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June 14, 1995

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(3 copies)

Re: Malta Rocket Fuel Area Site
Revised Work Plan
Excavation and Removal of Crushed, Buried Drums

Dear Ms. Hess, et al.:

Pursuant to Paragraph 87 of the Administrative Order Index No. CERCLA-90219 and your letter of June 5, 1995, the Participating Parties* have enclosed the Revised Work Plan for the Excavation and Removal of Crushed, Buried Drums at the Malta Rocket Fuel Area (MRFA) Site. This Work Plan presents the general approach for a safe and expeditious crushed drum removal action at three locations on the Test Station portion of the MRFA Site.

Please call if you have questions.

Very truly yours,

Kristen F. Begor, GE
Facility Coordinator

enclosure

cc: Leslie Hulse, Esq., GE
Hal Brodie, Esq., NYS Energy Research and Development Authority
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* The Participating Parties undertaking the Remedial Investigation/Feasibility Study are General Electric Company, NYSERDA, and the U.S. Department of Defense.

WORK PLAN

EXCAVATION AND REMOVAL OF CRUSHED, BURIED DRUMS

Malta Rocket Fuel Area Site

June 1995

Prepared by:

ERM-NORTHEAST, INC.
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FIGURES

TABLES

APPENDICES

1.0 *INTRODUCTION*

A Remedial Investigation (RI) to characterize and define environmental conditions at the Malta Rocket Fuel Area (MRFA) Site was recently completed (ERM-Northeast, Inc., 1995a). During the course of the RI, three locations were identified where crushed metallic drums have been buried. The locations of the crushed drums were identified through the use of geophysical techniques (e.g. terrain conductivity) and confirmed by visual observations through test pitting. After consultation with the United States Environmental Protection Agency (USEPA), these test pits were closed with the crushed drums left in place and covered with soil with the intent that the crushed drums would be addressed at a later date.

1.1 *OBJECTIVE*

This work plan presents the general approach for a safe and expeditious crushed drum removal action at three locations on the Test Station portion of the MRFA Site. Soil that is incorporated into, immediately adjacent to, or clearly associated with the crushed drums will also be removed and sampled if determined to be contaminated and/or if it cannot be reasonably segregated. All removed materials will be shipped off site for disposal. The excavations, from which the crushed drums or associated soil were removed, will be recovered to original grade.

1.2 *INCORPORATION OF RI WORK PLAN AND RI PROJECT OPERATIONS PLAN*

In July 1987, the MRFA Site was placed on the National Priorities List, and in September 1989, the USEPA issued an Unilateral Administrative Order (UAO) to Advanced Nuclear Fuels, Inc., Curtiss-Wright Corporation, General Electric Company (GE), Mechanical Technology, Inc. (MTI), New York State Energy

Research and Development Authority (NYSERDA), Olin Corporation, Power Technologies, Inc. (PTI), and Wright-Malta Corporation as potentially responsible parties (PRPs). The UAO required that the PRPs conduct a Remedial Investigation (RI) and Feasibility Study (FS) at the MRFA Site. In March 1990, GE, NYSERDA, and the U.S. Department of Defense (DOD) (the Participating Parties) entered into a participation agreement to perform the RI and FS. The Final RI was submitted to the USEPA on 14 February 1995 (ERM-Northeast, 1995a) and a Draft FS was submitted to the USEPA on 5 May 1995 (Rust Environment and Infrastructure, 1995).

The crushed drum removal action described below will be performed pursuant to Paragraph 87 of the UAO, and the protocols set forth in the RI Work Plan (WP) and RI Project Operations Plan (POP), both prepared by Geraghty and Miller, Inc. (1991a and b), and as amended with USEPA approval during the RI (ERM-Northeast, Inc., 1995b), will be followed during the proposed crushed drum removals.

In addition, the removal contractors' Health and Safety Plan (HASP) should be consistent with the HASP and the Quality Assurance Project Plan (QAPP) included in the POP, and as modified previously for the RI.

