where human occupancy within the trench is required. An example of this is the excavation of new building foundations or manhole installations. Bulldozers, excavators, haul trucks, and similar heavy equipment are typically used to complete this activity.

All soils excavated from the RMU-2 footprint and other associated construction activities will remain on-site and will be evaluated for future use in construction activities where necessary.

## **IV Radiological Detection**

As part of the RMU-2 Project, several excavation methods and radiological scanning techniques will be utilized in order to meet the requirements of condition J.3.b of Module II (Corrective Action) of CWM's Sitewide 6 NYCRR Part 373 Permit. Due to the type of material excavated, configuration of the excavation, and accessibility within the excavation, scanning techniques and equipment will vary in order to scan the disturbed soils adequately. Note that these excavations methods will most likely exceed the threshold quantity of 150 cubic meters (m<sup>3</sup>) which activates the requirement for a Project Specific Plan as per CWM's Permit.

### **A. Radiological Scanning for Clearing and Grubbing**

Typically for clearing and grubbing activities, soil disturbance occurs from the removal of vegetation, brush, tree stumps, etc.. Initial scanning of the ground surface is difficult due to the presence of the vegetation and brush. The scanning equipment will become entangled and possibly damaged while trying to manually scan the surfaces. In addition, the Rad Tech is exposed to possible tripping hazards and injury while attempting to scan these areas. Historically, CWM has considered these areas to be inaccessible for manual scanning activities. Therefore, CWM is proposing to scan these areas utilizing the method outlined in Section III(A)(2) of this plan, ie., using the portal monitors. The vegetation, brush and tree stumps will be excavated and placed into haul trucks and driven through the portal monitors. Once the surface has been adequately cleared and deemed suitable for access, a manual walkover of the area will be completed as outlined in Section III(A)(1) of this plan.

### **B. Radiological Scanning for Mass Excavations**

Generally, mass excavations include the removal of large quantities of soil over wide areas at varying depths. In addition, large heavy equipment is utilized to accomplish the excavation activities. Manually radiologically scanning every 6 inch lift of soil in a continuous fashion

would be hazardous to the Rad Tech due to their proximity to the heavy equipment and the irregular surfaces on which they must walk. In addition, the heavy equipment utilized for mass excavations is not engineered for maintaining a 6 inch removal cut of soil. For mass excavations, CWM will initially complete a surface walkover of the area to be excavated before any soil disturbance activity occurs for all areas not previously scanned during the Sitewide Survey. Once this is completed and it has been verified that the surface does not contain any elevated radiological activity above the action level, mass excavation of the area may begin. The soil will be excavated and placed within the haul trucks and driven through the portal monitors for radiological scanning. Previous subsurface investigations support the use of this method. Upon completion of the mass excavation, a final manual walkover survey will be completed as long as surfaces are deemed to be safely accessible for scanning.

### **C. Radiological Scanning for Deep Trenches**

The radiological scanning of deep trenches is difficult to accomplish due to the narrow configuration and the inability to access the trench thoroughly enough to complete the scanning of all surfaces while still obtaining reliable data. Scanning of a deep trench will be performed by first radiologically scanning the initial surface area of the trench footprint for all areas not previously scanned during the Sitewide Survey. Then the trench surfaces will be scanned at approximately every 6 inches up to a maximum depth of 4 feet. Below 4 feet, the excavated soil will be scanned only by the portal monitors. Minimizing the potential fall hazards to the Rad Tech and reducing cave in potential to all workers is a key concern for all parties. All soil excavated from the deep trench will be placed into haul trucks and driven through the portal monitors for radiological scanning. Upon completion of the deep trench excavation, a final radiological scan of the exposed excavation will not be completed.

### **D. Radiological Scanning of Shallow Trenches**

The radiological scanning of shallow trenches will be performed by first radiologically scanning the initial surface area of the trench footprint for all areas not previously scanned during the Sitewide Survey. Then the trench surfaces will be scanned at approximately every 6 inches up to a maximum depth of 4 feet. All excavated soil from the shallow trench will be placed into haul trucks and driven through the portal monitors for additional radiological scanning. Upon completion of the shallow trench excavation, a final radiological scan of the exposed excavation will be completed.

### **E. Radiation Detection Equipment and Scanning Procedures**

Two types of radiological scanning equipment and procedures are proposed for use for the RMU-2 Project.

1. Hand Held Manual Meter(s) – For manual hand scanning of soils, surveys will be accomplished using a 2-inch x 2-inch Sodium Iodide (NaI) gamma scintillation detector (e.g. Ludlum Model 44-10 Gamma Scintillator 47-1104) with a scaler/ratemeter (e.g. Ludlum Model 2221 portable SCA 48-2065), or equivalent. The approximate detection sensitivities will be 2120 pCi/g for Th-230, 2.8 pCi/g for

Ra-226 and 39 pCi/g for U-238, following the guidance of NUREG-1507 (U.S. Nuclear Regulatory Commission, 1998) using nominal literature values for background, response and site conditions for Ludlum detectors. All instrumentation will have current calibration (within the past 12 months or more frequently if recommended by the manufacturer). Daily field performance checks (i.e. background and source check) will be conducted in accordance with individual instrument use procedures. These performance checks will be performed prior to daily field activities and at any time the instrument response appears questionable. Only data obtained using instruments that satisfy the performance requirements will be accepted for use in the evaluation. Prior to radiological screening a background level will be established.

The surface area of the intended excavation (where accessible), or soil excavated, will be scanned by a qualified radiological technician (Rad Tech) using a 2-inch x 2-inch Sodium Iodide (NaI) gamma scintillation detector with a scaler/ratemeter. For surface surveys, the analyst will walk at a speed of approximately 2 feet per second while passing the detector within 6 inches of the ground surface in a serpentine fashion. For scanning of excavated soil piles or excavator buckets, the Rad Tech will hold the probe within 6 inches of the soil and move the probe across the surface of the soil. Audible output of the instrument will be monitored. At locations of increased activity, the reading on the meter will be reviewed and the value recorded. An initial investigation level of approximately 1.5 times background will be employed. Historically, a 16,000 counts per minute (cpm) investigation has been employed for screening of planar surfaces.

2. Haul Truck Survey Equipment – surveying of soils within haul trucks (dump trucks) will be accomplished using an ASM II-3000E (or equivalent) vehicle monitoring portal (see Appendix 1). Prior to radiological surveying of haul trucks a background level will be established. The portal detectors will be calibrated using Microshield (or equivalent) calculations to determine the appropriate alarm set point, so the portal alarms may be initially set at a count rate of 1.5 times background. If multiple types of haul vehicles are used (e.g. road-going dump trucks and articulating off-road dump haulers), the alarm set point will be calibrated to the most limiting vehicle geometry so that the same portal will be good for all potential vehicles used. Demonstration of the applicability of the method will be tested prior to field use. The portal monitor alarm set-point will be approximately equal to 1.5 times background (action level). The alarm set-point may need adjustment depending on false positive alarms and other potential issues. CWM will work closely with the NYSDEC Radiological Sites Section to establish the monitoring sets points and to resolve issues. The gross gamma count rate threshold is based on the detection of the following activity concentrations: 2120 pico-Curies per gram (pCi/g) of Thorium-230 (Th-230), 2.8 pCi/g of Radium-226 (Ra-226) and 39 pCi/g of Uranium-238 (U-238). The shielding and dose-rate program Microshield will be used to develop the portal monitor alarm set point adjusting for the depth of the truck bed.



All soils excavated from the construction area and not scanned in place by the hand method must be transported through a portal monitor. Typically, this would involve excavating the soil with a bulldozer or excavator, loading the soil into a dump truck, and transporting the soil in the truck through the portal monitor. Portal speed limits will be posted and must be observed. All vehicle operators transporting soil from the landfill footprint will be trained in the procedures used to pass through the portal. Signage will be erected to guide truck traffic in the proper direction. A Rad Tech will be positioned at the portals to observe and document the trucks passing through.

## **F. Elevated Radiological Detection Response Procedure**

For manual scanning activities, if a reading greater than the investigation level is detected, the approximate area of increased activity will be delineated and the requirements of the attached Health & Safety Plan (HASP) will be followed (see Appendix 2). If an elevated reading is obtained, a one minute static count will be taken with the detector located no more than 2 inches above the ground surface. In addition, the on-site NYSDEC Site Monitor will be notified. If it appears that there is a localized spot of activity (<10 square foot), the soil may be excavated and placed in a container for further evaluation. Prior to excavation, specified Personal Protective Equipment (PPE) will be donned. Efforts will be made to minimize dusting and release during excavation (eg. soil may be wetted prior to removal). After soil exceeding the investigation value is removed, the exposed surface will be surveyed to ensure that the potentially impacted soil has been completely removed. Impacted soils will be containerized. If characterization is desired, the soil will be sampled, and the samples sent to an off-site laboratory for isotopic uranium, thorium, and gamma spectroscopy (including radium), analysis. CWM will coordinate split sampling as requested by the NYSDEC. All laboratory results will be submitted to the NYSDEC with the monthly Environmental Report for the month in which the sample was collected. If it is determined that the soil is a radioactive waste, it will be disposed of by CWM in accordance with all applicable laws and regulations, no later than two years after it has been excavated. CWM will also consult with the New York State Department of Health if a new specific radioactive materials license is required to authorize storage of the soil while arrangements are made for disposal. If the area appears to be >10 square foot, the excavation in that area will be suspended and the agencies consulted. If the excavation is suspended, prevention of air dispersion and run-on/run-off control will be priorities while the finding is discussed with the agencies. The excavation area may be covered with a tarp, or backfilled with soil while options are evaluated. Access to the area will be restricted until a decision is reached.

If the portal monitor alarms, indicating a load exceeds the action level (approximating the hand method threshold of 16,000 gross cpm), the truck will drive through the portal monitor a second time. If the alarm occurs the second time (ruling out random background fluctuation as a cause of the first alarm) then the truck will be directed to the alarm investigation laydown area, where the contents of the truck will be dumped onto a prepared surface and spread with a bulldozer, or equivalent piece of machinery, in an approximate 6-inch depth layer. The truck will remain in the alarm investigation area. The 6-inch layer of soil will then be surface scanned by walking the entire soil surface in a serpentine pattern with a standard 2-inch by 2-inch NaI gamma scintillation detector. A technician will scan the surface of the soil with the detector at a height of no more than 6 inches from the soil surface. In the event that an object with the elevated reading

is found, a one minute static count will be taken with a hand-held meter with the detector located no more than 2 inches above the object. Notifications will be made to cease excavations from the area where the soil load originated from. Prior to the investigation, specified Personal Protective Equipment (PPE) will be donned. The requirements of the attached HASP will be followed (see Appendix 2). In addition, the on-site NYSDEC Site Monitor will be notified. If it appears that there is a localized spot of activity (<10 square foot), the soil may be excavated and placed in a container for further evaluation. If characterization is desired, the Sitewide Radiological Investigation Soil Sampling Plan (Sampling Plan) will be followed. All laboratory results will be submitted to the NYSDEC with the monthly Environmental Report for the month in which the sample was collected. Prior to leaving the laydown area, the haul truck will be scraped clean, if necessary, and radiologically scanned to insure no residual contamination is left in the truck.

### **G. Operator Training**

Health Physics Technicians (Rad Techs) will be stationed at the portal detectors (only during use) and perform necessary hand scanning, clearance surveys of trucks and equipment, general radiological health and safety monitoring and quality control of all the radiation detection equipment during the project. The technicians will have at a minimum current certification for:

- 29 CFR 1910 OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER); and
- 10 CFR 835 Radiation Worker II

The technicians will also have appropriate training and experience for the equipment to be utilized and to qualify as an ANSI Class I or Class Health Physics Technician. A certified health physicist will be available by phone for immediate consultation as needed.

### **V Chemical Detection**

The footprint of the proposed RMU-2 landfill and the other areas related to the RMU-2 project, cover several former solid waste management units (SWMUs) at the facility (see figure in Appendix 3). CWM responsible SWMUs (NYSDEC, Part 373 Permit) in the project areas include:

- Fac. Pond 3 (DA-30)
- Fac. Pond 8 (DA-26)
- Drum Storage Building (DA-4)
- Mac Arthur Street Between Main & “J” Streets (DA-7-1a)
- Heavy Equipment Maintenance Building/Sump
- All of Group D SWMUs (former Lagoon 3 &4, Trailer Parking Area, Drum Storage East of Lagoon 2) (DA-24)
- Railroad line north of ‘M’ street
- Monitoring Well W1002S
- Piezometer P1202S

Closure procedures for Fac Pond 3 (DA-30) and the Drum Management Building (DA-4) are provided in the Sitewide Closure Plan of CWM's 6 NYCRR Part 373 Permit. Upon closure of these units, chemical constituents are not anticipated to be located within these areas. Fac Pond 8 has been inactive since 2004 and is currently undergoing closure. The remaining closure activities for Fac Pond 8 include the removal of soil in the north berm containing radiological constituents above established cleanup levels for the pond and regrading of the pond. The Sitewide Closure Plan includes procedures for collection of soil samples to verify clean closure of Fac Pond 3 and the Drum Management Building. Following closure of these areas in accordance with the Sitewide Closure Plan, the procedures described below for monitoring and management of soils excavated from these areas will be followed.

No chemical contamination is anticipated to be in the Mac Arthur Street Between Main & "J" Streets (DA-7-1a) or Heavy Equipment Maintenance Building/Sump areas based on historical investigations (Golder, 1993). The procedures described below for monitoring and management of soils excavated from this area will be followed.

Residual contamination may be present in portions of Group D SWMU (DA-24), which includes former Lagoons 3 & 4, Trailer Parking Area, and Drum Storage East of Lagoon 2. The Full and Empty Trailer Parking Areas will be closed in accordance with the Sitewide Closure Plan. The Sitewide Closure Plan includes procedures for collection of soil samples to verify clean closure of the Full and Empty Trailer Parking area. Following closure of these areas in accordance with the Sitewide Closure Plan, the procedures described below for monitoring and management of soils excavated from these areas will be followed.

A portion of the former railroad line north of "M" Street is located within the footprint of RMU-2. Based on previous investigations, residual contamination remains in this area. The railroad bed material and residual contamination will be excavated and will be segregated and characterized for disposal. Confirmatory soil samples will be collected from the alignment of the former railroad bed and analyzed for Priority Pollutant Metals and Organics. Following removal of the former railroad bed and residual contamination and sampling, the procedures described below for monitoring and management of soils excavated from this area will be followed.

SWMUs identified as Monitoring Well W1002S and Piezometer P1202S are located outside of the excavation limits for development of RMU-2 and related facilities. The procedures described below for monitoring and management of soils excavated from these areas will be followed. If contamination is found during excavations near these areas, the procedures described below for characterization and disposal of contaminated soil will be followed.

Third Party SWMUs that are not the responsibility of CWM but may or will be affected by RMU-2 development include:

- Former Lake Ontario Ordnance Works (LOOW) utility lines and structures
- Trash Pit
- Air Force Drum Areas 2 & 3 (DA-46 & DA-47) (aka Drum Area C)
- Waterline Excavation Area III (DA-50)
- Former Navy Interim Pilot Plant Disposal areas

- Property “G”

Portions of Former LOOW utility lines (EA, 2008) and structures may be located within the footprint of RMU-2 (see figure in Attachment 3). The Former LOOW utility lines and structures located within the footprint of RMU-2 will be removed and segregated and characterized for proper disposal. If contamination is found during excavations for removal of these utilities and structures, the procedures described below for characterization and disposal of contaminated soil will be followed. Confirmatory soil samples will be collected upon removal of contaminated soil and analyzed for Priority Pollutant Metals and Organics and explosives related to TNT manufacturing.

A burn pit/trash pit was discovered by CWM during an excavation to install leachate lines for the leachate hydraulics controls upgrade (LHCU). Investigations by the US Army Corp of Engineers (EA, 1999) indicate that the trash pit is Department of Defense (DOD) and Navy IPPP waste. Prior to excavating in this area, historical reports will be reviewed for location and extent of the trash pit. The debris and contaminated soil in trash pit will be removed, segregated, and characterized for proper disposal. Confirmatory soil samples will be collected upon removal of debris and contaminated soil and analyzed for Priority Pollutant Metals and Organics and lithium and boron. Following removal of the trash pit and residual contamination and sampling, the procedures described below for monitoring of the excavations in this area will be followed.

The Air Force Drum Areas 2 & 3 (DA-46 & DA-47) (aka Drum Areas C & D) are not located within the excavation areas for RMU-2 and related facilities (EA, 1999 & 2002). The procedures described below for monitoring and management of soils excavated from these areas will be followed.

Historical investigations in the Waterline Excavation Area III (DA-50) and Former Navy Interim Pilot Plant Disposal areas indicate that there is no or minimal impacts from former DOD (former LOOW) or Navy IPPP activities in these areas (EA, 1999). The procedures described below for monitoring and management of soils excavated from these areas will be followed.

CWM is proposing to construct wetlands mitigation in a portion of the Property “G” area currently used by CWM as topsoil stockpiles. Historic investigations (EA, 1999) indicate the area CWM is proposing for construction of the wetlands mitigation appears to have minimal impacts from historic DOD operations. The procedures described below for monitoring and management of soils excavated from these areas will be followed.

In addition to investigations performed by CWM and the DOD/USACE, CWM performed subsurface investigations in the RMU-2 footprint and other areas impacted by the project. As part of the Model City facility’s RMU-2 Subsurface Investigation performed in 2008 and early 2009, volatile organic compounds (VOCs) screening was performed on all of the sample borings obtained in the RMU-2 footprint and other areas impacted by the project. Based on this data and sample locations, most areas included in this project exhibited field meter readings less than the action level of 10 parts per million (ppm) VOCs. Areas greater than 10 ppm VOCs were sampled and analyzed in the laboratory. All samples showed non-detect for VOCs. Based on

work performed to date, most areas to be included in this project are not expected to have significant levels of VOC contamination.

Hand held VOC screening of areas of known contamination (SWMUs), identified above, will be performed during closure of these. Upon closure of these areas, the procedures for the management of the soil excavated from these areas will follow the procedures in Section V.A & C.

Hand held VOC screening of the soil during excavation of non-SWMU areas, as provided in the approved CWM “Generic Small Project Soil Excavation Monitoring and Management Plan” (Generic Plan), is believed to be impractical and unsafe for the RMU-2 project. This is based on the large volume of soil to be excavated for the project which will require the use of large excavation equipment, and the requirement for an instrument operator to be continuously in close proximity to the equipment. In addition, false positive readings may occur from the exhaust of the heavy equipment and haul trucks in the immediate area. For these reasons, soils will not be scanned for chemical impact at the excavation site. Rather, the potential for significant VOC contamination will be determined through visual or olfactory observations (e.g., discoloration, oil sheen, organic smell) by the equipment operator or other construction personnel. If any such observations are noted, the excavation will be temporarily halted and the CWM project engineer or designee will be contacted for field review. Based on the field observations, suspected contaminated material will be segregated and handled as described in the Soil Management section of this Plan.

At the completion of the excavation (or phase of excavation if done in stages), the entire excavation area floor will be hand-scanned for chemical impact following the procedures specified in the Generic Plan.

#### **A. VOC Scan Procedure and Instrumentation**

For the RMU-2 project, excavated soil will be transported from the excavation area, will pass through the radiation portal (as specified above) and will be unloaded in a predetermined laydown area. The soil will then be spread out in approximately a six-inch-thick layer by a bulldozer or equivalent machinery, and hand scanned for volatile organic vapors. For soils that exceeded the radiation portal alarm, chemical screening will be performed concurrent with the radiation screening as described in Section IV(F) of this Plan.

The spread soils will be screened for VOCs using an air monitoring meter equipped with a photo ionization detector (PID) with a 10.6 eV. lamp such as MiniRae 2000 or equivalent. The use of meters equipped with a PID are proposed for this construction project application rather than an FID (as used in the Generic Plan) based on the following benefits:

- Lower detection limits for VOCs
- Smaller, lighter and less complicated to use
- FIDs require the use and replacement of hydrogen gas, possible safety hazards and flame out can occur requiring restarting of the instrument
- Flammable atmospheric gasses are not expected to be present

- More reliable, long lamp life
- Lower cost to purchase and operate

## **B. Instrument Response Criteria and Scan Procedure**

An audible/visible alarm in the meter (in addition to the numeric display) will be set as an additional indication to the meter operator whether the PID has detected VOC levels of greater than 10 ppm. If a reading above 10 ppm is obtained, the soil will be considered to be potentially chemically contaminated. In addition, if discoloration of excavated material is noted or a colored sheen is observed on water present, both in the excavation area or in the laydown area, chemical contamination will be suspected. In these instances, CWM's Contamination Control Program (HS-1144) and Personal Protective Equipment (HS-1161) procedures will be followed. Potentially contaminated soil will be containerized rather than stockpiled to prevent dispersion or run-off of contaminants. The PID meter will be calibrated on a daily basis prior to use according to manufacturers specifications and the battery will be charged to ensure a full shift's availability of use.

## **C. Soil Management**

Based on the information obtained during the VOC screening at the excavation sites for SWMU areas or at the soil screening location, the soil will be assigned one of the following four categories for management.

- 1. Historic data and screening procedures do not indicate the presence of chemical contamination.** Soil may be used for backfill, placed in a soils stockpile for future use on-site or placed in the landfill as a non-hazardous waste.
- 2. Historic data indicates the potential presence of chemical contamination in the excavated soil, but no chemical contamination is detected by the screening procedures.**
  - The soil will be excavated and placed into a separate stockpile. A representative sample or samples will be collected and analyzed for Priority Pollutant Metals and Organics. Representative samples from the LOOW utility/structures areas will also be analyzed for explosives that are related to TNT manufacturing. Representative samples from the trash pit area will also be analyzed for lithium and boron. Results of this analyses will be submitted in the Environmental Report for the month in which the sample was collected.
    - If the PCBs are >1 ppm, the soil will be placed or used in the landfill.
    - If the PCBs are >50 ppm, the soil will be managed as a hazardous waste.
    - Results will be evaluated according to 6 NYCRR Part 375-2.7(d) and the results compared to 6 NYCRR Part 375-6.8(b) criteria for industrial use sites. If the results are below the industrial use criteria the soil may be placed in a soil stockpile for future use.

- iv. If any constituents are present detected above industrial use criteria, the historical activities for the area will be considered to determine if any listed waste codes apply. The constituent concentration(s) will be evaluated to determine if any are high enough that the soil could qualify as characteristic. If the soil qualifies as a hazardous waste, the constituent concentrations will be reviewed against the Universal Treatment Standards (UTS) to determine if the soil meets the Land Disposal Restriction (LDR) standards or the alternate soil standards. If the soil meets either of these standards, then it will be landfilled as a hazardous waste after the completion of the appropriate paperwork (LDR form).
  - b. An economic based conservative assumption may be made and the soil managed as a RCRA/TSCA waste for incineration disposal in lieu of completing PCB and VOC testing.
- 3. Historic data does not indicate the potential presence of chemical contamination in the excavated soil, but chemical contamination is detected by the screening procedures.** Follow 2.a.or 2.b. above.
- 4. Historic data and screening procedures indicate the presence of chemical contamination in the excavated soil.** Follow 2.a. or 2.b. above.

Where sampling and analysis is specified, representative sample(s) will be collected by CWM laboratory or environmental personnel in accordance with the facility's Waste Analysis Plan (WAP) and tested by CWM or another ELAP/NELAP certified laboratory.

#### **D. Operator Training**

Technicians performing VOC screening will have at a minimum current certification for:

- 29 CFR 1910 OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER).

## **VI Laboratory Debris**

In the event that the excavation of soil uncovers any items indicating the presence of laboratory waste (such as test tubes, petri dishes, animal bones, or instruments), excavation activities will cease in the affected area. CWM will immediately notify the NYSDEC on-site monitors and radiation control program staff.

All samples of such debris will be analyzed in accordance with the Sitewide Radiological Investigation Soil Sampling Plan. In addition, the samples will be analyzed for isotopic plutonium.

## **VII Reporting**

The daily data from the radiological and chemical contamination monitoring will be compiled and summarized and added to the project documentation and certification reports. A copy of these daily summary reports will be included with the monthly Environmental Report for the month in which the data is collected. In addition, the reports will be available for review by the NYSDEC Site Monitors. Examples of daily reports are included in Appendix 4.

## **VIII Health and Safety Plan**

A project-specific Health and Safety Plan has been developed by CWM Chemical Services for the RMU-2 project. A copy of this Health and Safety Plan is included in Appendix 2.

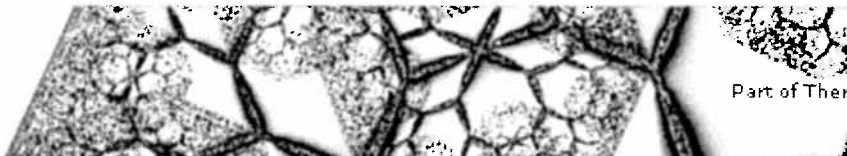


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## **APPENDIX 1**

# **PORTAL MONITORING EQUIPMENT**



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### ASM II 3000E, 4500E, 6000V

The ASM vehicle monitoring systems are designed to provide the ultimate sensitivity for vehicle scanning in industrial applications.

#### Product Detail

The ASM/II vehicle monitoring systems are designed to utilize industry-proven detector designs, state-of-the-art detection algorithms, and advanced, lownoise electronics technology. This combination provides the perfect solution for vehicle monitoring applications, requiring the lowest possible alarm thresholds. The ASM/II vehicle monitoring systems offer unparalleled sensitivity and reliability.

#### Downloadable Files:

ASM II 3, 45,6 Datasheet (97 Kb)

Detector configurations that provide both vertical coverage of the vehicle (detector height) as well as dwell-time (detector width) have been the cornerstone of ASM detector designs since 1987. These large-area plastic scintillation detectors are shock-mounted and used in lead-lined, NEMA rated stainless steel detector enclosures, and are proven to withstand the rigors of industrial vehicle monitoring applications in the harshest environments.

Data analysis and management is processed by the ASM/II System Control Unit, which is designed to be operated with little operator intervention. The ASM/II SCU features simple, one-button response to alarm conditions while providing detailed scan and alarm data via the builtin printer.

- Alphanumeric display
- Built-in printer
- Modem included
- Simple to operate and maintain

#### Related Products

Product#	Product Name	Image	
EID-10122790	<b>ASM II 6000, 9000, 12000</b>		Select
ASM III 3, 45, 6	<b>ASM III 3000E, 4500E, 6000V</b>		Select

#### Purchase Details

SKU : ASM II 3, 45, 6

Request Quote

#### Product Contact

Sales Contact

United States +1 800 :

#### Specifications:

**Detector material :** Pre scir



**Radiations detected :** Lov ene em 241 19% net

**Detection surface area :** Ove in2 mo

**Electronics :** Rer hig phc vol: ass pul disc line

**Housing :** Lez ste (NE gas coa acc

**Simple operator control :** A s illui rad occ pus the the

EID-101227 91	<b>ASM III 6000, 9000, 12000</b>		Select
ASM III System	<b>ASM III Vehicle Monitoring System</b>		Select

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The ASM Vehicle Monitoring Systems are designed to provide the ultimate sensitivity for vehicle scanning in industrial applications.

### ASM/III

Model 3000E, 4500E and 6000V  
Vehicle Monitoring Systems



ASM-6000V/III



ASM-4500E/III



ASM-3000E/III

- Graphic display
- Language options
- User configurable alarm messages
- Simple to operate and maintain
- Built-in printer
- Modem included



The ASM/III vehicle monitoring systems are designed to utilize industry-proven detector designs, state-of-the-art Reality-Based Detection algorithms, and advanced, low-noise electronics technology. This combination provides the perfect solution for vehicle monitoring applications, requiring the lowest possible alarm thresholds. The ASM/III vehicle monitoring systems offer unparalleled sensitivity and reliability.

Detector configurations that provide both vertical coverage of the vehicle (detector height) as well as dwell-time (detector width) have been the cornerstone of ASM detector designs since 1987. These large-area plastic scintillation detectors are shock-mounted and housed in lead-lined, NEMA rated stainless steel detector

enclosures, and are proven to withstand the rigors of industrial vehicle monitoring applications in the harshest environments.

Data analysis and management is processed by the ASM/III System Control Unit, and is available in two configurations; a wall mountable unit, incorporating an industrial grade PC with touch-screen graphic display or a desktop pod operated with a commercially available PC. Designed to be operated with little or no operator intervention, the ASM/III SCU features simple, one-button response to alarm conditions, while providing detailed scan and alarm data at the request of the operator. A color graphic display allows the viewing of detector data, alarm history and location of the detected source in the vehicle.

## ASM Specifications

### DETECTOR ASSEMBLIES

- ASM3000E - 2 detector modules
- ASM4500E - 3 detector modules
- ASM6000V - 4 detector modules

#### Detector material:

- Premium plastic scintillator

#### Radiations detected:

- Low, medium and high energy gamma emitters, for example,  $^{241}\text{Am}$ ,  $^{60}\text{Co}$ ,  $^{137}\text{Cs}$ ,  $^{90}\text{Sr}$ ,  $^{226}\text{Ra/Th}$ , also neutrons

#### Detection volume:

- Over 23 l (1400 in<sup>3</sup>) per detector module

#### Detection surface area:

- Over 0.45 m<sup>2</sup> (700 in<sup>2</sup>) per detector module

#### Vehicle separation:

- 4.8 m (16') or less for optimum performance, (4.25 m (14') recommended)

#### Electronics:

- Remote single channel, RS485 controlled, intelligent high-voltage/ bias/ amp. digitizer electronics

#### Vehicle speed sensors:

- Heavy duty industrial grade photobeams with cowling for weather and damage protection

#### Cable & Communication:

- Remote controlled data transmission through 2 independently shielded 20 AWG twisted pair cables.

#### Housing:

- Lead lined, stainless steel, weatherproof (NEMA rated) with gasketed, hinged, coated aluminum access door

#### Temperature ranges:

- -40 °C to +50 °C (-40 °F to 122 °F)

#### Relative Humidity:

- 10 to 95% RH

#### Dimensions:

- 183 H x 45 W x 30 D cm (72" H x 18" W x 12" D)

#### Weight:

- 181 kg (400 lb) per assembly

#### Installation:

- Mounting hole pattern for installation on client-provided I-beams

### CONTROL UNIT

#### Sensitivity:

- Maximum sensitivity is set automatically. Radiation increases equivalent to 8 - 10% of background are detectable

#### Vehicle speed:

- Up to 5 mph (8 kph) with audible and visual alarms if the limit is exceeded.

#### Indicator lights:

- Panel Lights: ready (green), wait (amber), alarm (red)

#### Illuminated controls:

- alarm override (amber),
- toggle display (green),
- alarm acknowledge (red)

#### Simple operator control:

- A single push-button illuminates when a radiation alarm occurs.
- Pressing the push-button silences the alarm and resets the system

#### Background compensation:

- Automatic

#### Phone modem:

- Telephone link to easy maintenance teleservicing network

#### Other controls:

- Power ON/OFF; keyboard provided for system setup, (password protection, self-test & maintenance) but not required for day-to-day operation.

#### Self-diagnostics:

- Detector operation, wiring integrity and photocell alignment are monitored by internal self-tests. For added reliability, separate hardware monitors the microprocessor

#### Mountings:

- Wall-mounting is standard, other styles are optional

#### Temperature range:

- 4 °C to 35 °C (40 °F to 95 °F)

#### Relative humidity:

- 10% to 75%

#### Dimensions of wall-mounted control unit:

- 600 H x 380 W x 204 D mm (24" H x 15" W x 8" D)

#### Power:

- 117 VAC, 60 Hz or 220 VAC, 50 Hz

#### Cable:

- NEMA 15-5 3 terminal plug on 2 m (6') lead

#### System shipping weight:

- ASM 3000: 455 kg (1000 lb)
- ASM 4500: 682 kg (1500 lb)
- ASM 6000V: 864 kg (1900 lb)

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## **APPENDIX 2**

# **CWM HEALTH AND SAFETY PLAN FOR RMU-2 SOIL EXCAVATION AND MONITORING PLAN**



**CWM CHEMICAL SERVICES, LLC.  
MODEL CITY FACILITY**

***HEALTH AND SAFETY PLAN FOR  
THE RMU-2 PROJECT SPECIFIC SOIL  
EXCAVATION MONITORING  
AND MANAGEMENT PLAN***

**October 2009  
(Revised November 2013)**



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- Attachment C Accident Prevention Plan
- Attachment D Hospital Route Map

## ACRONYMS AND SYMBOLS

AHA	Activity Hazard Analysis
ALARA	As Low As Reasonable Achievable
ANSI	American National Standards Institute
APR	Air Purifying Respirator
CPR	Cardio-Pulmonary Resuscitation
CHP	Certified Health Physicist
CIH	Certified Industrial Hygienist
CSP	Certified Safety Professional
EMR	Experience Modification Rate
FSP	Field Sampling Plan
GPS	Global Positioning System
HASP	Health and Safety Plan
HEPA	High Efficiency Particulate Air
LWCR	Lost Workday Case Rate
MSDS	Material Safety Data Sheet
MSL	mean sea level
OSHA	Occupational Safety and Health Administration
PE	Professional Engineer
PPE	Personnel Protective Equipment
Ra	Radium
Scan MDC	Scan Minimum Detectable Concentration
SMS	Safety Management Standards
SSHP	Site Safety and Health Plan
Th	Thorium
U	Uranium

## **1.0 PURPOSE AND OBJECTIVE**

The purpose of this Health and Safety Plan (HASP) is to present guidelines to be utilized by CWM, Contractor, and Consultant personnel for site activities involving soil disturbance and excavations associated with the Residuals Management Unit No. 2 (RMU-2) landfill project at the CWM Model City Facility. The intent of this plan is to focus on the radiological testing and investigative sampling of soils rather than actual excavation methods and construction activities.

The objective of this HASP is to provide a mechanism for establishing safe working conditions for personnel of contracted companies working for CWM at the Model City Facility. The safety organization, procedures, and protective equipment have been established based upon an analysis of potential physical, chemical, radiological, and biological hazards. Specific hazard control methodologies have been evaluated and selected to minimize the potential of accident, injury, and exposure.

Activities covered under this HASP include a pre/post gamma walkover surveys, monitoring during excavation and sampling activities. CWM, contractor, and consultant personnel on a project must meet the training requirements of 29 CFR 1910.120(e) and participate in a medical surveillance program per 29 CFR 1910.120(f).

The Project Manager and Site Health & Safety Specialist are responsible for implementation of this plan with assistance from the Site's Technical Manager. Safety procedures will be performed in accordance with applicable OSHA standards and established CWM Health & Safety procedures and requirements.

## **2.0 PROJECT LOCATION**

The CWM Chemical Services, LLC (CWM) Model City facility site occupies approximately 710 acres comprising approximately 450 developed acres and approximately 260 acres of wooded space that surrounds the developed portion. The site is located in the Erie-Niagara Region of western New York State. The facility is situated on the boundary between the Towns of Lewiston and Porter in Niagara County. Lake Ontario is north of the site. The site's address is 1550 Balmer Road, Model City, New York 14107.

## **3.0 SITE DESCRIPTION AND HISTORY**

The CWM Model City Facility is a hazardous waste management landfill. Its active units are permitted as part of the Model City Treatment, Storage, and Disposal Facility (TSDF). The site uses permitted state of the art technologies for the proper storage, treatment, and disposal for a variety of liquid, solid and semi-solid organic and inorganic hazardous waste and industrial non-hazardous waste. Site capabilities include Aqueous Wastewater Treatment System, waste stabilization, secure landfilling of approved waste solids and semi-solids including PCBs, solvent and fuel blending processes, and storage and disposal of wastes regulated under the Resource conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA).

The Model City facility began TSDF operations in 1971 as Chem-Trol Pollution Services, Inc. Due to corporate acquisitions and name changes, CWM Chemical services, LLC, a subsidiary of Waste Management, Inc. (WMI) is the present owner and operator of the facility. WMI is based in Houston, Texas.

Prior to operation as a commercial waste facility, the site was owned by the U.S. Government (early 1940s through the mid 1960s) and was part of the Lake Ontario Ordinance Works (LOOW). U.S. Government activities at and in the vicinity of the site included:

- Explosives and solid/liquid fuel propellant research, development and production.
- Research, development and waste storage related to the Manhattan Project.
- Detonation of outdated or off-specification explosives.

Some of these activities resulted in the contamination of certain areas of the site with organic and inorganic chemicals and low level radioactive wastes. During the 1960s, prior efforts to decontaminate the site were made by the U.S. Atomic Energy Commission (AEC) and the U.S. Department of Energy (DOE). In 1993, CWM concluded its own investigation into the nature and extent of contamination in soil and groundwater throughout the facility (including low level radioactive contamination) with the submission of a RCRA Facility Investigation (RFI) Summary Report to the New York State Department of Environmental Conservation (NYSDEC). The corrective Measures Study was completed in 1996, proposing measures to address the contaminated areas. In 2001, NYSDEC revised the CWM permit to include these corrective measures, which were recently completed by CWM.