1.3 SITE DESCRIPTION

The MRFA Site, also known as the Saratoga Research and Development Center, is located on Plains Road in the Towns of Malta and Stillwater, Saratoga County, New York. The site consists of a 445-acre parcel of land consisting of approximately 165 developed acres, known as the Malta Test Station, and 280 acres of predominantly undeveloped woodlands. Figure 1 identifies the location and areal extent of the MRFA Site.

The U.S. Government established the Malta Test Station in 1945, and since then it has been used for a wide range of rocket and weapons testing programs as well as for space research. Thirty-three buildings have been constructed at the Test Station during its use as a research and development facility. In addition, numerous quench pits (concrete structures), leach fields/septic tanks, dry wells, storage areas, and disposal areas are also present on site (Figure 2). The Test Station is surrounded by a restrictive one-mile radius circular "easement area" in which human habitation is prohibited. A fence surrounding the 165-acre Test Station, a single access road, and strict security also restrict public access. The central 81 acre portion of the Test Station (property of the Wright-Malta Corporation) is still being used as a weapons and propellant testing facility.

Forty-eight distinct Areas of Concern were investigated during the RI, and at three locations in two of these Areas of Concern, buried crushed, metallic drums/containers were found. These two Areas of Concern are described below.

1.3.1 AREA S-1

Area S-1 is an open area surrounded by trees with no buildings or paving located in the south-central portion of the Test Station, south of Areas D-1 and D-6 (Figure 2). The area was reportedly used for all-purpose storage of materials, including scrap metal, garbage, lumber, roofing, pipes, spray cans, and drums. There is no current use of the area. The RI field work (geophysical surveying and test pitting) indicated that Area S-1 was used historically for the subsurface disposal of crushed drums and a compressed gas cylinder. Buried crushed drums were encountered at Test Pit locations P-59 and P-61 and an unlabelled compressed gas cylinder was encountered in Test Pit P-57. No elevated photoionization detector (PID) readings were noted during the excavation of these test pits and sampling was not performed in these test pits.

The compressed gas cylinder was subsequently found to contain boron trifluoride and was appropriately treated and disposed.

The area to be excavated near Test Pit P-61 is expected to be 20 feet by 20 feet to an estimated maximum depth of 8 feet. The area to be excavated near Test Pit P-59 is expected to be 60 feet by 60 feet to an estimated maximum depth of 8 feet. The volume of material to be removed and disposed of from these two excavations is estimated to be between 100 to 150 cubic yards of crushed drums and associated soil. Figure 3 provides the expected locations of the excavations.

1.3.2 AREA D-1

Area D-1 is a sandy, sparsely vegetated area with no buildings or paving, located in the south-central portion of the Test Station, southwest of Areas S-5, D-5, and D-6 (Figures 2 and 3). A broad bowl-shaped area has been established to the south of Area D-1 due to soil removal for berm construction associated with Building 24. Toward the west side of Area D-1 the topography grades steeply upward to the top of a long bank, which runs along the northwestern side of Area D-1 and Area S-5.

Area D-1 was formerly used as a burn pit for disposal of various waste materials including domestic trash, off-spec propellants, and spent solvents. Through RI field work (surface geophysical surveys and test pits), the former burn pit was located and soil sampling within and below the burn pit was performed. No soil contamination was detected at the burn pit. However, approximately 80 feet east of the burn pit, buried crushed drums were identified at Test Pit P-78. Elevated PID headspace readings were noted during the excavation of this test pit, and a soil sample (collected from 6 to 8 feet below grade) had 16 ppm of total VOCs detected. The analytical results from that sample are provided in Table 1.

The area to be excavated near Test Pit P-78 is expected to be 20 feet by 40 feet to an estimated maximum depth of 8 feet. The volume of material to be removed and disposed from this excavation is estimated to be between 25 to 50 cubic yards. Figure 3 provides the expected locations of the excavation.