Due to potential for historical residual radiological contamination from the previous U.S. Government activities, the New York State Department of Health (NYSDOH) issued an order (4/27/72) for approximately 614 acres of former LOOW property which imposed certain restrictions on the future use of said property, until such time that the radioactive emissions were reduced to acceptable levels. On June 21, 1974, NYSDOH issued a Supplemental Order which amended the 1972 Order related to 240 acres of the property then owned by Chem-Trol.

As a result of extensive corrective remedial actions taken at the CWM property since the 1972 Order, on May 7, 1992, the DOE certified that the majority of the CWM property was “in compliance with applicable (radiological) decontamination criteria and standards” and provided “assurance that future use of the property will result in no radiological exposure above DOE criteria and standards established to protect members of the general public or site occupants”. Decontamination was certified for all properties owned by CWM, with the exception of three properties designated as E, E’ and G. These properties were excluded from the decontamination certification because an area within each property could not be properly assessed due to inaccessibility and the DOE could not confirm that contamination did not exist in these areas. The three inaccessible areas were (1) soil beneath Lagoon 6 and the berm surrounding that lagoon on Property E, (2) soil beneath a roadway and PCB storage tanks on Property E’, and (3) soil beneath the liquid treatment pond on the western edge of Property G.

Based on the May 7, 1992, USDOE letter, on December 23, 2003, CWM requested that the NYSDOH execute an order to rescind and vacate the 1972 and 1974 Orders for all CWM

property, except properties E, E' and G. After reviewing all historical documentation and data related to the areas covered by the Orders, both in the NYSDOH files and provided by CWM, the NYSDOH determined a potential for residual radiological contamination still exists and that monitoring is necessary prior to and during any excavation activities. In order to address this concern, the NYSDEC included permit condition J.3.a. in Module II (Corrective Action) of CWM's Sitewide Permit.

#### 4.0 RESPONSIBLE PERSONNEL

<u>Position</u>	<u>Name</u>	<u>Site Phone#</u>
Project Manager	Stephen Rydzyk	716-286-0325
Site Technical Manager	Jill Banaszak	716-286-0246
Site H & S Specialist/EMT	Tim Fogarty	716-286-0331
District Manager	Michael Mahar	716-286-0241
Certified Health Physicist	Varies	TBD
Site Health Physicist	Varies	TBD
Site Maintenance Manager	Stephen Rydzyk	716-286-0325
Site Engineer	Stephen Rydzyk	716-286-0325
Laboratory Manager/EMT	Ami Lis	716-286-0295

All personnel must adhere to these procedures during the performance of their work. Each person is responsible for completing tasks safely, and reporting any unsafe acts or conditions to his immediate supervisor. No person may work in a manner which conflicts with these procedures. After due warnings, the Project Manager will dismiss from the site any person who violates the safety procedures.

The Project Manager is ultimately responsible for verifying that all project activities are completed in accordance with the requirements of this HASP. The Project Manager is also responsible for providing project personnel with the appropriate information regarding the project activities to insure compliance with this HASP.

A Certified Health Physicist developed the technical health and safety aspects of this plan. The Site H & S Specialist and/or a Certified Health Physicist may be consulted at any point during the project excavation. The project Manager or Site H & S Specialist is responsible for:

- Conducting on-site safety orientation for contractors/consultants,
- Conducting safety audits of work activities to insure compliance with this HASP,
- Maintaining required H & S documents and records,
- Stop project activities when threshold chemical or radiological levels are reached.

All personnel must read and acknowledge their understanding of this HASP, abide by the requirements of the HASP, and cooperate with site supervision in ensuring a safe work site. Site/contractor/consultant personnel will report any of the following to the Project Manager or Health & Safety Specialist:

- Accidents or injuries, no matter how minor,

- Unexpected or controlled releases of chemical substances,
- Symptoms of chemical or radiological exposures,
- Unsafe or malfunctioning equipment,
- Changes in site conditions that may affect the health and safety of project personnel,
- Damage to equipment and property, and;
- Situations or activities for which they are not properly trained.

## **5.0 EMERGENCY CONTACT INFORMATION**

Hospital/Clinic:	Mount St Mary's Hospital 5300 Military Rd, Lewiston, NY 14092, US
Paramedic:	Site Extension 0200 (Emergency Number) or (716) 286-0200 from an outside line or mobile phone
Fire:	Site Extension 0200 (Emergency Number) or (716) 286-0200 from an outside line or mobile phone
Police Department:	Site Extension 0200 (Emergency Number) or (716) 286-0200 from an outside line or mobile phone
Site Guard House:	Site Extension 0221 or (716) 286-0221 from an outside line or mobile phone
Site Health/Safety ERT Incident Commander	Tim Fogarty (716) 286-0331

## **6.0 EMERGENCY/CONTINGENCY PLAN**

Refer to Attachment A for details regarding CWM's Emergency Evacuation and Response Procedures. Summarizing the procedure:

In the event the first siren alarm is activated,

- Remain at work location unless in the immediate danger area.
- Vehicular traffic will pull as far to the right side of the road as possible and stop unless directed otherwise.
- **EMERGENCY VEHICLES HAVE THE RIGHT OF WAY AT ALL TIMES**
- Follow instructions of facility personnel if roads passage is obstructed.
- **FACILITY TELEPHONES AND PLANT RADIOS ARE RESTRICTED TO EMERGENCY COMMUNICATION ONLY.**

If the second siren is activated,

- Report to Old Transportation Garage area or Alternate Locations which are Main Plant Entrance, SPEC (Admin) Building or SPEC Building East Parking Lot
- Check in with CWM personnel to insure accountability
- Wait for further instructions from CWM.

Following initiation of emergency notifications, all personnel will remain at either Primary or Secondary Reporting Location until directed to leave by the Emergency Coordinator. No one may leave without notification to the Emergency Coordinator.

## **7.0 CHEMICAL HAZARDS**

A variety of chemical non-radiological wastes were disposed of at the CWM Facility. However, the site has stable cover over all areas that will be assessed during this project, which will minimize any potential for worker exposure to these wastes. Volatile and/or soil-borne exposures are not anticipated based on the presence of the cover. As a result, the typical level of protection will be Level D.

If the excavation will take place in an area identified as having VOAs >1 ppm during the facility's RFI, chemical contamination will be expected to be present. In these areas, or if obvious chemical contamination is noted in any area (eg. odor, discoloration) CWM's Contamination Control Program (HS-1144) and Personal Protective Equipment (HS-1161) (refer to Attachment B) procedures will be followed.

## **8.0 RADIOLOGICAL ASSESSMENT, FIELD SAMPLING AND EXCAVATION**

This section is specific to on-site excavation activities to conduct radiological measurements, assess and evaluate those measurements to permit CWM to complete construction of the RMU-2 project.

During excavation activities, personnel from the radiological support staff will evaluate field instrument readings to determine the extent of the hazard potential based on known or suspected radionuclides present at the facility. Based on knowledge of site contaminants being from the U-238 decay chain, survey instruments will be selected based on response to gamma emissions. The usual instrumentation will be a 2" x 2" sodium iodide (NaI) detector. A graded approach to the radiation protection of personnel performing excavations is presented in this section. Site activities may also involve collecting soil and sediment samples and the shipment of the samples to a pre-qualified laboratory for analysis.

The RMU-2 project includes soil excavations within the footprint of the landfill, as well as excavations associated with the construction of facilities which are located within the footprint and have to be relocated to other areas of the site. Small excavations may be completed in accordance with the Generic Small Project Soil Excavation Monitoring and Management Plan. Larger excavations will be completed as described in the RMU-2 Project Specific Soil Excavation Monitoring and Management Plan, including use of a vehicle portal monitoring system and hand surveys. Due to the limitations of radiation survey equipment, no more than 15 cm of depth may be assessed in any one set of measurements.

Radiological support includes pre-excavation screening of the intended area, where necessary, management of the detection portals and surveying of the excavated soils. Qualified personnel will record and evaluate screening results.

## 8.1 RADIOLOGICAL ASSESSMENT

The radionuclides that are suspected to be of a concern at the Model City Facility include the following:

- Ra-226 (includes progeny through stable Pb-206)
- Th-230 (does not include any progeny)
- U-238 (includes progeny Th-234, Pa-234m and Pa-234)

In general the radionuclides listed above are readily detectable except for the Th-230. Because of this technological shortfall, it must be assumed that the Th-230 will not exist in the absence of other more detectable radionuclides. This is a reasonable assumption since any thorium-only waste streams would include Th-232 and all associated decay products, which would emit detectable levels of gamma radiation. Because the activities addressed in this section are related to site workers, the exposure routes are limited to external exposure to radiation and internal exposure to radioactive materials by inhalation, ingestion or wounds. Site workers covered by this section are considered to be Members of the Public from an exposure control perspective. The limit for members of the public from a licensed activity is 100 mrem per year. Though these workers have been trained in radiation protection and might otherwise be considered to be radiation workers who could receive up to 5,000 mrem per year, this section covers site activities at a much lower level of risk.

If this limit is divided equally between internal and external dose, each is equal to 50 mrem. Assuming that excavation work is not the primary function of the personnel, it has been estimated that such activities would take no more than 200 hours per year, on average. Based on this amount of time, the average exposure should not exceed 50 mrem/200 hours or 0.25 mrem/hour. The field instruments consist of sodium iodide detectors and pancake Geiger Mueller (PGM) detectors. The response of these instruments, based on their manufacturer's literature, are 900 counts per minute (cpm) per  $\mu\text{rem h}^{-1}$  and 3300 cpm/mrem  $\text{h}^{-1}$ , respectively. Therefore, the 0.25 mrem/h (which is equal to 250  $\mu\text{rem/h}$ ) corresponds to a value of 225,000 cpm for the NaI. The corresponding equivalent for the PGM is significantly lower at approximately 800 cpm. With either of these instruments, field assessment of the exposure potential is possible.

Conversion of count rates to dose rate are an approximation considering the broad energy range of the radionuclides that may be present at the facility. Therefore, the contractor will obtain a dose rate meter such as a Biron Micro-Rem or similar to perform actual dose rate surveys.

The 50 mrem internal dose limit is addressed by a review of the published information on the regulatory Annual Limit of Intake (ALI), as set by the Nuclear Regulatory Commission in 10 CFR 20, Appendix B, and repeated in 6 NYCRR 380, Table 1. For the purpose of this Addendum, the ALI is the amount of radioactivity for a particular isotope that corresponds to a dose to a person of 5 rem per year (5,000 mrem). Therefore, 1% of the ALI is equal to 50 mrem. The ALIs for these radionuclides, based on assumed conditions of equilibrium and implied radionuclides present are:



TABLE 8-1

<i>Parent Radionuclide</i>	<b>Regulatory Levels (ALI)</b>		<b>Allowable Intake (1% of ALI)</b>	
	<i>Ingestion</i> ( $\mu\text{Ci}$ )	<i>Inhalation</i> ( $\mu\text{Ci}$ )	<i>Ingestion</i> ( $\mu\text{Ci}$ )	<i>Inhalation</i> ( $\mu\text{Ci}$ )
Ra-226	0.4	0.05	0.004	0.0005
Th-230	4	0.006	0.04	0.00006
U-238	9.6	0.04	0.096	0.0004

It is important to observe that the above values reflect the assumption that Ra-226 is in equilibrium with its progeny through to stable lead and that U-238 is in equilibrium with Th-234 and Pa-234m/Pa-234. Very little additional U-234 would be added from the U-238. Th-230 decays to Ra-226 but very little additional Ra-226 would be present from decay of Th-230. The ALIs were calculated as mixtures as discussed in 10 CFR 20 Appendix B.

The annual level of effort of 200 hours of work at 8 hours per day corresponds to 25 days. The ingestion of soil incident to excavation work is assumed at a rate of 400 mg per day. The total amount of soil ingested in 25 days would be 10 grams. Using 1% of the lowest ingestion ALI (Ra-226), this corresponds to 0.004 uCi/10 grams or 0.0004 uCi/g. This is also equal to 400 pCi/g. The dose rate from a small patch of ( $\sim 1 \text{ ft}^2$ ) soil 15 cm deep at only 40 pCi/g of Ra-226 is about 13 urem/h at 6"; a 1 m<sup>2</sup> area at this concentration would result in a dose rate of  $\sim 44$  urem/h. These are a very detectable condition that is readily identifiable by the radiological control staff. U-238 and its progeny (discussed above) will result in a 10% higher dose rate than this. Elevated readings at these concentrations would be investigated and would be within the level of risk assumed for this phase of work.

The lowest inhalation ALI is for Th-230, with an allowable inhalation uptake of about 60 pCi for a dose of 50 mrem. Dust is generally controlled when it is visible, which is at approximately 5 mg/m<sup>3</sup>. An inhalation uptake of 60 pCi over an exposure period of 200 hours would correspond to a soil concentration of about 50 pCi/g. It is unlikely that Th-230 would exist by itself, but would instead be associated with Uranium-238 decay chain members, including Ra-226, or would be present with processed thorium, which would consist predominantly of Th-232. It is therefore likely that gamma-emitters would be present in sufficient concentrations to indicate Th-230.

Observing that the Ra-226 ALI is a factor of 8 greater than that for Th-230 indicates that the corresponding soil concentration would also be a factor of 100 times greater, or 400 pCi/g to reach the inhalation dose limit.

A worker exposure of 50 mrem over 200 hours is an average of 250  $\mu\text{rem/hr}$ , which would correspond to a concentration of about 350 pCi/g for the Ra-226. This would be below the action level based on allowable soil ingestion (1,500 pCi/g) and that for inhalation (5,000 pCi/g). The external dose criterion is thus the controlling level for allowable worker dose. As discussed

above, this corresponds to a NaI instrument response of about 225,000 cpm, as compared to a nominal background of 10,000 cpm.

## 8.2 ACTION LEVELS

The limiting concentrations identified above are based on an assumed exposure period of less than 200 hour per year for the excavation workers that could result in a worker dose of 50 mrem. Survey activities at FUSRAP sites in Western New York have identified 16,000 cpm for a 2x2 NaI detector as roughly corresponding to soil investigation levels. The investigation level may be adjusted based on localized background levels. Therefore, administrative levels are established to protect workers and minimize the potential for exceeding the non-radiation worker dose limit of 100 mrem/yr.

The first administrative limit is based on reducing exposure to soil above the FUSRAP investigation limits. If soil screening measurements exceed 16,000 cpm, then workers should don full Level D PPE, and dust suppression should be used to limit levels to less than 5 mg/m<sup>3</sup>. Alternatively, the crew can implement Level C PPE in the excavation area. This level (16,000 cpm) corresponds to the FUSRAP survey investigation level and is also about 10% of the external dose rate limit.

A second administrative limit is set at 110,000 cpm, about 50% of the external dose rate limit plus background. If readings exceed 110,000 cpm, then excavation work will cease, and the area will be secured in a safe and orderly manner. The data will be reviewed with the NYSDEC and NYSDOH as appropriate. While the level of contamination suggested by such instrument readings does not pose a significant risk to workers, the concentrations of radionuclides associated with those radiation levels are not expected for the Model City site, and should be dealt with in an appropriate and planned manner.

## 8.3 SUMMARY

Qualified personnel will perform screening at vehicle portal monitors and radiation surveys of excavated soils at the CWM facility, in accordance with the *CWM RMU-2 Project Specific Soil Excavation Monitoring and Management Plan*. Surveys will be done using appropriately calibrated 2" x 2" sodium iodide detectors. Based on a nominal background rate of 10,000 cpm, the following action levels will be implemented:

**TABLE 8-2**

SURVEY LEVEL	ACTION
≤16,000 cpm	Level D
>16,000 cpm, but <110,000 cpm	Level D and dust suppression to 5 mg/m <sup>3</sup> . Level C respiratory protection can be used in the excavation area in lieu of dust suppression
≥110,000 cpm	Cease operations and secure site. Review data with NYSDEC and NYSDOH as appropriate.

Note: The investigation/action level of 16,000 cpm may be adjusted based on localized background levels.

## 9.0 PHYSICAL HAZARDS

Physical hazards will be present during field activities. Common physical hazards include sampling, mechanical hazards, slip-trip-fall hazards associated with the field environment; hazards associated with weather conditions and musculoskeletal injury from lifting tasks. The typical physical hazards anticipated being present on the site and the methods for preventing injury to these hazards is described below.

Sampling – radiation exposure will be minimized by ensuring that personnel are experienced in the task, thus reducing their time in the area. Personnel protective equipment will be used to prevent skin contamination.

Noise – not anticipated to be a hazard on this project.

Slip-Trip-Fall Hazards - Slip-trip-fall hazards are common at field sites due to slippery or unstable surfaces, and due to the sloped surfaces on the site. While it is difficult to eliminate all slip-trip-fall hazards, implementing safe work practices, and using proper footwear will minimize risk of injury.

Lifting Hazards - Field operations often require the performance of laborious tasks. All employees must implement proper lifting procedures, such as keeping the load close to the body, and using leg muscles instead of back muscles to perform lifting tasks. Additionally, employees will not attempt to lift large, heavy, or awkwardly shaped objects without assistance.

Weather - Weather conditions are an important consideration in planning and conducting site operations. Extremely hot or cold weather can cause physical discomfort, loss of efficiency and personal injury.

Lightning may accompany storms, creating an electrocution hazard during outdoor operations. To eliminate this hazard, weather conditions will be monitored and work suspended during electrical storms.

Cold stress is not anticipated to be a concern during these operations, which are expected to take place during the summer and fall months. Heat stress is anticipated to be a concern during these operations.

Underground Utilities – No ground-penetrating activities for the gamma walkover survey are anticipated which would necessitate the location of buried utilities. In the event that utilities may be present during sampling or excavation activities, the established CWM policies and procedures for an Excavation Permit will be followed.

Overhead Hazards - Overhead power lines do not pose a danger during the task of the gamma walkover survey and associated sampling activities. CWM procedures for working near or beneath overhead lines will be followed..

Work Area Protection - Various tasks related to site survey may be undertaken in a roadway and motor vehicles may be a hazard. Personnel are to wear high visible vests and utilize orange construction cones and barriers when working in traffic areas.

## 10.0 BIOLOGICAL HAZARDS

Biological hazards will be present during field activities. In particular, these will be more abundant when the ground cover is thicker but in general, biological hazards may even be present when there is little ground cover. This includes but may not be limited to ticks and spiders, poisonous plants and snakes.

Be careful to wear long sleeved shirts and pants. Pant cuffs may be tucked into a boot if needed. Apply insect repellent and use caution when removing any ticks that are imbedded in skin.

Venomous snakes are best left alone. None of our species are particularly aggressive animals, but they will attempt to bite when handled. Insects (mosquitos, wasps and bees) should be avoided if noticed in areas that are to be scanned.