2.0 *APPROACH FOR CRUSHED DRUM REMOVAL*

2.1 *SITE CONTROL*

As described in Section 1.2, the three areas from which crushed drums will be removed are on the Test Station portion of the MRFA Site. The Test Station is completely fenced and access is restricted. Only authorized personnel are permitted on the Test Station. Permission from Wright-Malta Corporation is required prior to entering the Test Station and a log of all personnel entering and exiting the Test Station is maintained daily.

The three areas to be excavated (two in Area S-1 and one in Area D-1) will be cleared of all vegetation, obstructions, and other materials. The limits of the excavation, as presented in Figure 2.1, will be staked for reference. Work zones will be established (i.e., exclusion zone, decontamination zone, and support zone) as described in the HASP included in the POP (Geraghty and Miller, 1991b). The exclusion zones will be sufficiently sized to stage all excavated material. The decontamination zones will be sized to accommodate vehicles, equipment, and personnel. All necessary equipment and supplies for the work will be staged in the support areas.

2.2 *HEALTH AND SAFETY CONSIDERATIONS*

To ensure safe conditions are maintained for workers and to protect the environment, real-time air monitoring of the excavation will be provided. PID readings of 5 parts per million (ppm) above ambient, background concentrations will be utilized as an indicator of possible contamination. Such readings will be monitored by the Project Health and Safety Officer, who will specify personnel protection levels as required in the HASP included in the POP. PID readings 5 ppm above background will also be an indication to the contractor to temporarily cease operations, as described in the POP for test pitting.

Excavation may continue in a more cautious manner if levels have subsided based on continued air monitoring. If levels do not subside, then the Project Health and Safety Officer will either upgrade the level of personnel protection or cease operations pursuant to the requirements of the HASP in the POP.

The excavation will also be monitored for airborne particulates, or dust, with the use of a device such as a Mini-Ram or other appropriate monitor. Elevated dust levels will initiate dust suppression techniques, such as hand-wetting of the soil piles and exposed excavation areas.

2.3 EXCAVATION - COVER SOIL

The top 4 feet of the soil at the center of each area of excavation will be removed, placed on sturdy plastic sheeting, and covered to prevent runoff. Additional soil will be removed in 1 foot intervals, with the excavated soil being similarly stored. The excavation will proceed while maintaining sufficient side slopes or shoring for safe conditions. The excavated soil will be visually inspected for staining or other indications of contamination. This soil will be staged on (and under if raining) plastic sheeting throughout the excavation/backfilling operations. The contractor should note that although no underground utilities exist in the areas to be excavated, there are overhead wires in the vicinity of Area D-1.

Excavating will be performed using a backhoe (or an equivalent piece of equipment) capable of digging to a depth of at least 12 feet, as described in the POP for the test pits. The backhoe will also be fitted with an explosion proof windshield, and a drum grappler attachment will be provided with the backhoe. A metal detector will also be used to screen the soil profile prior to excavating each lift to identify the presence of potential metal objects and to verify the removal of all metal.

2.4 *PHYSICAL SEGREGATION*

During removal of the crushed drums, efforts will be made to brush off and segregate soil. Soil will be segregated into two categories based on visual inspection and PID screenings. Stained or product-containing soil, or soil with PID readings of 5 parts per million (ppm) above ambient readings will be segregated as potentially contaminated soil. Soil without staining or elevated PID readings will be used to backfill the excavation. Segregated soil will be staged separately from the drums. Also, segregation of containers may be appropriate. Any compressed gas cylinders, stainless steel drums, or product-containing drums will be segregated, overpacked as necessary, and stockpiled separately.

2.5 *EXCAVATION - CRUSHED DRUM LAYER*

Excavation will proceed as described in Section 2.3 until the layer of crushed drums is exposed. Metal detection will be used to identify the locations of crushed drums and to verify complete drum removal. The soil adjacent to the crushed drums will be visually observed for staining, discoloration, or other indications of possible contamination. All investigative activity to date has indicated that the crushed drums are expected to be empty and open to the surrounding soil. As such, the presence of reactive or dangerous chemicals in the crushed drums is not anticipated. However, excavation of the crushed drum layer should proceed in a cautious manner in that the possibility of encountering a compressed gas cylinder or drum containing hazardous and potentially lethal chemicals cannot be discounted. Depending upon the hazards that are encountered, the Project Health and Safety Officer may upgrade personnel protection or cease operations to reassess the procedures or equipment necessary to safely remove the materials.