Ticks do not jump, crawl or fall on a person but are picked up when clothing or hair brushes a leaf or other object the tick is on. Poisonous plants should be recognized and avoided.

## 11.0 MONITORING EQUIPMENT

The following monitoring equipment will be used for health and safety purposes during field activities:

### Meters

- Ludlum Survey Meter Model 3 (or equivalent)
- Ludlum Model 2221 (or equivalent)

### Detectors

- Ludlum GM Pancake Probe Model 44-9 (or equivalent)
- Ludlum Model 44-10, 2"x2" NaI(Tl), (or equivalent)

The monitoring equipment will be calibrated in accordance with the manufacturer's instructions. In addition, the results of daily instrument calibration checks or calibrations shall be logged in the field logbook.

## 12.0 ACTION LEVELS

Field investigations will be initiated in Level D PPE, which includes the use of work boots, and safety glasses, hard hats, long sleeve shirts and long pants during sampling activities. As the work progresses, the Project Manager or Site H & S Specialist may elect to increase the required level of PPE to Level D with dust suppression or the addition of Level C respiratory protection, or stop work if on-site monitoring indicates that any of the action levels presented in Table 8-1

are exceeded. Respiratory protection will be used when airborne contaminants, either radioactive material or chemicals, exist at levels that require personnel protection that cannot otherwise be provided. Monitoring results that exceed the action levels will be recorded in the field log book by the Site H & S Specialist or Certified Health Physicist representative. Cotton coveralls or tyvek suits may be used for field sampling. Work gloves are not required unless physical hazards are expected (e.g., pinch hazard).

### **13.0 SITE CONTROL**

Active areas of the site are secured by fencing and gated access. All visitors and workers will sign in and sign out at the Guard Station which is maintained by CWM. Access to the area of project excavation will be limited to the project team. If a reading greater than 16,000 cpm is obtained, access will be limited to necessary personnel only. If a reading greater than 110,000 cpm is obtained, a barrier or other warning device will be established to restrict access to the project area pending further review with the Health Physicist and the agencies.

### **14.0 DECONTAMINATION PROCEDURES**

It is not anticipated that workers will become contaminated to a level that warrants their decontamination. If workers have come into contact with soil above the action levels, they will frisk or be frisked with the GM probe using a criterion of 100 counts above background (ccpm). If contamination is on shoes an attempt to reduce radioactivity levels may consist of the use of a boot wash. If the levels persist above the 100 ccpm, the PPE will be placed into a steel drum or other container and staged in a location designated by CWM. After sampling and prior to eating, drinking, smoking, chewing, or the use of cosmetics, workers will wash their hands and face thoroughly.

If the monitoring instrument readings indicate a radiological hazard, the following steps will be followed whenever personnel leave the work area. The following may be altered by the Certified Health Physicist as conditions necessitate:

1. Don two pairs of removable gloves if not already in place.
2. Place bag over boot if contaminated.
3. Untie boot and step out of boot, while keeping it in its bag.
4. Remove outer gloves; discard in provided container
5. Remove Tyvek<sup>®</sup> or cotton coverall; discard in provided container.
6. Remove inner gloves.
7. Re-scan for contamination. Health physicist/technician to assist.
8. Wash hands and face with wet wipes or damp towels. Discard of wipes in provided container.

Deviations from this process will be noted in the field logbook. All spent decontamination fluids (rinse waters, etc.) shall be handled as directed by the Field Manager and in accordance with relevant regulations.

## **15.0 PERSONNEL PROTECTIVE EQUIPMENT**

Typical Personnel Protective Equipment to be utilized by field personnel during the survey and sampling activities include the following:

- ANSI-Approved Safety glasses with side shields (or goggles) for sampling
- ANSI-Approved Hard hat when overhead hazards are present
- Ordinary coveralls (e.g., cotton) (Tyvek® may be substituted)
- Ordinary work gloves (e.g., leather) when pinch hazards are likely
- Hiking boot with ankle support or ANSI-Approved Steel-toe, steel-shank work shoes or boots with ankle support. Soles should be appropriate for field conditions with sloped hills.

In the event that site conditions change, or specified radiological or chemical contamination action levels are approached, the Site Safety Specialist or Health Physicist may increase the PPE level to C or higher if necessary.

## **16.0 HAZARD COMMUNICATION**

Chemicals will not be required for site work; therefore, Material Safety Data Sheets (MSDSs) will not have to be provided. Requirements for an initial safety meeting and daily safety meetings ("tailgate" meetings) are presented in the Accident Prevention Plan (Attachment C) and Activity Hazard Analysis (Attachment D).

## **17.0 SUBSTANCE ABUSE POLICY**

Contractor/Vendor shall disseminate to its employees, agents and subcontractors the following text of the CWM Chemical Services, LLC. Substance Abuse Policy as follows and require such persons and their employees to abide by the terms of such policy:

CWM Chemical Services, LLC, is vitally concerned with the safety and well-being of the employees of its contractors. Therefore, it is important for you to be aware of CWM's policy regarding alcoholic beverages and controlled substances:

The use, possession, sale, transfer, or purchase of alcoholic beverages and controlled substances on the work site is prohibited.

"The work site" means any property or facility under the control of CWM wherever located, including land, buildings, structures, installations, cars and trucks.

"Controlled substances" means any drug or other ingestible, inhalable, or injectable substance for the use, sale, or possession of which is prohibited or restricted by law except drugs prescribed for the user by a licensed physician.

“Use” means ingesting, inhaling, or injecting alcoholic beverages or controlled substances either during the time an individual is present on the work site or within such time prior to entering upon or returning to that his or her coordination, visual perception, or reaction time is, or is likely to be, affected by such beverage or substance.

Entry into the work site constitutes consent to inspection of the individual’s person and his or her personal effects upon entering or while remaining present on the work site. Any Individual who is found in violation of this Substance Abuse Policy or who refuses to permit inspection is subject to be removed and barred from the work site at the discretion of CWM.

## REFERENCES

MARSSIM, 2000. *Multi-Agency Radiation Survey and Site Investigation Manual*, EPA 402-R-97-016, USEPA, August 2000

CWM Chemical Services, LLC, Model City, New York 14107, Safety Procedures and Requirements for Outside Contractors

CWM Chemical Services, LLC, Model City, New York 14107, Major Emergency Evacuation and Response Procedures

CWM Chemical Services, LLC, Model City, New York 14107, Standard Division Practices

CWM Chemical Services, LLC, Model City, New York 14107, Health & Safety Manual

Golder Associates, CWM RCRA Facility Investigation Summary Report, 1993

URS Corporation, Gamma Walkover Survey Site Safety and Health Plan for CWM Chemical Services, LLC. and Addendum, August 2005

Shaw Environmental Services, Site Wide Radiological Investigation Plan, April 2005

Shaw Environmental Services and CWM Chemical Services, LLC, Site Wide Radiological Investigation Plan, September 2005

CWM Chemical Services, LLC, Model City, New York 14107, Contingency Plan



## **ATTACHMENT A**

# **CWM MAJOR EMERGENCY EVACUATION AND RESPONSE PROCEDURE**

## **Major Emergency Evacuation and Response Procedure**

**The primary purpose of this procedure is the accurate accounting of every person within the CWM Chemical Services, LLC. Model City facility.**

In the event of an emergency, the Emergency Sirens will be sounded for two (2) minutes. When the sirens are activated, the following procedures shall be in effect:

1. Emergency Response Team Personnel will report to the Response Unit Garage (Team members should, if possible, notify their Supervisor, that they are reporting to the Response Unit Garage).
2. Department Supervision will be on an alert status. Supervisors will determine the location of their personnel and be prepared to account for them.
3. All other Facility Personnel will remain at their work location unless they are within the immediate danger area.
4. All vehicular traffic will pull as far to the right side of the road as possible and stop until directed otherwise. This includes facility equipment, Contractors, Drivers and Visitors.
5. EMERGENCY VEHICLES HAVE THE RIGHT-OF-WAY AT ALL TIMES.
6. Facility personnel will keep roads clear of any equipment and have the authority to direct non-plant personnel to stop and/or clear the road.
7. During an emergency, facility telephones and plant radios are restricted to emergency communications only.

**IN THE EVENT THE POSSIBILITY OF EVACUATION BECOMES NECESSARY, THE EMERGENCY SIRENS/ALARMS WILL BE SOUNDED FOR A SECOND TWO (2) MINUTE INTERVAL. WHEN THE SIRENS ARE ACTIVATED FOR THE SECOND TIME, THE FOLLOWING PROCEDURE WILL BE IN EFFECT:**

1. Everyone not engaged in the emergency response MUST report to:

Primary Facility Site

Scalehouse / Roll off Garage

Alternate Locations

Plant Main Entrance Gate (1550 Balmer Road)  
SPEC (Admin) Building  
SPEC Building East Parking Lot

2. Guard will fax to scale house all on-site contractors and drivers list. Guard will also transmit current list of all CWM Personnel to Scalehouse. Scales individual will obtain lists and assist CWM designee who is responsible for the site head count.
3. Operations Manager and Department Supervisors not involved in response – are responsible for recording all persons reporting to the site primary or secondary reporting location (Current employee and contractor list will be available at the Scalehouse/Roll-off Garage).
4. CWM employees will line up inside the Roll-off Garage. Contractors will gather at the west side of the Roll-off garage.
5. Department Supervisors are responsible for an accurate account of individuals from their respective Department.
6. Supervisors are responsible for checking and clearing their work areas of Contractors, Visitors, Truck Drivers, etc.
7. The Emergency Coordinator or designee is responsible for coordinating Search and Rescue Operations for unaccounted individuals.
8. No CWM or private vehicle will obstruct emergency response equipment or emergency operations.
9. All personnel will remain at the Primary or Secondary Reporting Location until directed to leave by the Emergency Coordinator.
10. No one will exit the facility without giving notice to the Emergency Coordinator or designee.

Department supervision shall have a prearranged plan established for SECURING vital records and/or process shut-down procedures.

#### **CONTRACTORS**

In addition to following the Evacuation Plan, Contractors may be requested by the Emergency Coordinator to assist with heavy equipment.

#### **LANDFILL SUPERVISION**

When the second siren alarm is sounded, Supervision will shut down all landfill operations immediately. No one will remain in the landfill, i.e., truck drivers who may wish to continue unloading. All individuals, including truck drivers, will be directed or provided with transportation to the Primary or Secondary Site Reporting Location.

#### **TRUCK DRIVERS/BROKERS**

Truck Drivers/Brokers who are in the process of unloading trucks when the second siren alarm is sounded will immediately shut off their truck engine, secure records and report to the Primary or Secondary Site reporting Location for further directions.

#### **GUARD HOUSE**

The Security Guard will **NOT ALLOW ANYONE** to enter the facility during a major emergency except Emergency Equipment/Personnel, and CWM Supervision. NYSDEC and USEPA Representatives will only be admitted upon approval of the Emergency Coordinator or Engineering and Environmental Manager or Health & Safety Manager or General Manager.

#### **ADMINISTRATION BUILDING AND ENVIRONMENTAL MONITORING PERSONNEL**

Personnel in the SPEC Center (Administration Building) and environmental monitoring personnel will evacuate to the Spec Center East Parking lot. The Environmental Compliance Specialist or Designee is responsible for recording all personnel who report to the SPEC Center Parking Lot. This individual will notify the Emergency Coordinator by radio the status of the personnel recording list. The list of SPEC Center current employees utilized for head count purposes will be posted in the SPEC Center Mail Room.

#### **COMMUNICATIONS**

The SPEC Center telephone person will maintain open outside telephone lines for emergency use. Two way radio communications will be established as quickly as possible from the response incident site to the Emergency Coordinator & Operation Center.

#### **TESTING**

Testing of the siren(s) for operation will normally be conducted at 12:00 noon every Wednesday of each month. No response by any personnel is needed.

## **ATTACHMENT B**

# **CONTAMINATION CONTROL PROGRAM (HS-1144) & PERSONAL PROTECTIVE EQUIPMENT (HS-1161) AND ACTIVITY HAZARD ANALYSIS**



MODEL CITY  
FACILITY

Health and Safety Program

Title: OHMS Document No. 201469232-00046

Contamination Control  
Program

Date: Jan 1997  
Page: 1 of 5

Revision Date: Nov 1996

MDC HS-1144

Supersedes: Dec 1994

Approval:

*Michael P. McEnany*

Title: President

1.0 PURPOSE:

- 1.1 This program describes the contamination control procedures within the CWM Model City Facility. The intent of the program is to minimize and control the spread of contamination within the facility, and to prevent accidental chemical contact to employees and visitors of the facility.

2.0 SCOPE

- 2.1 This procedure applies to CWM Chemical Services, Inc. employees that enter work areas where the potential for contact with hazardous substances exist.

3.0 RESPONSIBILITY

- 3.1 CWM Health & Safety Manager is responsible for overall administration of the Contamination Control Program.
- 3.2 CWM Health & Safety Manager is responsible to insure employees are trained and understand all conditions of this program.
- 3.3 CWM Operations Manager is responsible for insuring that employees understand the necessity of complying with this program.
- 3.4 All employees have the responsibility to adhere to all conditions stated in this program

4.0 DOCUMENTATION/FORMS

- 4.1 Attachment #1, List of Standard Division Practices affecting contamination control.
- 4.2 Attachment #2, Personal Protective Equipment Debris and Contaminated Equipment Disposal.

5.0 DEFINITIONS OF CONTAMINATION CONTROL AREAS

- 5.1 Clean Area                      Chemical contamination is not expected to be present.
- 5.2 Controlled area                Chemical contamination may be present due to residual contamination from past spills, leaks, or from contact with contaminated equipment or shoes. Processes within the controlled areas are enclosed or controlled to minimize employee exposure and spillage.
- 5.3 Exclusion area                    Chemical contamination is likely to be present due to the nature of the operation(s) within the area.
- 5.4 Transition area                 Area where personnel leaving an exclusion area remove potentially contaminated clothing or decontaminate their protective equipment.

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6.0. CONTAMINATION CONTROL AREAS

- 6.1 Clean areas      Administrative offices, lunchroom, heavy equipment and facility maintenance shops, plant entrance thoroughfares.
- 6.2 Controlled areas      Drum Handling Building; Aqueous Treatment Building; Truck Wash; Fuels Area; PCB Warehouse, Oil/Water Separator - SLF 1-6 and SLF 12; Tank Containment - Tanks 101-103.
- 6.3 Exclusion areas      Stabilization Facility; T/O Building; SLF's 1-6, 7, 10, 11, 12; RMU-1; Salts Area - North, East, West; Aqueous Treatment; Lagoons - 1, 2, 5, 6, 7; excavation in Process Area & other areas identified as > 1 ppm VOAs in RFI
- 6.4 Transition areas      Access areas to exclusion areas; Stabilization Facility; T/O Building; SLF's 1-6, 7, 10, 11, 12; Salts Areas - North, East, West; Aqueous Treatment; Lagoons - 1, 2, 5, 6, 7

7.0 PROCEDURES GOVERNING CONTAMINATION CONTROL AREAS

- 7.1 Clean areas
  - 7.1.1 All forms of protective equipment with the exception of hard hats, safety glasses, and safety shoes are prohibited from clean areas.
  - 7.1.2 Process or waste samples are prohibited from being stored or handled in clean areas.
- 7.2 Controlled areas
  - 7.2.1 Controlled areas are delineated by signs at building or operations entrance locations which:
    - 1) specify personal protective equipment requirements.
    - 2) specify that entrance is limited to authorized personnel only.
  - 7.2.2 Safety glasses, hard hat, and safety shoes shall be worn by all individuals entering the controlled areas. Additional protective equipment may be required in controlled areas as defined in the CWM Chemical Services Health & Safety Program: MDC HS-1161, "Personal Protective Equipment".
  - 7.2.3 Disposable protective equipment used for specific operations within the controlled areas shall be disposed of in designated receptacles before entering clean areas of the facility. Receptacles are located at entrance/exit locations of the Stabilization Facility; Drum Handling Building; Aqueous Treatment Building; Truck Wash; Fuels area; PCB Warehouse and RMU-1.
  - 7.2.4 Reusable protective equipment shall be decontaminated after use and stored in designated locations. Reusable Personal Protective Equipment items that may require decontamination include hard hats, safety glasses, respirators, gloves and boots.

A cloth or brush shall be used to remove surface contamination. Cleaning is considered complete when visible signs of contamination are removed.

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7.0 PROCEDURES GOVERNING CONTAMINATION CONTROL AREAS (cont):

Respirator cleaning shall be accomplished as specified in the CWM Chemical Services Health & Safety Program, #38 Respiratory Protection.

PCB contaminated articles shall be cleaned with an organic solvent such as kerosene.

Decontamination of highly contaminated articles or articles contaminated with extremely toxic materials shall be performed as prescribed by the CWM Health and Safety Manager or Laboratory Manager on a case-by-case basis.

- 7.2.5 All equipment in the controlled areas shall be decontaminated prior to removal for maintenance activities or before maintenance activities are performed on the equipment in the controlled areas. This equipment includes but is not limited to pipes, pumps, tanks, filters and hoses.

7.3 Materials from the controlled areas of the plant shall be discarded by placing the items in designated site containers destined for proper disposal.

7.4 Employees and visitors leaving the controlled areas should wash their hands and face before engaging in other activities.

7.5 Employees and visitors leaving the controlled areas shall remove loosely bound contaminated material from their shoes or boots before entering the clean area. Shoe/boot cleaning stations are located in the Aqueous Treatment Building; Stabilization Facility and RMU-1 entrance/exit area.

8.0 EXCLUSION AREAS

8.1 Safety glasses, eye protection and safety shoes are the minimum protective equipment required in the exclusion areas. Additional protective equipment may be required in the exclusion areas as defined in the CWM Chemical Services Health & Safety Program, MDC HS-1161 "Personal Protective Equipment".

8.2 Disposable PPE worn in the exclusion areas shall be removed and placed in the proper receptacle in the transition area before entering the clean areas of the plant. Refer to Attachment 2 Flow Sheet.

8.3 Reusable protective equipment shall be decontaminated after use and stored in designated locations.

Reusable Personal Protective Equipment items that may require decontamination include hard hats, safety glass, respirators, gloves and boots.

A cloth or brush will be used to remove surface contamination. Cleaning is considered complete when visible signs of contamination are removed.

Respirator cleaning will be accomplished as specified in the CWM Chemical Services Health & Safety Program, MDC HS-1162 "Respiratory Protection".

PCB contaminated articles shall be cleaned with an organic solvent such as kerosene.



- 9.0 WORK PRACTICES TO MINIMIZE OR ELIMINATE POTENTIAL EXPOSURE TO HAZARDOUS MATERIALS
- 9.1 Division Standard Operating Procedure include work practices to minimize or eliminate potential exposure to hazardous materials. Refer to Attachment #1.
- 10.0 PROCEDURES TO ASSURE VISITORS AND CONTRACTORS ARE ADEQUATELY PROTECTED FROM POTENTIAL CONTAMINATION
- 10.1 CWM Health and Safety Procedure MDC HS-1105, "Visitor Safety Program"; and MDC HS-1105.1, "Contractor Safety Procedure", address procedures to assure visitors and contractors are adequately protected from potential contamination.
- 11.0 PROCEDURE TO HANDLE CONTAMINATED PERSONNEL OR EQUIPMENT DURING EMERGENCIES
- 11.1 Decontamination is required for all personnel that enter an emergency contaminated zone. All personnel exiting the contaminated zone must decontaminate at the perimeter of that zone, in order to minimize the exposure of uncontaminated employees.
- 11.2 Decontamination shall be accomplished by removing or decontaminating all personal protective equipment that could have come in contact with a potential contaminated material. The PPE must be discarded or decontaminated using the decontamination protocol specified in this procedure and the Division's Contingency Plan.
- 12.0 CLEANING AND DECONTAMINATION OF VEHICLES PRIOR TO PERFORMANCE OF MAINTENANCE, ANNUAL TESTING, OR REMOVAL FROM ACTIVE AREAS
- 12.1 Standard Division Practice #2021, addresses cleaning and decontamination of vehicles exiting the landfill.
- 13.0 MISCELLANEOUS PROCEDURES
- 13.1 Spills in the facility will be cleaned up as quickly as possible according to the procedures described in the CWM Chemical Services Facility's Contingency Plan; Spill Prevention, Control and Counter Measures Plan and PCB Spill Cleanup Policy.
- 13.2 Leaks and spills shall be reported to the supervisor on duty as soon as possible after they are discovered.
- 13.3 All company supplied clothing worn in the controlled areas of the facility shall be removed before leaving the premises and placed in the "dirty" clothes receptacle located in the Employee Locker Room.
- 13.4 For personnel assigned a locker in the Employee Locker Room, safety shoes shall be removed before leaving the premises and stored in the employees "dirty" locker section of the Employee Locker Room.
- 13.5 Reusable protective equipment shall be frequently inspected. It shall be discarded if the contamination is likely to cause employee skin contact with the contaminants or if the integrity of the protective equipment appears to be compromised.

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**14.0 LOCKER ROOM FACILITIES**

- 14.1 The locker room is divided into two (2) basic sections, a clean and dirty area. Lockers are provided in each section for individual storage of street clothes (clean section) or work clothes (dirty section). Employees will park their personal vehicle in the north parking lot and enter the locker room through the north entrance door.
- 14.2 Individuals will proceed to the locker room clean section where they will store their street clothes in assigned lockers, then progress to the locker room dirty section where again each employee is assigned a locker for the change into work uniforms. Individuals will exit through the south exit door and be transported by company vehicle to the site operations. When returning to the locker room from the site, entrance will be through the south entrance door into the dirty locker room section.
- 14.3 Showers are located in the dirty section. Only toiletry items are allowed in the shower room drying area. Soiled work uniforms should be placed in hampers located in soiled laundry room area. Clean uniforms are available from linen lockers located in the main laundry room.
- 14.4 Contaminated Personal Protective Equipment, i.e, coveralls, boots, etc. MUST be disposed of in the appropriate work area. NO CONTAMINATED PPE WILL BE TAKEN INTO THE LOCKER ROOM. A boot wash is located inside the south entrance door to the dirty section. Soiled boots must be cleaned before transporting them in the locker room area. Eating is prohibited in ALL areas of the locker room and smoking is permitted only in the clean section of the locker room.

**15.0 POTENTIAL FOR SPILLS**

- 15.1 There are several operations within the facility which have the potential for spills if not performed properly. The CWM Chemical Services Standard Division Practices for these operations follows; refer to Attachment #1.

**16.0 FUGITIVE DUST CONTROL PLAN**

- 16.1 Fugitive dust control shall be accomplished as specified in the Site Wide NYSDEC Permit #373, Section "J".

STANDARD DIVISION PROCEDURESNUMBER

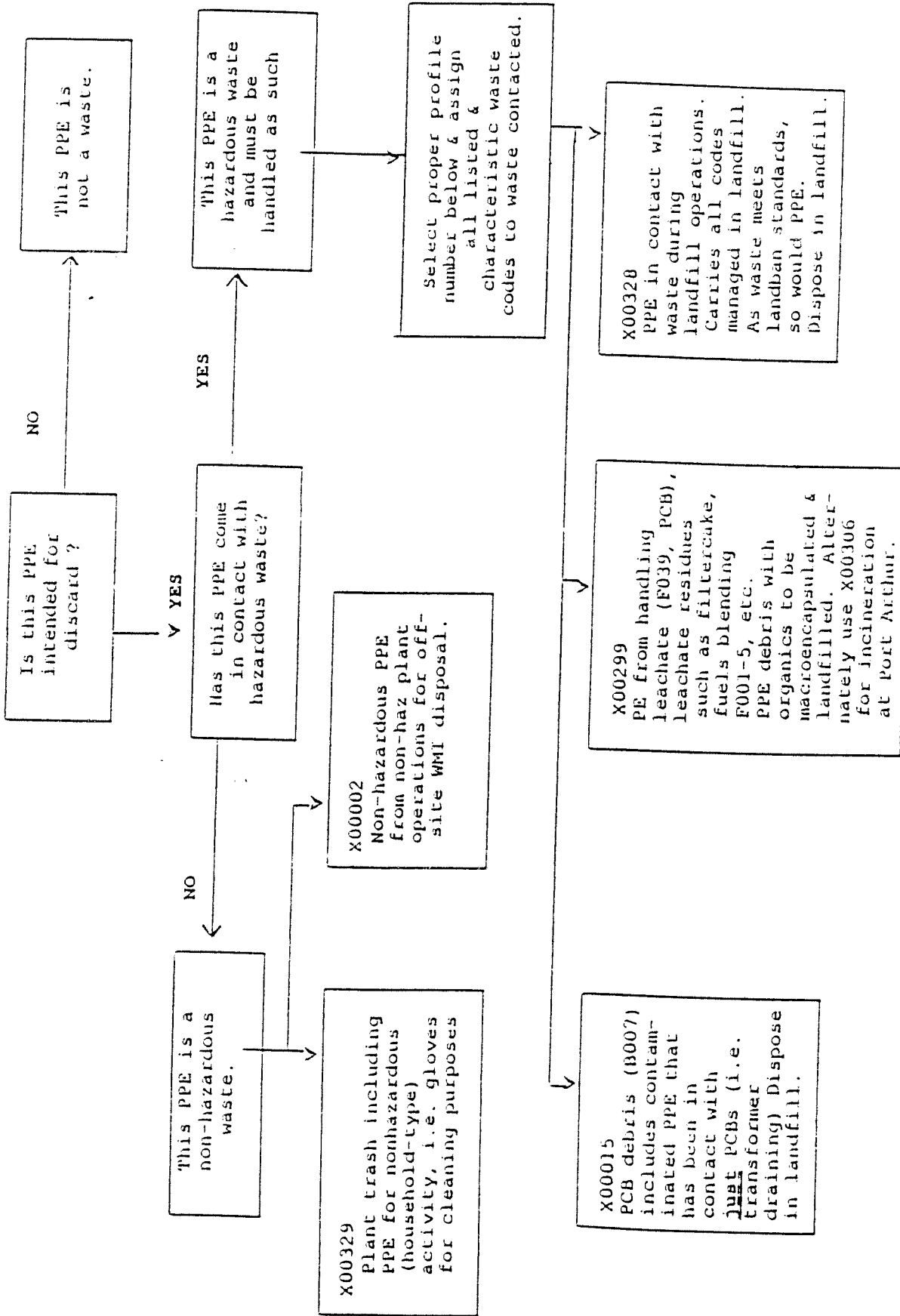
Sampling of Solids and Semi-solids in Drums and Pails	2001
Sampling of Liquids and Sludges in Drums and Pails	2002
Sampling Tankers	2003
Sampling of Bulk Solids and Semi-Solids	2004
Sampling Liquid Fuel Tanks	2005
Sampling Aqueous Tanks	2006
Bulk Liquid Tank Truck Unloading	2019
Cleaning and Decontamination of Vehicles Exiting Landfill	2021
Taking Fuel Tank Level Measurements	2034
Transformer Handling	2044
Transformer Draining and Flushing	2045
Disposal and Stabilization of DuPont Sodium Waste	2046
Measuring Landfill Leachate Levels	2055
Monitoring Caustic Levels and Concentrations in the Aqueous Treatment Scrubber	2061
Removal of Accumulated Rainwater From Containment Areas	2063
Leachate Collection Pit Transfer	2064
Operation of the SLF-12 Oil/Water Separator System	2067
Operation of the Mechanized Stabilization Process Train	2068
Stabilization Using Backhoe and Roll-off Box	2069
Cleaning of the Mechanized Stabilization Process Train	2073
Stabilization of PCB Wastes	2079
PLC Decant of Fuels Materials	2080
Stabilization of Wastes in Dump Trucks and Trailers	2081
PLC Decant of Aqueous Materials	2082
Landfill Disposal of Asbestos Material	2083
Stabilization of Asbestos Wastes	2085
Sampling of Stabilized Residuals	2092
Tank to Tank Product Transfer	2110
Bulk Tank Truck Loading	2111

MODEL CITY's SDP's

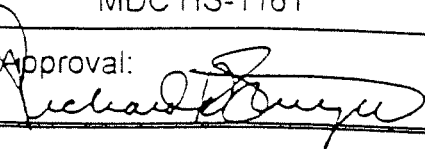
<u>Title</u>	<u>Tab Number</u>	<u>Eff Date</u>
Sampling of Solids and Semi-solids in Drums and Pails	2001	3/95
Sampling of Liquids and Sludges in Drums and Pails	2002	3/95
Sampling Tankers	2003	7/25/95
Sampling of Bulk Solids and Semi-Solids	2004	7/25/95
Sampling Liquid Fuel Tanks	2005	11/14/96
Sampling Aqueous Tanks	2006	2/12/96
Sampling Process Lines	2007	7/25/95
Sampling Ponds, Lagoons and Surface Impoundments	2008	7/25/95
Preparation of Drums for Commercial Disposal	2017	9/95
Authorized Access to Electrical Equipment Rooms	2013	3/20/96
Cleaning and Decontamination of Vehicles Exiting Landfill	2021	6/20/96
Transformer Handling	2044	2/7/96
Transformer Draining and Flushing	2045	2/7/96
Disposal and Stabilization of Dupont Sodium Waste	2046	2/7/96
Operation of Plant Control Gates	2048	7/95
Measuring Landfill Leachate Levels	2055	1/9/96
Truck Wash Facility	2056	3/96
Monitoring Caustic Levels and Concentrations in the Aqueous Treatment Scrubber	2061	2/5/96
Biological Addition to Reduce Leachate Odor Emissions	2062	2/7/96
Removal of Accumulated Rainwater from Containment Areas	2063	1/17/96
Leachate Collection Pit Transfer	2064	RETIRED
Operation of the SLF-12 Oil/Water Separator System	2067	1/9/96
Shakedown/Checkout of the Modified Aqueous Waste Treatment System	2070	2/7/96
Minimum Waste Evaluation Procedure to Demonstrate that Stabilization Residuals meet Land Ban Performance Levels	2071	1/5/96
PLC Decant of Fuels Materials	2080	7/25/95
PLC Decant of Aqueous Materials	2082	2/7/96
Landfill Disposal of Asbestos Material	2083	10/16/91

<u>Title</u>	<u>Tab Number</u>	<u>Eff Date</u>
Stabilization of Asbestos Wastes	2085	5/28/96
Inspection and Repair of Intermediate Cover	2089	10/29/91
Minimizing Vehicles Overturning	2090	2/5/96
Sampling of Stabilized Residuals	2092	1/31/95
Interim Storage of Stabilized Waste in the Secure Landfill	2093	1/31/95
Stabilization of Waste in Mixing Pits	2105	9/14/95
Operation of the Saturn Shredder	2106	3/1/95
Operation of the Air Pollution Control System	2107	undated original
Stabilization Bench Scale Recipe Development	2108	2/20/96
Flagging of Loads Requiring Special Handling	2109	7/25/95
Pumping Drums	2112	2/20/96
Use of Geotextile as Daily Cover	2114	12/10/94
Operation of the Air Compressor System	2115	11/30/94
Macroencapsulation	2116	8/1/95
Interim Storage of Waste for Random Sampling	2117	2/7/96
Bulk Liquid Tanker to Tanker Transfer	2118	9/95
Bulk Reagent Loading	2119	original unsigned undated
Sampling Covered Impoundments	2122	7/25/96
Bulk Solid Exceptions	2123	<b>RETIRED</b>
Collection of Non-Hazardous Site Water for Use in Stabilization	2124	8/25/93
Management of Non-Hazardous Storage Tanks	2126	12/19/94
Trailer Park Container Storage	2129	8/1/95
Container Management	2129	9/14/95
Towing and Pulling Equipment	2131	5/6/94
Proper Marking and Labeling of Waste Containers for Storage at Model City	2132	6/21/95
Microencapsulation of Waste in Mixing Pits	2133	7/25/95
Container Storage in PCB Warehouse	2200	8/96
Closure of TSCA/RCRA Tanks	2300	10/96

PPE<sup>1</sup> Characterization and Disposal



<sup>1</sup> includes all types of equipment including tyveks, respirator cartridges, gloves, etc..

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Health and Safety Program	MDC HS-1161	Supersedes: Aug 1999
	Approval: 	Title: District Manager

1.0 PURPOSE

This procedure defines the minimum CWM Chemical Services, L.L.C. requirements and responsibilities for the implementation of CWM personal protective equipment programs designed to protect employees from hazards during the performance of work activities.

2.0 SCOPE

This practice describes the minimum PPE that must be donned prior to entering specific work areas at the CWM Chemical Services, L.L.C., Model City, NY facility. It also includes the minimum PPE required to perform various jobs or tasks. Depending upon the hazard and/or the job, it may be necessary to don additional PPE. Personnel will be informed of additional PPE requirements through Material Safety Data Sheets (MSDSs), Waste Profile Sheets, Standard Division Practices and work area supervisors.

3.0 PROGRAM RESPONSIBILITIES

3.1 Safety Specialist is the personal protective equipment administrator and has the responsibility to:

- 3.1.1 Coordinate the program.
- 3.1.2 Ensure that annual training is conducted in accordance with Section 8 of this Program.
- 3.1.3 Review the program annually.
- 3.1.4 Safety Specialist is responsible for maintaining the site PPE inventory control program.
- 3.1.5 Safety Specialist is responsible for the purchase of PPE, including respiratory protection.

3.2 Supervisors are responsible for informing workers of the personal protective equipment requirements within their department/area. The supervisor will also ensure that workers have been instructed in the proper donning, wearing, removal and the cleaning or disposal procedures for such equipment, and that the worker has understood the instructions. The supervisor will provide additional instructions, as needed.

3.3 Supervisors are responsible for ensuring employees have no facial hair which will interfere with a proper respirator face seal.

3.4 Workers are responsible for properly donning, wearing, removing, cleaning, and disposing of the required protective equipment.

3.5 Project Engineers/Contact Person are responsible for ensuring that contractors provide their own protective equipment as specified in the Division's "Contractor Safety Procedure", MDC HS-1105.1 and wear protective equipment as specified in this Program.

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#### 4.0 GENERAL REQUIREMENTS

Personal Protective Equipment (PPE) refers to the broad category of safety equipment into which is placed virtually any wearable item designed to protect the worker. Subcategories of PPE would include, but are not limited to: chemical protective clothing, respiratory protection, head and eye protection, hearing protection, and special hazards equipment such as life-lines and harnesses, cooling vests, hot work clothing, and others. The requirements for CWM's "Respiratory Protection Program", are described in Health and Safety Program procedure under MDC HS-1162. Selection and use requirements for hearing protectors are described in Health and Safety Program Procedure under MDC HS-1123, "Hearing Conservation". Guidelines for the selection and use of chemical protective clothing are provided in "Guidelines for the Selection of Chemical Protective Clothing" published by the American Conference of Governmental Industrial Hygienists (ACGIH).

- 4.1 CWM employees shall only use personal protective equipment supplied by the company.
- 4.2 Visitors will be supplied with the following personal protective equipment as outlined in the Division's Health & Safety Program, "Visitor and Contractor Safety", MDC HS-1105.
- 4.3 Disposal of PPE and cleaning of reusable PPE is governed by the procedures specified in the Division's Health & Safety Programs for "Respiratory Protection Program", MDC HS-1162, and "Contamination Control Program", MDC HS-1144. Disposal of PPE should be in accordance to SDP 3001 Site Generated Waste.
- 4.4 Written procedures governing the safe use of PPE that might be required in an emergency are contained in the division's Health & Safety Program, "Guidelines & Procedures for Hazardous Material Emergencies", MDC HS-1181.1, CONTINGENCY PLAN, SPCC PLAN, SPILL ABATEMENT, etc.

#### 5.0 GENERAL CLOTHING (WORK UNIFORM)

- 5.1 Shorts are prohibited and employees must wear clothing which covers the upper portion of the body and arms.
- 5.2 Long-sleeved shirts and long pants, are required for employees working on the active areas of the facility and in the Maintenance and Heavy Equipment shops.
- 5.3 Long sleeved shirts may be turned up to just below the elbow when doing so either: does not jeopardize the protection of the employee (e.g. driving through the active areas of the facility), provides the employee greater protection (e.g. when the sleeves of the uniform may interfere with the task being performed) or when employee protection is provided through another means (e.g. tyvek coverall sleeves extend well into employees gloves).

#### 6.0 EYE AND FACE PROTECTION

The following shall be used to assist in the selection of eye and face protection:

- 6.1 Selection of eye and face protection will conform to ANSI Standard, Z87.1-1989 and OSHA 29 CFR 1910.133.



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## 6.0 EYE AND FACE PROTECTION

- 6.2 Minimum eye protection consists of spectacles with industrial safety lenses and half side shields. In addition, suitable eye and face protectors will be provided as specified in the Task/Area PPE Requirement Sheets.
- 6.3 Eye protection (safety glasses with side shields) are required to be worn at all times while on the site other than in offices, the SPEC center (including parking lot), break and lunch rooms, entering and leaving employee's work station (including from a vehicle to an office), at the beginning and end of shift, etc.
- 6.4 Prescription safety glasses with side shields shall be provided to employees requiring corrective lenses.
- 6.5 Eye Protection for contact lens wearers shall be selected using the same criteria as for individuals not wearing contact lenses to ensure protection against the anticipated hazard (e.g. eye protection for handling of liquids posing a chemical splash hazard must include splash goggles, full-face shield or full-face respirator). Contact lenses may be worn when wearing a full-face respirator. Personnel shall not be allowed to wear contact lenses in dusty environments (e.g., landfills, stabilization buildings).
- 6.7 Face shields do not provide adequate eye protection and shall not be worn as a substitute for full face piece respirators.