The contractor will excavate the crushed drum layer and associated soil. The excavated crushed drums and potentially contaminated soil (stained and soil exhibiting PID readings of 5 ppm above ambient readings) will be placed on plastic sheeting separate from the backfill pile. Obviously contaminated material or containers with product will be segregated from other material and staged in overpack drums or plastic-lined boxes. Efforts will be made to segregate soil from drums as reasonably possible.

The drums and potentially contaminated soil will be sampled for appropriate waste stream characterization as described in Section 3.1.1 and then the potentially contaminated soil pile will be covered daily with plastic to prevent runoff. Along with the waste characterization sampling, post-excavation soil samples will also be collected from within the excavations. Suitable soil will be separately stockpiled as backfill for the excavation pending results from the post-excavation sampling, which is described in Section 3.1.2.

2.6 BACKFILLING OF EXCAVATION

As stated above, prior to backfilling, post-excavation soil samples will be collected and analyzed. All excavations will remain open until results from the post-excavation samples are received. If the post-excavation analytical results are below the MRFA Comparative Criteria for subsurface soil, then the excavation(s) will be backfilled. If the analytical results show concentrations above the MRFA Comparative Criteria for subsurface soil, then the excavation(s) will remain open pending further USEPA-approved actions. Any completed excavation left open will be enclosed by temporary fencing until the excavation is backfilled.

2.7 *DECONTAMINATION*

All personnel, equipment, and vehicles utilized in the exclusion zone will be decontaminated according to the protocols utilized for the RI test pitting as described in the POP (see Appendix A for Section 5.10 of the POP, Test Pit Excavation and Sampling).

2.8 *SITE RECOVERY*

After all excavations have been backfilled, the contractor will leave the project areas with evidence of minimal disturbance to the area. No depressions will be present. Surrounding areas will be graded smooth. No trash, equipment, or debris will be left on site.

3.0 WASTE CHARACTERIZATION, TRANSPORT, AND DISPOSAL

3.1 SAMPLE COLLECTION AND WASTE CHARACTERIZATION

3.1.1 Crushed Drums and Potentially Contaminated Soil

Representative samples of the residual material on the crushed drums and the potentially contaminated soil pile will be collected according to methods described in the Site Quality Assurance Plan (QAP) provided in the POP and as described in the RI report. The purpose of the analyses of these samples is to characterize this material for proper disposal. There is no indication that the crushed drums and the potentially contaminated soil will require disposal as a listed hazardous waste. Therefore, the samples will be analyzed for hazardous waste characteristic determination parameters and any other parameters that may be required by the disposal facility. Parameters to be analyzed include:

TCLP Toxicity
Ignitability
Reactivity
Corrosivity
PCBs

3.1.2 Post-Excavation Sampling

Two (2) confirmatory soil samples will be collected from each excavation pit (one from a side wall and one from the floor). Confirmatory samples from the excavation in Area D-1 will be analyzed for TCL VOCs and SVOCs; samples from the two Area S-1 excavations shall be analyzed for the full TCL/TAL. These analyses will be performed on a quick-turnaround basis and the analytical results will be validated. If the preliminary (i.e., prior to validation) analytical results show concentrations above the MRFA Comparative Criteria for

subsurface soil, then the excavation will not be backfilled, the USEPA will be notified, and the Participating Parties will make a proposal to the USEPA for further action. If the concentrations of the post-excavation samples are below the MRFA Comparative Criteria for subsurface soil, the excavation will be backfilled.