The use of a full face piece air purifying full face piece supplied air respirator or a half face piece air purifying with chemical goggles shall be worn when chemical liquid splashing may occur.

## 7.0 PROTECTIVE HEADWEAR

- 7.1 All head protection (hard hats) will comply with ANSI Standard Z89.1-1997 and OSHA Standard 29 CFR Part 1910.135
- 7.2 Hard hats are required to be worn in all areas of operations.
- 7.3 Hard hats are not required to be worn while inside vans, pick up trucks, automobiles, and buses at any time, or while operating heavy equipment, tractors, fork lifts, etc equipped with rollover protection.
- 7.4 Hard hats are required to be worn at all times while on the site other than in offices, the SPEC Center (including parking lot), break and lunch rooms, entering and leaving employee's work station (including from a vehicle to an office), at the beginning and end of shift, etc.

## 8.0 PROTECTIVE FOOTWEAR

- 8.1 Selection of foot protection will conform with ANSI Standard Z41.1-1991, which has been adopted by reference in OSHA 29 CFR 1910.136. If purchased prior to July 5, 1994 it will conform to ANSI Standard Z41.1-1967.
- 8.2 Safety shoes (steel toe cap - 6" upper) are required for employees working on active work areas of the facility and in the Maintenance and Heavy Equipment shops.

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9.0 HIGH VISIBILITY VEST

- 9.1 All employees working in or near motor vehicle traffic must wear a high visibility vest per ANSI Standard ISEA 107-1999 Conspicuity Class 2 High Visibility Safety Apparel.

10.0 TRAINING

Training on the contents of this program shall be conducted annually and shall include the following:

- 10.1 Proper selection, use and maintenance of the equipment, including capabilities and limitations.
- 10.2 The nature of potential hazards and the consequences of not using the appropriate equipment.
- 10.3 Procedures for inspecting, donning, doffing, checking, and fitting equipment.
- 10.4 Emergency procedures in the event of equipment failure.
- 10.5 A review of the area and task specific protective equipment requirements of Appendix G of this procedure.

11.0 PROCEDURES

NOTE: It must be understood that this practice describes the minimum PPE requirements for entering a contaminated area or performing a specific job. Minimum PPE requirements are based on data collected through the industrial hygiene air sampling program, hazard evaluation, incident investigation, job safety analysis, observation and experience. However, not all hazards can be anticipated and occasionally different or additional PPE may be required depending upon the circumstances. Therefore, it is equally important that employees learn to identify and evaluate hazards to ensure that the proper PPE is selected.

- 11.1 Identify and evaluate hazards encountered on the job.
  - 11.1.1 Determine the physical hazards.
    - 11.1.1.1 Consider sharp or falling objects.
    - 11.1.1.2 Consider overhead obstructions.
    - 11.1.1.3 Consider slippery surfaces.
    - 11.1.1.4 Consider heat or cold.
    - 11.1.1.5 Consider flying particles.
    - 11.1.1.6 Consider pinch points.
  - 11.1.2 Determine the health hazards.
    - 11.1.2.1 Consider splashes or vapors from corrosive or toxic substances.
    - 11.1.2.2 Consider harmful dusts, fogs, fumes, mists, gases, smokes and sprays.
  - 11.1.3 Review hazard information sources.

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11.0 PROCEDURES (cont):

11.1.3.1 Consider Material Safety Data Sheets (MSDSs), Warning Labels and Signs, Profile Records Hazardous Waste Manifests, Treatment and Disposal Slips, Work Permits, Lab Approval Notifications, Special Waste Analysis Reports (SWARs), and Standard Division Practices (SDPs).

11.1.4 Utilize test and/or sampling equipment (i.e., Noise Level Meter, LEL/O<sub>2</sub> Meter, Drager Tubes, Air Sampling Pumps, etc.) to evaluate hazards like noise, flammable gases, atmospheres that are Immediately Dangerous to Life and Health (IDLH) and exposure to contaminants at levels above the established Time Weighted Average - Threshold Limit Value (TWA-TLV).

NOTE: Employees must be trained and qualified prior to operating test equipment.

11.2 Once the hazard identification and evaluation process is completed, match the PPE to the hazard.

11.2.1 Refer to "Criteria for the Selection of PPE" at Exhibit #1.

11.2.2 Refer to "Gloves Selection" at Exhibit #2.

11.2.3 Refer to "Selection Chart for Eye and Face Protectors" at Exhibit #3.

11.2.4 Refer to "Respirator Selection Flow Chart" at Exhibit #4.

11.2.5 Refer to "Cartridge Selection Guide" at Exhibit #5.

11.3 Select PPE that will provide adequate protection against hazards faced on the job.

11.3.1 Determine area or job specific PPE requirements.

11.3.1.1 Refer to "PPE Certification of Hazard Assessment and Equipment Selection", Exhibit #6.

CAUTION: The PPE Certification of Hazard Assessment and Equipment Selection Sheets does not cover all the hazards that an employee may face during job performance. Employees must remain alert for any new hazard(s) and take appropriate action to protect themselves.

11.3.1.2 Prior to handling any hazardous chemicals, read the MSDS.

NOTE: Pay particular attention to those sections on the MSDS that address PPE. MSDSs are available in department computers.

11.3.1.3 Prior to handling hazardous waste, review the Waste Profile Record for information concerning PPE.

11.3.1.4 Read PPE requirements on work permits.

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## 11.0 PROCEDURES (cont):

11.3.1.5 Prior to job performance, study written procedure (i.e., SDP, SOP, etc.).

NOTE: All personnel not assigned to a specific operating or maintenance area shall consult with the area supervisor before entering the area so they can be briefed on any additional hazards and PPE requirements that may exist.

11.3.2 Determine the level of protection needed to enter the work areas.

11.3.2.1 If you enter an immediate work area without the proper PPE, promptly leave the area where the work is being performed or don the PPE required for that work.

11.3.2.2 Refer to "PPE Certification of Hazard Assessment and Equipment Selection" in Exhibit #6 for job specific requirements.

11.3.3 Recognize and distinguish between areas where PPE is required and areas where PPE is not required.

11.3.4 Warn any individual not wearing the required PPE.

NOTE: Every CWM employee has the responsibility of warning any individual not wearing the required PPE in a specific area or while performing a specific task.

NOTE: High heels, sandals, tennis shoes, tank tops, sleeveless shirts, short pants or dresses are prohibited in operating areas.

NOTE: Site tour personnel (i.e., guide, visitors, etc.) are exempt from the no dress/no high heel rule, as long as they remain in the site tour bus or are walking from the bus to the training room for orientation.

11.4 Test and inspect PPE prior to use.

11.4.1 Ensure that a qualitative fit test is completed each time you are issued a new respirator and/or yearly. (Refer to Health & Safety Procedure, MDC HS-1162, "Respiratory Protection Program").

11.4.2 Ensure that the correct filters are installed on air purifying respirators.

11.4.2.1 Match the chemical cartridge to the hazard.

11.4.2.2 Read the chemical cartridge label.

NOTE: The label will describe the chemical(s) that the cartridge will protect against.

11.4.2.3 Refer to the "Cartridge Selection Guide" at Exhibit #5.

11.4.2.4 If you are not sure what filter to use, ask your supervisor.

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11.0 PROCEDURES (cont):

11.4.3 Inspect air purifying respirators.

11.4.3.1 Check rubber face piece for dirt, pliability of rubber, deterioration, cracks, tears and holes.

11.4.3.2 Check straps for breaks, tears, loss of elasticity, broken attachments or snaps and proper tightness.

11.4.3.3 Check exhalation and inhalation valves for holes, warpage, cracks and dirt.

11.4.4 Check all PPE for tears, leaks, punctures, or signs of wear.

NOTE: Tearing tyvek or poly tyvek suits for any reason, other than removal, is prohibited.

11.4.5 Ensure that non-disposable PPE is not contaminated from it's last use.

11.4.5.1 Refer to Health & Safety Program, MDC HS-1144, "Contamination Control".

11.4.6 Check safety glasses, goggles, face shields, or full face respirator lens for obstructed vision (i.e., nicks, scratches, stains, dirt, etc.).

11.5 Don PPE correctly.

11.5.1 Always make sure that everything fits.

WARNING: Loose clothing can get caught in machines.

11.5.2 Ensure that all buttons and snaps are fastened.

11.5.3 Ensure that all straps are secure.

11.5.4 Ensure that all zippers are up.

11.5.5 If necessary, use tape to seal zippers or secure cuffs and pants.

11.5.6 Ensure that there is an air tight seal between your face and the respirator.

CAUTION: Facial hair (i.e., all beards, beard stubble, side burns, long mustaches, etc.) will prevent adequate face seal. Male employees must shave daily to ensure proper seal.

11.5.6.1 Prior to each use, conduct a field fit (positive/negative) test on all air-purifying respirators. (Refer to Health & Safety Procedure, MDC HS-1162, "Respirator Protection Program".)

11.6 Remove PPE correctly.

11.6.1 Decontaminate non-disposal PPE clothing (i.e., slicker suit, acid suit, rubber boots, etc.) prior to removal.

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11.0 PROCEDURES (cont):

11.6.1.1 Refer to Health & Safety Program, MDC HS-1144, "Contamination Control".

11.6.2 Remove disposable PPE carefully so as not to contaminate yourself.

11.6.2.1 Remove outer gloves first.

11.6.2.2 Leave inner gloves on when removing contaminated PPE.

NOTE: The ideal way to remove contaminated PPE is to take off items on the upper body first and then work down. Inner gloves should be the last item removed.

CAUTION: Be careful and try not to contaminate your bare hand when taking off inner gloves. Grasp inner glove at wrist and peel off.

11.6.3 Place disposable PPE in proper container.

11.6.4 Clean and inspect your respirator.

11.6.5 Store all non-disposable PPE in designated location.

11.7 Maintain non-disposable PPE.

NOTE: PPE is provided by the Division as a line of defense against potential hazards that exist at our facility. To afford maximum protection, the PPE must be properly maintained. Respirators must be cleaned after each day's use or more often, if necessary. When not in use, respirators must be stored in appropriate storage.

11.7.1 Clean and disinfect PPE regularly.

11.7.2 Inspect PPE before and after each use.

11.7.3 Replace any punctured, leaking, torn, worn or damaged PPE and/or accessories.

11.7.4 Replace safety glasses, goggles, or face shields if vision is obstructed.

11.7.5 Replace respirator dust filters and chemical cartridges daily or more often if wearer detects odor, taste, irritation or plugging.

11.7.6 Store PPE in designated location.

11.8 Recognize and understand PPE limitations.

11.8.1 If available, read instructions provided by the manufacturer.

NOTE: Instructions usually accompany new equipment.

11.8.2 Use boot covers to protect leather footwear from contamination.

CAUTION: Leather absorbs and cannot be decontaminated.

CAUTION: Boot covers may be slippery on wet or dusty surfaces.

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## 11.0 PROCEDURES (cont):

11.3.3 Do not wear shaded safety glasses during night time or indoor operation.

CAUTION: Shaded safety glasses reduce vision at night and are prohibited on evening shifts, or indoor activities.

11.3.4 Do not use air purifying respirators in oxygen deficient atmospheres.

WARNING: Never use air purifying respirators in oxygen deficient atmospheres (less than 19.5% oxygen) or atmospheres immediately dangerous to life and health (IDLH).

11.3.5 Use air purifying respirators around chemicals with adequate warning properties (i.e., offensive odor, irritant, etc.).

11.3.6 Use supplied air respirators around chemicals with little or no warning properties.

11.3.7 Determine the degree of protection afforded by a respirator.

11.3.7.1 Refer to "Respirator Protection Factors" at Exhibit #10.

11.3.8 Replace chemical cartridges often enough to prevent break-through.

11.3.8.1 Refer to Health & Safety Procedure, MDC HS-1162, "Respiratory Protection Program".

NOTE: Break-through occurs when the sorbent material and filter pads in the cartridge are no longer effective due to excessive contaminants.

CAUTION: High humidity can reduce chemical cartridge effectiveness.

## 12.0 EVALUATION OF PPE PROGRAM

The Division shall annually evaluate its PPE program to ensure its effectiveness and that it meets all regulatory and company requirements. Exhibit #7.

### USER RESPONSIBILITIES

- 12.1 Identifies and evaluates hazards encountered on the job.
- 12.2 Determines what the physical and health hazards are.
- 12.3 Reviews hazard information sources.
- 12.4 Matches the PPE to the hazard.
- 12.5 Selects PPE that will provide adequate protection.
- 12.6 Utilizes the PPE Certification of Hazard Assessment and Equipment Selection Information.
- 12.7 Consults with supervisor prior to entering work area(s).

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**12.0 EVALUATION OF PPE PROGRAM (cont):****USER RESPONSIBILITIES (cont):**

- 12.8 Warns any individual not wearing the required PPE.
- 12.9 Tests and inspects PPE prior to use.
- 12.10 Maintains respirator and other PPE in good working condition.
- 12.11 Dons and removes PPE properly.
- 12.12 Recognizes and understands PPE limitations.
- 12.13 Complies with PPE policy and procedures.

**13.0 USER PERFORMANCE CRITERIA**

- 13.1 Safely performs all steps of the practice.
- 13.2 Meets minimum section demands for speed and accuracy.
- 13.3 Can explain why and when the job must be done.
- 13.4 Can explain why each step in the practice is needed.
- 13.5 Can identify basic facts and terms about the job.
- 13.6 Utilizes equipment, tools, and supplies as they were designed and intended to be used.
- 13.7 Recognizes and reports any unsafe conditions/acts immediately.
- 13.8 Recognizes, understands, and complies with Federal, State and local standards that apply throughout this practice.
- 13.9 Uses good oral and written communications skills.

**14.0 CROSS REFERENCES:**

- 14.1 Health & Safety Program, MDC HS-1144, "Contamination Control".
- 14.2 Health & Safety Program, MDC HS-1105, "Visitor and Contractor Safety".
- 14.3 Health & Safety Program, MDC HS-1162, "Respirator Protection Program".



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## 15.0 REGULATORY/PERMIT REQUIREMENTS

- 15.1 CFR 29 Part 1910.132: PPE shall be provided, used and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards that could be encountered in a manner capable of causing injury in the function of any part of the body through absorption, inhalation or physical contact.
- 15.2 CFR 29, Part 1910.133: Protective eye and face equipment shall be required where there is a reasonable probability of injury that can be prevented by such equipment.
- 15.3 CFR 29, Part 1910.134: The employee shall use the provided respiratory protection in accordance with instruction and training received. Respirators shall be regularly cleaned and disinfected. Respirators shall be stored in a convenient, clean, and sanitary location. Respirators shall be inspected routinely.
- 15.4 CFR 29, Part 1910.120: Whenever engineering controls and work practices are not feasible, PPE shall be used to reduce and maintain exposures to or below the permissible exposure limits of substances regulated by CFR 29, Part 1910, Subpart Z (Toxic and Hazardous Substances).

## 16.0 GLOSSARY OF TERMS

- 16.1 Permissible Exposure Limit (PEL): The legally established time-weighted average (TWA) concentration or ceiling concentration that shall not be exceeded.
- 16.2 Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period (usually 8 hours).
- 16.3 Threshold Limit Values (TLVs): Time-weighted concentrations of airborne substances to which nearly all workers may be continuously exposed (during 8-hour work days and 40 hour work weeks) without adverse effects.
- 16.4 Threshold Limit Value - Ceiling (TLV-C): The concentration that should not be exceeded during any part of the working exposure.
- 16.5 LEL Meter: Instrument used to determine the Lower Explosive Limit (LEL) and/or oxygen content of an atmosphere.
- 16.6 Break-through: Occurs when a respirator filter fills up with contaminants and no longer protects the wearer.

CRITERIA FOR THE SELECTION OF PPE

EYE/FACE PROTECTION

<u>Personal Hazard</u>	<u>Protection Required</u>
<input type="radio"/> Low Energy flying solids	Safety glasses with side shields
<input type="radio"/> High energy flying solids	Face shield or goggles and safety glasses with side shields
<input type="radio"/> Low energy flying liquids	Face shield and safety glasses with side shields
<input type="radio"/> High flying liquids and corrosive liquids	Face shield and goggles

(Note: when respiratory protection is required, a full face respirator can be utilized in lieu of face shield and safety glasses or goggles.)

HEAD PROTECTION

Worn in "hard hat areas" due to the potential for exposure to overhead obstructions or falling objects that sometimes exist in various areas.

FOOT PROTECTION

- Steel toed footwear is required any time personnel are working with tools or objects that could be dropped or otherwise contact and damage the foot.
- Highly impermeable footwear is required when foot contact with waste is possible. Leather footwear, once contaminated, cannot be decontaminated properly. Leather footwear is acceptable when worn with impervious boot covers.

PROTECTIVE CLOTHING

- Tyvek suit is adequate for possible brush contact with solids.
- Highly impermeable clothing is required for possible contact with sludges or liquids. This clothing includes slicker suits, long slicker coats, polytyvek suits and saranex coveralls.

HAND PROTECTION

- Leather gloves are adequate for possible abrasion or finger pinches from non-contaminated surfaces.
- Gloves constructed of synthetic materials are required for possible contact with contaminated surfaces or materials. The chemical/waste being handled dictate the specific type of synthetic glove to be worn.

RESPIRATORY PROTECTION

- Respiratory protection is required when exposure to contaminants at levels that could exceed ACGIH 8 hour TLV is possible.
- Supplied air respiratory protection is required when exposure to contaminants at levels that exceed ACGIH 8 hour TLV is imminent, confirmed, or required by specific OSHA standards.

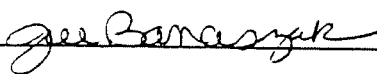
## EXHIBIT 2

GLOVE SELECTION

The following lists the type of gloves used at the Model City Facility along with the type of chemicals resistant to them. Discard gloves if they become ripped, torn or discolored due to chemical action.

<u>TYPE OF GLOVE</u>	<u>CHEMICAL GROUP</u>
Nitrile/Neoprene	Acids, caustics, petroleum solvents, aromatic solvents, chlorinated solvents
Rubber or PVC	Acids, caustics, alcohols, low level organic solvents
Latex/Vinyl	Acids, caustics, alcohols
Leather	To protect against injuries; not resistant to chemicals.

CWM Chemical Services, LLC  
NYSDEC OHMS Document No. 201469232-00046  
**Certification of Hazard Assessment and Equipment Selection**

<b>Department:</b> Environmental	
<b>Routine Task:</b> Excavation in areas with VOAs > 1 ppm per RFI*	
<b>Assessment Reviewed By:</b> Jill Banaszak	
<b>Signature:</b> 	<b>Date:</b> 9/9/05

PROTECTION	POTENTIAL (Yes or No)	PPE REQUIREMENT
<b><u>Eyes and Face</u></b> <ul style="list-style-type: none"> <li>• Flying particles</li> <li>• Non-corrosive liquid chemicals</li> <li>• Corrosive liquid chemicals</li> <li>• Optical radiation</li> </ul>	Yes No No No	X Safety Glasses Full Face Respirator Face Shield Welding Helmet Welding Shield Other (s) Describe:
<b><u>Foot</u></b> <ul style="list-style-type: none"> <li>• Falling/Rolling Objects</li> <li>• Sole Piercing</li> <li>• Chemical hazards</li> <li>• Electrical hazards</li> </ul>	No No Yes – if excavation will be entered. No	X Work shoes (steel toe, steel midsole, min 6” high with laces X Rubber boots Other (s) Describe:
<b><u>Head</u></b>	Yes – Required in operating areas.	X Hard Hat Other (s) Describe:
<b><u>Hand</u></b> <ul style="list-style-type: none"> <li>• Non-corrosive liquid chemicals</li> <li>• Corrosive liquid chemicals</li> <li>• Solid chemicals</li> <li>• Severe cuts or lacerations (cutting tools)</li> <li>• Severe abrasions</li> <li>• Punctures (sharp tools/objects)</li> <li>• Burns (Thermal)</li> </ul>	No No Yes – Contam. soil No No No No	X Fabric work gloves with/or abrasion /cut resistant gloves X Chemical protective gloves Type: Neoprene or Nitrile Other (s) Describe:
<b><u>Body</u></b> <ul style="list-style-type: none"> <li>• Non-corrosive liquid chemicals</li> <li>• Corrosive liquid chemicals</li> <li>• Solid chemicals</li> <li>• Burns (Thermal)</li> <li>• Visibility</li> </ul>	No No Yes No No	X Work Uniform with: X Coverall PE (Saranex with hood) Other (s) Describe:
<b><u>Respiratory</u></b> Nuisance Dust Toxic Dust Chemical gases or vapors	Yes – if soil dry No Yes	X Half mask respirator with: X Acid/organic cartridge HEPA P100 Filter Full Face Respirator with: Acid/organic cartridge HEPA P100 Filter SCBA Other (s) Describe:
<b><u>Hearing</u></b> Loud noise	No	Ear Plus (Optional) Canal Caps Ear Muffs Other (s) Describe:

\* PPE also required if air monitoring is performed with Foxboro TVA100 GC/FID and a reading above 50 ppm (as methane) or if a significant chemical odor is noted.

### ACTIVITY HAZARD ANALYSIS (AHA)

Model City Facility

Activity: Radiation Survey/Sampling

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Walk over and property line measurements	Stepping on sharp and/or protruding objects	<ul style="list-style-type: none"> <li>• Recent mowing will enhance visibility</li> <li>• Surveyor must be aware of changing terrain when performing survey</li> <li>• Proper safety footwear will minimize the potential for foot injury</li> <li>• Be aware of damaged fencing wire and posts</li> </ul>
	Slips, trips, falls	<ul style="list-style-type: none"> <li>• Recent mowing will enhance visibility</li> <li>• Surveyor must be aware of changing terrain, wet ground, animal burrows and general debris</li> <li>• Ensure instrument wires, straps and cables do not interfere with walking</li> </ul>
	Potential exposure to chemical and radiological contaminants	<ul style="list-style-type: none"> <li>• Avoid activities that disturb areas with distressed vegetation</li> <li>• Avoid areas that exhibit unusual characteristics (odor, color) or other signs of contamination until properly evaluated</li> <li>• Modify PPE as required by conditions</li> </ul>
	Biological Hazards	<ul style="list-style-type: none"> <li>• Wear light colored clothing or white Tyvek® to allow you to see ticks that are crawling on your clothing.</li> <li>• Tuck your pant legs into your socks or boots, wear high rubber boots, or use tape to close the opening where they meet so that</li> <li>• Wear a hat, tie back long hair.</li> <li>• Apply repellents to discourage tick attachment. Repellents containing permethrin can be sprayed on boots and clothing and will last for several days. Repellents containing DEET (n,n-diethyl m-toluamide) can be applied to the skin, but will last only a few hours before reapplication is necessary. Apply according to Environmental Protection Agency guidelines to reduce the possibility of toxicity.</li> <li>• Learn to identify the toxic plants and avoid them.</li> <li>• Wear long pants and long sleeves, boots and gloves.</li> <li>• Barrier skin creams may offer some protection if applied before contact.</li> <li>• Avoid indirect contact from tools, clothing or other objects that have come into contact with a crushed or broken plant. Don't forget to wash contaminated clothing and clean up contaminated equipment.</li> <li>• If you can wash exposed skin areas within 3-5 minutes with cold running water, you may keep the urushiol from penetrating your skin.</li> <li>• Proper washing may not be practical in remote areas, but a small wash-up kit with pre-packaged alcohol-based cleansing tissues can be effective.</li> <li>• Wear long pants and long sleeves, boots and gloves.</li> <li>• Barrier skin creams may offer some protection if applied before contact.</li> </ul>

		<ul style="list-style-type: none"> <li>• Avoid indirect contact from tools, clothing or other objects that have come into contact with a crushed or broken plant. Don't forget to wash contaminated clothing and clean up contaminated equipment.</li> <li>• If you can wash exposed skin areas within 3-5 minutes with cold running water, you may keep the urushiol from penetrating your skin.</li> <li>• Proper washing may not be practical in remote areas, but a small wash-up kit with pre-packaged alcohol-based cleansing tissues can be effective.</li> </ul>
	Heat Stress	<ul style="list-style-type: none"> <li>• Provide water and electrolyte replacement drinks</li> <li>• Allow employees who are not accustomed to working in hot environments appropriate time to become acclimated</li> <li>• Investigate use of auxiliary cooling devices in extreme conditions</li> <li>• Conduct briefings for employees regarding health hazards and control measures associated with heat stress whenever conditions require the implementation of heat stress monitoring</li> </ul>
	Cold Stress	<ul style="list-style-type: none"> <li>• Proper clothing for weather conditions</li> <li>• Available warming stations and warm, non-dehydrating beverages</li> <li>• Survey teams should be reminded to observe physiological indications</li> <li>• Protect instruments from thermal shock and other weather impacts</li> </ul>
<b>EQUIPMENT TO BE USED</b>	<b>INSPECTION REQUIREMENT</b>	<b>TRAINING REQUIREMENTS</b>
<ol style="list-style-type: none"> <li>1. Level D PPE</li> <li>2. Radiation Detection Instrumentation</li> <li>3. GPS Equipment</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect PPE prior to use</li> <li>2. Source check daily</li> <li>3. Ensure reception is satisfactory / Ensure that instrumentation is secure in backpack.</li> </ol>	<ul style="list-style-type: none"> <li>• HAZWOPER 40 hour or current 8 hour refresher</li> <li>• Radiation Worker Training</li> <li>• Equipment Operator Specific Training</li> <li>• Safety and health briefing prior to initial operations</li> </ul>
<b>PRINCIPAL STEPS</b>	<b>POTENTIAL HAZARDS</b>	<b>RECOMMENDED CONTROLS</b>
<p>Vehicular traffic onsite</p> <p>Travel to and at the site</p>	<p>Struck by vehicles</p> <p>Operation of Motor Vehicles</p>	<ul style="list-style-type: none"> <li>• Be alert to the presence of vehicles</li> <li>• Ensure reflective vest is worn at all times when onsite</li> <li>• Comply with all federal, state, local and site regulations</li> <li>• Inspect vehicles daily and document inspections</li> <li>• Drive defensively</li> <li>• Wear seatbelts while vehicles are in motion</li> <li>• Avoid backing vehicles when possible</li> </ul>
<b>EQUIPMENT TO BE USED</b>	<b>INSPECTION REQUIREMENT</b>	<b>TRAINING REQUIREMENTS</b>
Vehicles Trucks/Trailers	Vehicle Inspections	<ul style="list-style-type: none"> <li>• Licensed for the operation of vehicle</li> </ul>

# **ATTACHMENT C**

## **ACCIDENT PREVENTION PLAN**

## **ACCIDENT PREVENTION PLAN**

### **RESPONSIBILITIES**

Project responsibilities are specified in Section 4.0 of the Health and Safety Plan.

### **SUBCONTRACTORS/CONSULTANTS**

All contractors/consultants are required to comply with the CWM safety programs. A contractor/consultant health and safety representative will be designated to serve as the direct contact with CWM in matters of health and safety.

### **TRAINING**

All contractor/consultant personnel are required to attend a safety orientation prior to commencing activities on site. These orientation sessions are documented and filed with other project records. This site orientation will be conducted by a CWM representative. At a minimum, the following topics relevant to this particular project will be presented:

- Chemical and radiological contaminants expected to be encountered on site;
- Slips, trips, and falls;
- Overhead and buried utilities;
- Hazard Communication;
- Appropriate use of PPE (head, eye, hand, and hearing protection);
- Motor vehicle safety;
- Fire prevention;
- Housekeeping;
- Emergency response; and
- Back injury prevention

Safety briefings will be conducted prior to beginning work every day. Topics for the day will be chosen based upon recent activities, worker concerns, near misses, and program requirements. Attendance at these briefings will be recorded and filed with other project safety documentation.

Periodic Safety Committee meetings will take place as deemed necessary. The total number of personnel plus management on site is expected to be small (5-10 people) and so it is expected that the morning "tailgate" will serve the purpose of these program planning and evaluation sessions.

Field personnel will be trained as radiation workers and have OSHA 40 hour Hazardous Material Worker qualification. In addition, workers will have training in the proper response to emergency conditions that may arise during field activities.



## **INSPECTIONS**

Periodic health and safety inspections by CWM will be conducted during field operations to identify conditions which have the potential to cause illness or injury to workers, damage equipment, or put the general public at risk from site operations.

A portion of these inspections will be conducted by the Site's Health & Safety Specialist but some inspections (such as motor vehicles or heavy equipment) will be conducted by other qualified individuals.

## **ACCIDENT REPORTING**

Contractor/consultant shall report to CWM Project Manager as soon as possible all accidents or occurrences (including spills) resulting in injuries to contractor's employees or third parties or damage to property of third parties or CWM, arising out of or during the course of service for CWM by contractor or of any subcontractor of contractor, and when requested, shall furnish CWM with a copy of reports made by contractor's insurers or to others of such accidents and occurrences. For purposes of this paragraph, notice is to be given to at:

**CWM Chemical Services, L.L.C.**  
**Model City Facility**  
**P.O. Box 200**  
**1550 Balmer Road**  
**Model City, New York 14107**  
**Attn: Site Health and Safety Specialist**  
**(716) 286-0331**

In case of an accident, the contractor/consultant shall furnish his own First Aid treatment care. CWM will assist in any emergency upon request of the contractor/consultant.

## **MEDICAL SUPPORT**

CWM has first aid kits located throughout the facility to aid in the support of minor injuries. CWM will, upon request of the contractor/consultant, supply medical care for the contractor/consultant. CWM currently has on staff, two certified Emergency Medical Technicians to assist in the event of a medical emergency. Additional Ambulatory, Paramedic and Fire Department support is available on the 911 system.

## **PERSONAL PROTECTIVE EQUIPMENT**

The selection of personal protective equipment is based upon an Activity Hazard Analysis performed in accordance with 29 CFR 1910.132 (d). The personal protective equipment that has been selected based on the anticipated hazards is listed in the Health and Safety Plan. This equipment list may be modified as safety conditions warrant.

## **SAFETY PROGRAMS**

CWM will be responsible for reviewing all contractor/consultant company safety program documentation to insure compliance with CWM, OSHA, and project standards.

### Description of work

The primary field activity is a radiological survey (walkover) and associated investigative sampling. The physical hazards associated with these activities are discussed in the Health and Safety Plan. The programs described below are implemented to minimize these potential hazards.

### Near Miss Reporting

All project personnel are encouraged to report "near miss" occurrences. A "near miss" report is a worker's evaluation of a situation that, if left uncorrected, could cause an accident. The importance of reporting a "near miss" is that it raises awareness of the problem and contains information helpful in avoiding the same situation in the future.

### Housekeeping

Poor housekeeping has the potential to play a role in a wide range of accidents. As such, the importance of housekeeping and the expectation that good housekeeping be maintained will be emphasized regularly during safety meetings.

### Mechanical Equipment Inspection

No heavy mechanical equipment is expected to be used by CWM's consultants for the gamma walkover field survey or investigative sampling activities. In the event that heavy equipment is required, the equipment shall be in good working condition with Daily Vehicle Inspection Reports (DVIRs) completed.

### Activity Hazard Analysis

Activity Hazard Analyses (AHAs) are used to identify potential safety and health hazards associated with specific project tasks. The AHA is developed prior the beginning activities. The AHA is reviewed periodically during operations and modified as necessary. The Activity Hazard Analysis can be found in Attachment B.

### Fire Prevention and Protection

Fire prevention and protection procedures and resources at this project include:

- Emergency services are obtained by calling site extension #200 in accordance with facility's Contingency Plan. This service will contact the site's Incident Commander for Emergency Response actions. Based upon the hazard, the site's Emergency Response Team may be activated, or local Police/Fire Department support may be requested.

- Hot work permits are required prior to performing any flame or spark producing activity.
- Flammable and oxidizing materials are to be properly marked and stored in NO SMOKING areas. Fire extinguishers are to be available in this area.

### ALARA Program

The ALARA (As Low As Reasonably Achievable) program describes the approach to radiation protection to manage and control exposures (both individual and collective) to the work force and to the general public to as low as is reasonable, taking into account social, technical, economic, practical, and public policy considerations. As used, ALARA is not a dose limit but a process which has the objective of attaining doses as far below the applicable limits as is reasonably achievable, based on professional judgment.

ALARA principles will be applied to minimize the following types of exposure during operations:

- internal exposure due to airborne radioactive material;
- external exposure due to beta-gamma emitting nuclides; and
- personnel contamination due to direct contact with radioactive material.

Strategies to minimize exposure include:

- the use of coveralls, gloves and shoe covers if necessary to prevent direct contact with radioactive material;
- the use of radiation detection equipment to assess general area radiation levels;
- the use of air sampling devices to assess the airborne concentration of radioactive material;
- the use of respiratory protection if necessary to minimize internal exposure; and
- Administrative controls such as Radiation Worker Training and the use of Radiation Work Permits, which specify radiological controls and access requirements.

### Hazard Communication

This program incorporates the OSHA standards and specifically requires:

- a hazardous material inventory that lists the hazardous being used at the work site;
- that Material Safety Data Sheets be obtained before the chemical is used and that they be available to workers for reference at all times;
- that chemical containers be properly labeled; and
- that all subcontractors be provided information regarding the hazards associated with the substances and the proper protective measures against them.

### Emergency Response

All personnel on-site will be briefed on the appropriate responses to emergencies that may occur. This will be a component of comprehensive safety indoctrination. Topics covered will include:

- emergency egress;
- responsibilities and lines of authority;
- alarms;
- congregation points and personnel accountability;
- notification of off-site emergency support personnel; and
- types of potential emergencies.

#### Respiratory Protection Plan

Respiratory protection will be used when airborne contaminants, either radioactive material or chemicals, exist at levels that require personnel protection that cannot otherwise be provided. All personnel requiring the use of respiratory protection will be qualified in its use. This qualification includes a medical exam, a respirator fit-test and a discussion of the purpose and limitations of respirators.

#### Site Layout

In addition to presenting the route to the closest hospital, Appendix E indicates the site location and surrounding Model City Facility area.