3.1.3 Decontamination Liquids

Water used for decontamination of personnel, sampling equipment, and vehicles will be collected and stored with the RI Investigative-Derived Wastes (IDW). The excavator bucket and shovels will be steam cleaned over the backfilled excavation using the same protocols utilized during the RI test pit program.

3.2 TRANSPORT AND DISPOSAL

All waste designated for off-site disposal (i.e., crushed drums, contaminated soil, and decontamination materials) will be placed in appropriate containers for transportation that are approved for use by the Department of Transportation (DOT). Prior to shipment, all containers will be marked and labeled according to DOT requirements. All containers for solids, such as boxes or rolloff containers, will be lined with plastic sheeting and covered. Upon loading on the transport vehicle, proper DOT placards will be displayed. All waste will be transported for disposal according to all applicable Federal and State requirements.

The waste characterization analysis results will be used as the basis for waste stream approval by the off-site disposal facility. Appropriate manifests and other required shipping documents will be prepared. All waste will be disposed of according to all applicable Federal and State requirements.

4.0 *DOCUMENTATION*

Upon completion of the drum excavation and removal, the Participating Parties will submit a report that summarizes the work and includes the validated analytical results. Records of the progress of the excavation, monitoring results, sample location, chain-of-custody for samples, and other documentation of the removal action will be prepared in accordance to the QAP and as performed during the RI.

5.0 *SCHEDULE*

Mobilization to perform the drum excavation must be initiated within 30 days of conditional approval of this workplan. Excavation of the crushed drums is anticipated to require two weeks (10 working days). Post-excavation sample analyses will be performed on a quick turn-around basis (48 hours). Waste characterization will require 14 working days (standard turnaround). Transport and disposal will be dependent upon the waste characterization and the choice and availability of the treatment, storage, or disposal facility (TSDF).

6.0 *REFERENCES*

ERM-Northeast, Inc., 1995a, Final Remedial Investigation Report, Malta Rocket Fuel Area Site, Towns of Malta and Stillwater, Saratoga County, New York, February 1995.

ERM-Northeast, Inc., 1995b, Correspondence Documenting Changes in Scope or Field Protocol, Remedial Investigation Report Malta Rocket Fuel Area Site Towns of Malta and Stillwater Saratoga County, New York, February 1995.