**ACTIVITY HAZARD ANALYSIS (AHA)**

Model City Facility

Activity: Radiation Survey/Sampling

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Walk over and property line measurements	Stepping on sharp and/or protruding objects	<ul style="list-style-type: none"> <li>• Recent mowing will enhance visibility</li> <li>• Surveyor must be aware of changing terrain when performing survey</li> <li>• Proper safety footwear will minimize the potential for foot injury</li> <li>• Be aware of damaged fencing wire and posts</li> </ul>
	Slips, trips, falls	<ul style="list-style-type: none"> <li>• Recent mowing will enhance visibility</li> <li>• Surveyor must be aware of changing terrain, wet ground, animal burrows and general debris</li> <li>• Ensure instrument wires, straps and cables do not interfere with walking</li> </ul>
	Potential exposure to chemical and radiological contaminants	<ul style="list-style-type: none"> <li>• Avoid activities that disturb areas with distressed vegetation</li> <li>• Avoid areas that exhibit unusual characteristics (odor, color) or other signs of contamination until properly evaluated</li> <li>• Modify PPE as required by conditions</li> </ul>
	Biological Hazards	<ul style="list-style-type: none"> <li>• Wear light colored clothing or white Tyvek® to allow you to see ticks that are crawling on your clothing.</li> <li>• Tuck your pant legs into your socks or boots, wear high rubber boots, or use tape to close the opening where they meet so that</li> <li>• Wear a hat, tie back long hair.</li> <li>• Apply repellents to discourage tick attachment. Repellents containing permethrin can be sprayed on boots and clothing and will last for several days. Repellents containing DEET (n,n-diethyl m-toluamide) can be applied to the skin, but will last only a few hours before reapplication is necessary. Apply according to Environmental Protection Agency guidelines to reduce the possibility of toxicity.</li> <li>• Learn to identify the toxic plants and avoid them.</li> <li>• Wear long pants and long sleeves, boots and gloves.</li> <li>• Barrier skin creams may offer some protection if applied before contact.</li> <li>• Avoid indirect contact from tools, clothing or other objects that have come into contact with a crushed or broken plant. Don't forget to wash contaminated clothing and clean up contaminated equipment.</li> <li>• If you can wash exposed skin areas within 3-5 minutes with cold running water, you may keep the urushiol from penetrating your skin.</li> <li>• Proper washing may not be practical in remote areas, but a small wash-up kit with pre-packaged alcohol-based cleansing tissues can be effective.</li> <li>• Wear long pants and long sleeves, boots and gloves.</li> <li>• Barrier skin creams may offer some protection if applied before contact.</li> <li>• Avoid indirect contact from tools, clothing or other objects that have come into contact with a crushed or broken plant. Don't forget to wash</li> </ul>

		<p>contaminated clothing and clean up contaminated equipment.</p> <ul style="list-style-type: none"> <li>• If you can wash exposed skin areas within 3-5 minutes with cold running water, you may keep the urushiol from penetrating your skin.</li> <li>• Proper washing may not be practical in remote areas, but a small wash-up kit with pre-packaged alcohol-based cleansing tissues can be effective.</li> </ul>
	Heat Stress	<ul style="list-style-type: none"> <li>• Provide water and electrolyte replacement drinks</li> <li>• Allow employees who are not accustomed to working in hot environments appropriate time to become acclimated</li> <li>• Investigate use of auxiliary cooling devices in extreme conditions</li> <li>• Conduct briefings for employees regarding health hazards and control measures associated with heat stress whenever conditions require the implementation of heat stress monitoring</li> </ul>
	Cold Stress	<ul style="list-style-type: none"> <li>• Proper clothing for weather conditions</li> <li>• Available warming stations and warm, non-dehydrating beverages</li> <li>• Survey teams should be reminded to observe physiological indications</li> <li>• Protect instruments from thermal shock and other weather impacts</li> </ul>
<b>EQUIPMENT TO BE USED</b>	<b>INSPECTION REQUIREMENT</b>	<b>TRAINING REQUIREMENTS</b>
<ol style="list-style-type: none"> <li>1. Level D PPE</li> <li>2. Radiation Detection Instrumentation</li> <li>3. GPS Equipment</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect PPE prior to use</li> <li>2. Source check daily</li> <li>3. Ensure reception is satisfactory / Ensure that instrumentation is secure in backpack.</li> </ol>	<ul style="list-style-type: none"> <li>• HAZWOPER 40 hour or current 8 hour refresher</li> <li>• Radiation Worker Training</li> <li>• Equipment Operator Specific Training</li> <li>• Safety and health briefing prior to initial operations</li> </ul>
<b>PRINCIPAL STEPS</b>	<b>POTENTIAL HAZARDS</b>	<b>RECOMMENDED CONTROLS</b>
<p>Vehicular traffic onsite</p> <p>Travel to and at the site</p>	<p>Struck by vehicles</p> <p>Operation of Motor Vehicles</p>	<ul style="list-style-type: none"> <li>• Be alert to the presence of vehicles</li> <li>• Ensure reflective vest is worn at all times when onsite</li> <li>• Comply with all federal, state, local and site regulations</li> <li>• Inspect vehicles daily and document inspections</li> <li>• Drive defensively</li> <li>• Wear seatbelts while vehicles are in motion</li> <li>• Avoid backing vehicles when possible</li> </ul>
<b>EQUIPMENT TO BE USED</b>	<b>INSPECTION REQUIREMENT</b>	<b>TRAINING REQUIREMENTS</b>
Vehicles Trucks/Trailers	Vehicle Inspections	<ul style="list-style-type: none"> <li>• Licensed for the operation of vehicle</li> </ul>

**ATTACHMENT D HOSPITAL ROUTE MAP**



1: Start out going SOUTH on MODEL CITY RD toward NY-104 / RIDGE RD.

0.4 miles [Map](#)



2: MODEL CITY RD becomes INDIAN HILL RD / CR-11.

0.5 miles [Map](#)



3: Turn SLIGHT RIGHT onto UPPER MOUNTAIN RD / CR-11.

2.5 miles [Map](#)



4: Turn RIGHT onto NY-265 / MILITARY RD.

<0.1 miles [Map](#)



5: End at **Mount St Mary's Hospital**  
5300 Military Rd, Lewiston, NY 14092, US

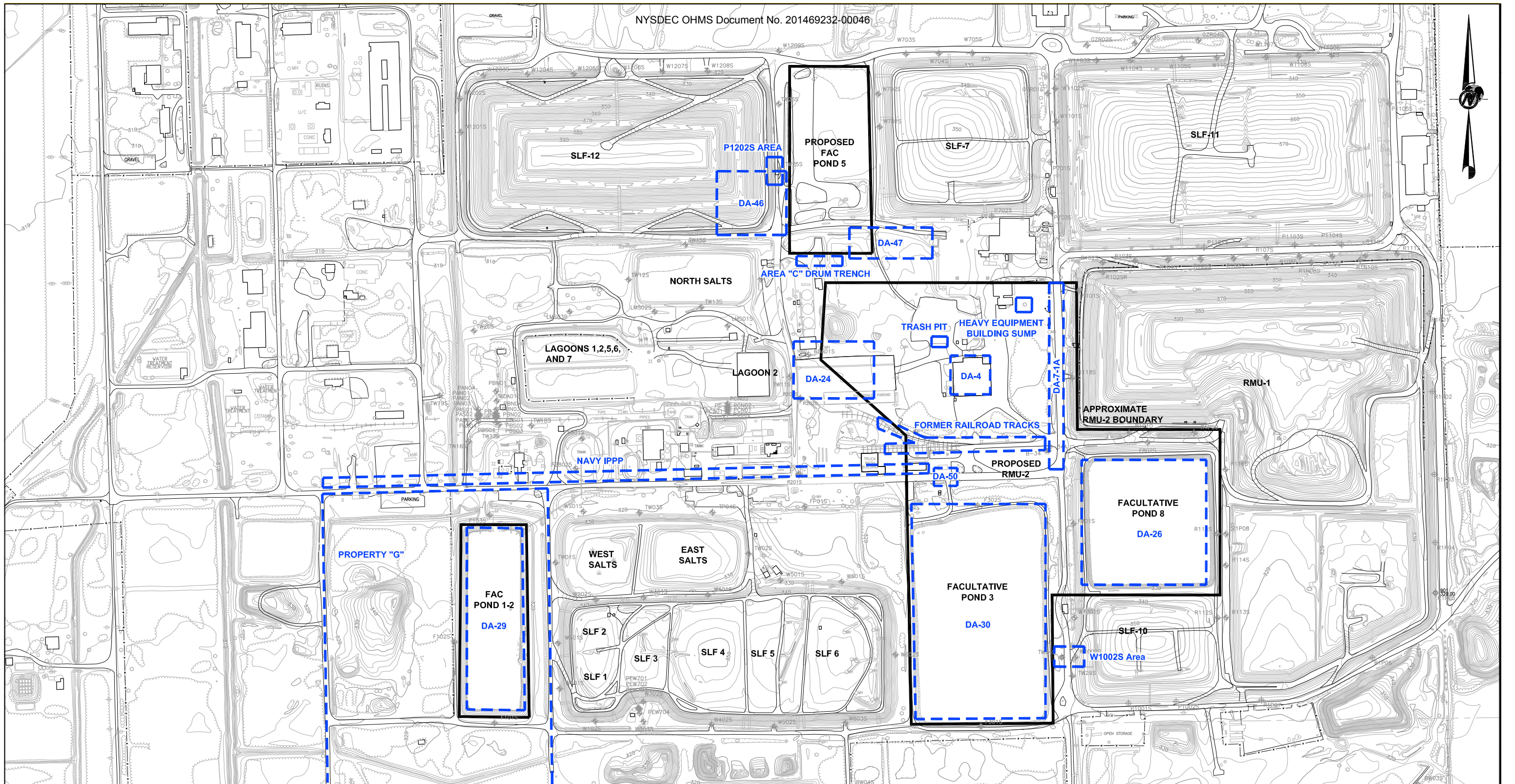
[Map](#)

**END OF CWM HEALTH AND SAFETY PLAN FOR RMU-2 PROJECT SPECIFIC SOIL EXCAVATION AND MONITORING PLAN**

## **APPENDIX 3**

# **SOLID WASTE MANAGEMENT UNITS – RMU-2 DEVELOPMENT AREA**





**LEGEND**

- - - - - APPROXIMATE SWMU BOUNDARY
- APPROXIMATE UNIT BOUNDARY

**REFERENCE**

1.) BASE MAP COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY DATED MAY 31, 2001 BY AIR SURVEY CORP., DULLES, VIRGINIA.



REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RW
PROJECT						
CWM CHEMICAL SERVICES, L.L.C. MODEL CITY, NEW YORK						
TITLE						
<b>RMU-2 DEVELOPMENT AREAS SWMU LOCATIONS</b>						
<small>NJ Authorization #24GA28029100</small>		PROJECT No.	133-89021	FILE No.	13389021A001	
DESIGN	AL	02/07/13	SCALE	AS SHOWN	REV.	0
CADD	RG	02/07/13				
CHECK						
REVIEW						

**FIGURE 1**

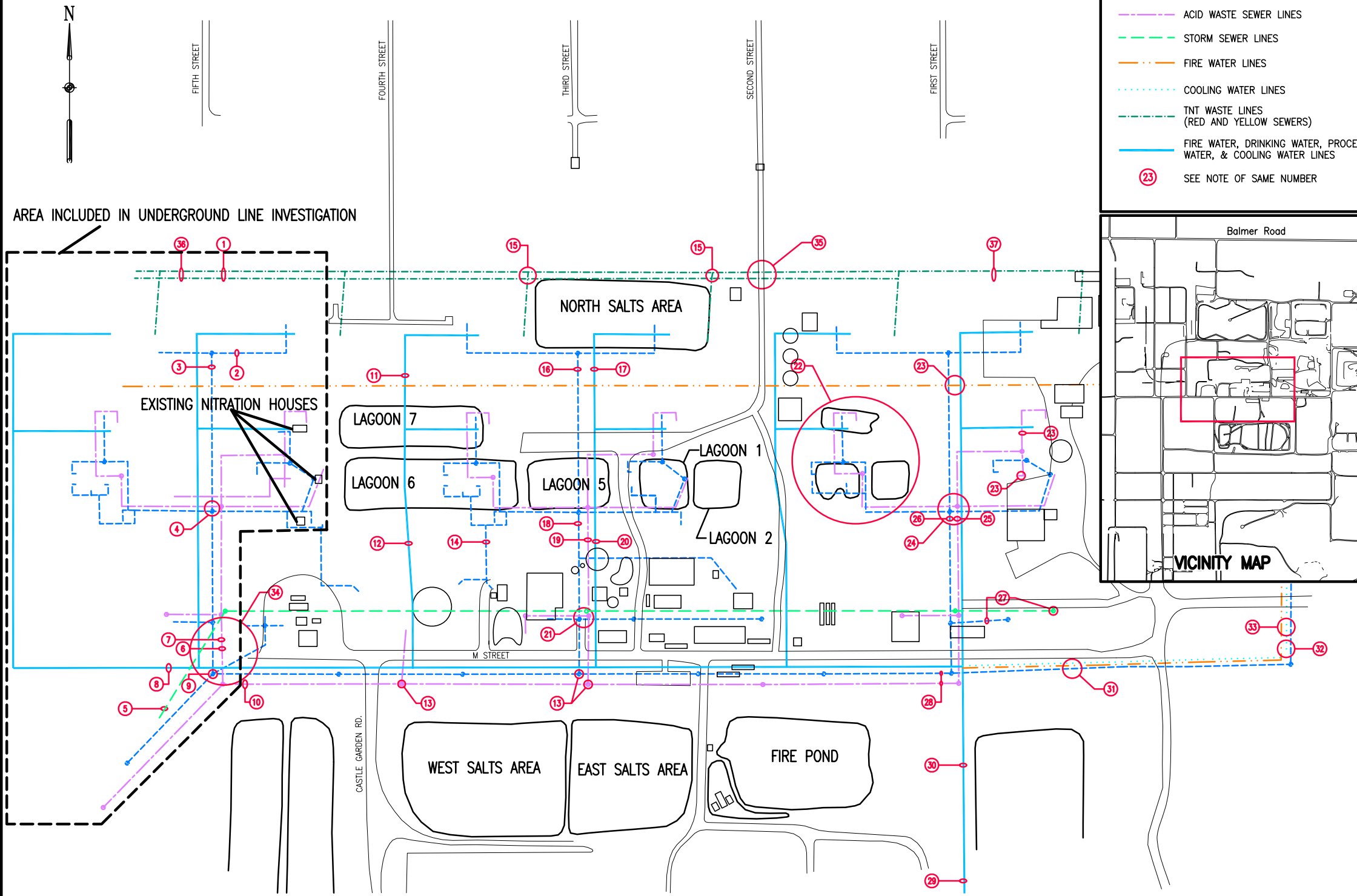


**NOTES:**

- ① SECTION REMOVED AND ENDS PLUGGED, MARCH 1978
- ② 24' REMOVED AND ENDS PLUGGED, APRIL 1978
- ③ 21' REMOVED AND ENDS PLUGGED, APRIL 1978
- ④ 20' REMOVED AND ENDS PLUGGED IN BOTH LINES APRIL 1978
- ⑤ 15' REMOVED AND ENDS PLUGGED, APRIL 1978
- ⑥ 20' REMOVED AND ENDS PLUGGED, MAY 1978
- ⑦ 8' REMOVED AND ENDS PLUGGED, APRIL 1978
- ⑧ COOLING WATER LINE PLUGGED
- ⑨ MANHOLE PLUGGED WITH CONCRETE PRIOR TO MARCH 1978
- ⑩ 15' REMOVED AND (2) SEWER LINES PLUGGED
- ⑪ 20' REMOVED AND ENDS PLUGGED APRIL 1978 (3) 6"φ, (1) 4"φ
- ⑫ 8' REMOVED AND ENDS PLUGGED APRIL 1978 (1) 8"φ, (2) 6"φ, (1) 12"φ
- ⑬ PLUGGED WITH CONCRETE NOVEMBER 1978
- ⑭ 8' REMOVED AND ENDS PLUGGED, APRIL 1978
- ⑮ LINES PLUGGED FOR CONSTRUCTION OF NORTH SALTS AREA, FEBRUARY 1977
- ⑯ 10' REMOVED AND ENDS PLUGGED, APRIL 1978
- ⑰ 15' REMOVED AND PLUGGED (3) 6"φ, (1) 4"φ
- ⑱ REMOVED AND PLUGGED JUNE 1978
- ⑲ 30x24"φ REMOVED AND PLUGGED, JUNE 1978
- ⑳ 12"φ, 8"φ, 6"φ, 4"φ. ALL REMOVED JANUARY 1978. PLUGGED JUNE 1978
- ㉑ MANHOLES REMOVED
- ㉒ LAGOON #3; #4. REMOVED MAY 1978 AND ALL LINES ENCOUNTERED WERE REMOVED
- ㉓ CAPPED OFF
- ㉔ 1982 SAMPLE LOCATIONS
- ㉕ 9' REMOVED AND PLUGGED, APRIL 1978
- ㉖ 20' REMOVED AND PLUGGED, APRIL 1978
- ㉗ CUT AND PLUGGED, MAY 1978
- ㉘ 20' REMOVED AND PLUGGED, APRIL 1978
- ㉙ CUT AND PLUGGED, MAY 1978 (EXCEPT DRINKING WATER)
- ㉚ FIRE WATER (WEST), DRINKING WATER (WEST/MID), PROCESS WATER (EAST/MID), COOLING WATER (EAST)
- ㉛ BLOCKED AND SEALED APRIL 1978
- ㉜ REMOVED FOR CONSTRUCTION OF LAGOON 8
- ㉝ BLOCKED APRIL 1978
- ㉞ VICINITY OF SAMPLES COLLECTED IN 1990 BY CWM
- ㉟ SECTION REMOVED BY CWM 1990
- ㊱ ㊲ ENTIRE LENGTH OF TNT WASTE LINE REMEDIATED BY USACE(2000) EXCEPT PORTION UNDER NORTH SALTS AREA

**LEGEND**

- SANITARY SEWER LINES
- ACID WASTE SEWER LINES
- STORM SEWER LINES
- FIRE WATER LINES
- COOLING WATER LINES
- TNT WASTE LINES (RED AND YELLOW SEWERS)
- FIRE WATER, DRINKING WATER, PROCESS WATER, & COOLING WATER LINES
- ㉓ SEE NOTE OF SAME NUMBER



**FIGURE 1-6**  
**UNDERGROUND LINES SEALED BY WM, LLC**

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## **APPENDIX 4**

### **EXAMPLE REPORT**



# CWM Chemical Services, LLC.

## RMU-2 Project Specific Soil Excavation Monitoring and Management Report

Prepared By: \_\_\_\_\_

Date of Report: \_\_\_\_\_

### 1. Excavation Location

Description of Excavation Location: \_\_\_\_\_

GPS Northing: \_\_\_\_\_

Purpose of Excavation: \_\_\_\_\_

GPS Easting: \_\_\_\_\_

Elevation: \_\_\_\_\_ msl

### 2. Portal Radiation Monitor

(Check here if Portals not used)

Rad Scan Performed By: \_\_\_\_\_

Date of Unit Calibration: \_\_\_\_\_

Date of Rad Scan: \_\_\_\_\_

Serial No. of Unit: \_\_\_\_\_

Use Table 1 to document all vehicle radiological data.

### 3. Radiological Survey Scan

Rad Scan Performed By: \_\_\_\_\_

Date of Rad Survey: \_\_\_\_\_

Rad Instrument Used: \_\_\_\_\_

Date of Calibration: \_\_\_\_\_

Type of Excavation: (Check One)	Clearing & Grubbing	<input type="checkbox"/>
	Shallow Trench	<input type="checkbox"/>
	Deep Trench	<input type="checkbox"/>
	Mass Excavation	<input type="checkbox"/>

Serial No. of Unit: \_\_\_\_\_

Documentation of QC checks performed before and after survey (describe):

\_\_\_\_\_

Description of Rad Survey performed: \_\_\_\_\_

\_\_\_\_\_



**Rad Scan Survey Results:**

Time	Scan Survey Data	Units	Scan Location (Layer, Lift, Bottom)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

*Note: Attach sketches, maps or drawings of scan and sample locations as necessary to document exact location of scanning Activities.*

**If soil or other media samples are collected, complete the following:**

Sample ID#	Sample Location			1 Minute Static Count within 1 inch of Sample Location		Estimated Sample Volume (Include Units)
	Northing	Easting	Elevation (msl)	Before	After	

*Note: Attach analytical analysis of samples to this report when results are obtained.*

**4. Chemical Contamination Screening**

(Use Table 2 to Complete Chemical Screening Data Reporting if Portals are used.)

PID or FID Used ?

Scan Performed By: \_\_\_\_\_

Date of Survey: \_\_\_\_\_

Instrument Used: \_\_\_\_\_

Date of Calibration: \_\_\_\_\_

Level of PPE Required: \_\_\_\_\_

Serial No. of Unit: \_\_\_\_\_

Visible Evidence of Chemical Contamination:      Yes      No      (Circle One)

Description of PID Survey performed: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Time	VOA Screening Data	Units	Scan Location (Layer, Lift, Bottom)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

*Attach chain of custody and any analytical results of soil samples collected.*