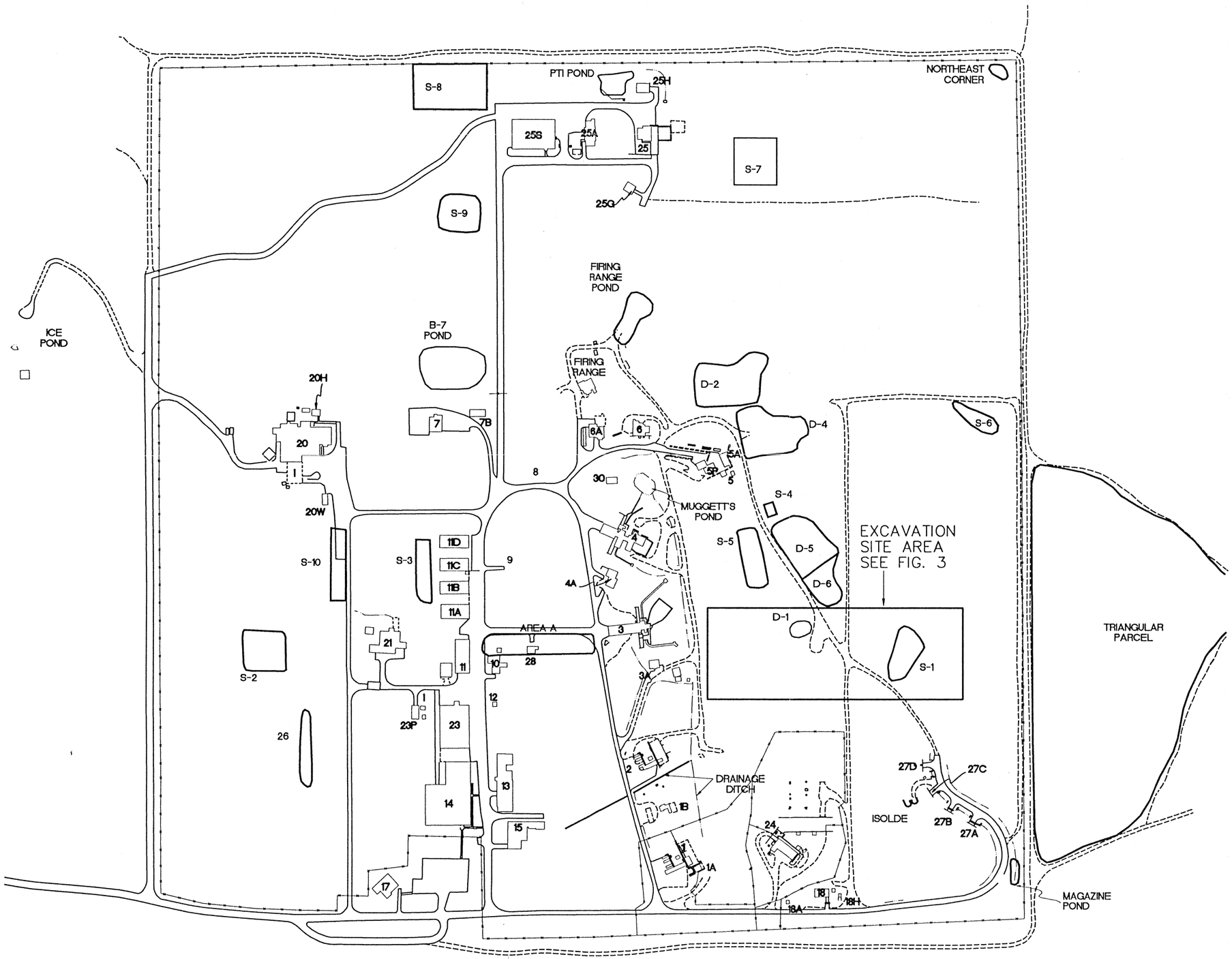
Geraghty and Miller, 1991a, Revised Remedial Investigation Work Plan for the Malta Rocket Fuel Area Site Towns of Malta and Stillwater Saratoga County, New York, February, 1991.

Geraghty and Miller, 1991b, Project Operations Plan for the Malta Rocket Fuel Area Site, Towns of Malta and Stillwater, Saratoga County, New York, August 1991.

Rust Environment and Infrastructure, Inc., 1995, Draft Feasibility Study, Malta Rocket Fuel Area Site, Saratoga County, New York, May 1995

Appendix A

Section 5.10 of POP
Test Pit Excavation and Sampling



LEGEND:

D-1 – RI AREA OF CONCERN

SCALE IN FEET

0 300 600

MRFA TEST STATION SCHEMATIC
MALTA ROCKET FUEL AREA SITE
MALTA, NY

PREPARED FOR
MALTA ROCKET FUEL AREA SITE

ERM-Northeast

SCALE	FIGURE
1"=300'	2
DATE 5/95	

350174_350d4

LEGEND:

P-61 – TEST PIT LOCATIONS

– AREAS TO BE EXCAVATED

– FENCELINE

– ROADWAYS

– TREELINE

– AREA D-1 BURN PIT

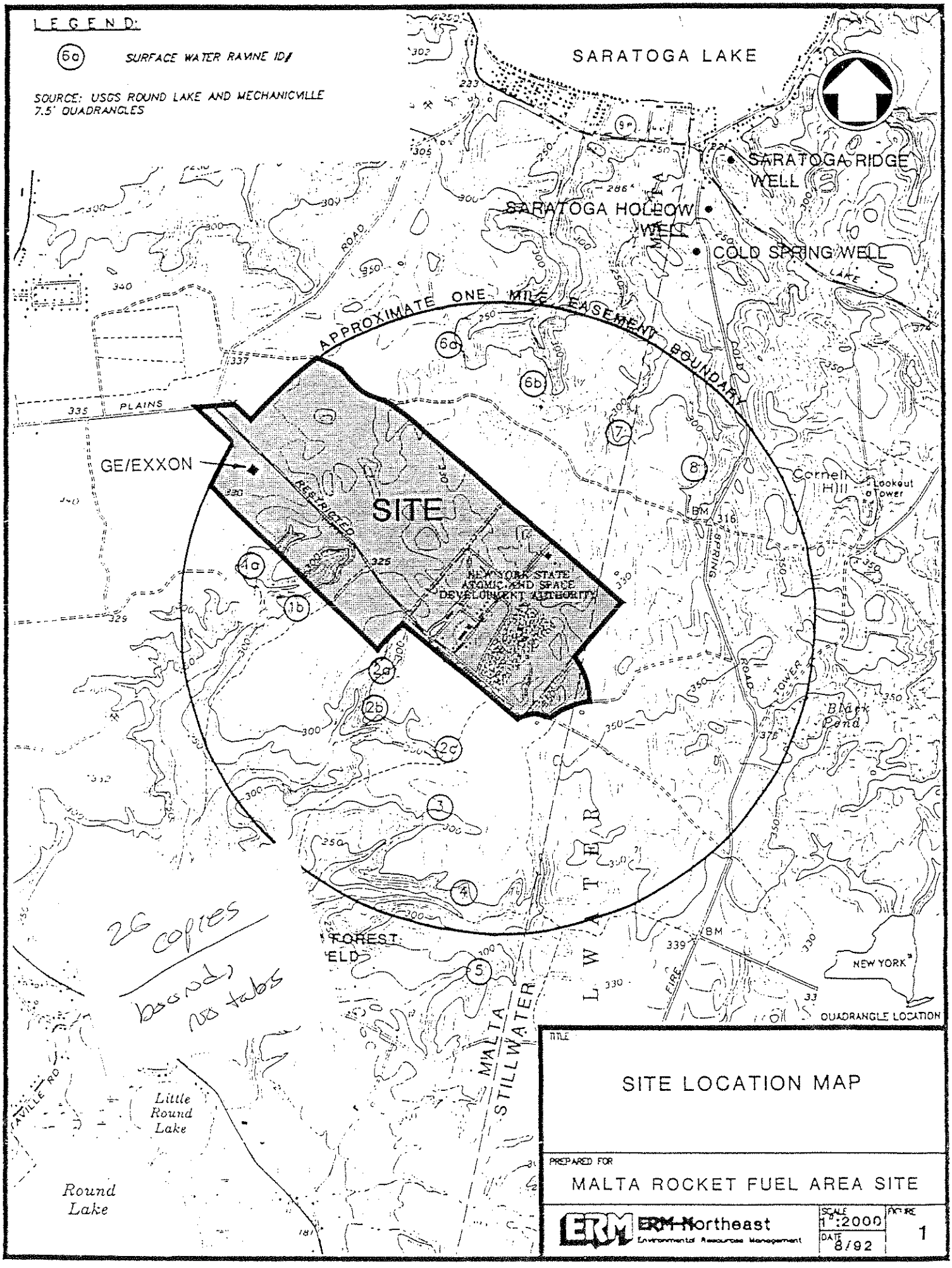
EXCAVATION AREA MAP
MALTA ROCKET FUEL AREA SITE
MALTA, NY

PREPARED FOR
MALTA ROCKET FUEL AREA SITE

ERM-Northeast

SCALE	FIGURE
1"=60'	3
DATE 5/95	

20174_5003



TITLE

SITE LOCATION MAP

PREPARED FOR

MALTA ROCKET FUEL AREA SITE

ERM ~~ERM~~-Northeast
Environmental Resources Management

SCALE 1":2000

DATE 8/92

FIGURE 1

TABLE 1
TEST PIT P-78 SOIL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
MALTA ROCKET FUEL AREA SITE

Target Volatile Organic Compounds*	MRFA Comparative Criteria	Area D-1 P-78 6'-8'	
Carbon Tetrachloride	600	190	J
Tetrachloroethene	1400	2200	EDJ
Toluene	1500	21	J
Trichloroethene	700	550	DJ
Xylene (Total)	1200	71	J
Volatile Organic TICs			
Cyclohexane, Ethyl	none	1600	NJ
Unknown Dimethylcyclohexane	none	900	J
Unknown Ethylmethylcyclohexane	none	1200	J
Unknown Substututed Cyclohexane	none	1000	J
Unknown Alkanes	none	8230	J

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)).
2. * = Only compounds that were detected in one or more samples are listed.
3. J = Semi-quantitative value due to QA/QC data validation requirements.
4. N = Compound was identified with a Chemical Abstract Services (CAS) number.
5. E = Result is above instrument calibration range.
6. D = Result is from secondary dilution analysis.

P78_VOC.XLS 5/4/95

TABLE 1 (cont'd)
TEST PIT SOIL P-78 ANALYTICAL RESULTS
SEMI-VOLATILE AND PESTICIDE/PCB
ORGANIC COMPOUNDS
MALTA ROCKET FUEL AREA SITE

Target Semi-Volatile Organic Compounds	MRFA Comparative Criteria	Area D-1 P-78 6'-8'
none detected	-	-

Semi-Volatile Organic TICs	MRFA Comparative Criteria	Area D-1 P-78 6'-8'	
Biphenyl	50000	14000	NJ
Cyclotetrasiloxane, Octamethyl	50000	38000	NJ
Diphenyl Ether	50000	96000	NJ
Pentadecane, 2,6,10,14-Tetramethyl-	50000	5900	NJ
Unknown Alkanes	50000	108400	J
Unknown Alkylcyclohexanes	50000	10500	J
Assorted Unknowns	50000	12700	J

Pesticide/PCB Compounds	MRFA Comparative Criteria	Area D-1 P-78 6'-8'	
Aldrin	41	1.2	J
Heptachlor Epoxide	20	0.92	PJ
Endosulfan II	900	2.3	PJZ
4,4'-DDD	2900	2.6	PJZ
Endrin Aldehyde	10000	6.0	PJZ
Aroclor-1260	10000	120	J

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)).
2. J = Semi-quantitative value due to QA/QC data validation requirements.
3. N = Compound was identified with a Chemical Abstract Services (CAS) number.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. P = >25% difference for detected concentrations between the two GC columns. The lower value is reported.
6. Z = Suspected laboratory contaminant.

TABLE 1 (cont'd)
TEST PIT P-78 SOIL ANALYTICAL RESULTS
INORGANIC ANALYTES
MALTA ROCKET FUEL AREA SITE

Analytes	MRFA Comparative Criteria	Area D-1 P-78 6'-8'	
Aluminum	78300	3620	
Antimony	13.2	< 10.8	UJ
Arsenic	8.1	2.9	
Barium	300	13.7	B
Beryllium	1.0	0.16	B
Cadmium	13.5	< 0.68	U
Calcium	500000	13000	
Chromium	135	3.9	
Cobalt	30	3.0	B
Copper	999	9.0	J
Iron	90000	8260	
Lead	500	4.1	J
Magnesium	500000	2240	
Manganese	2700	218	
Mercury	8.1	< 0.03	U
Nickel	540	7.2	B
Potassium	525000	664	B
Selenium	2	< 0.24	UJ
Silver	135	< 1.40	UJ
Sodium	325000	49.4	B
Thallium	1.89	< 0.26	U
Vanadium	189	8.2	B
Zinc	8100	20.7	
Cyanide	540	< 0.62	U
Boron	2400	< 20.5	U

Notes:

1. All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
2. U = Analyte was not detected.
3. J = Semi-quantitative value due to QA/QC data validation requirements.
4. B = Value is above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL).

Appendix A

Section 5.10 of POP
Test Pit Excavation and Sampling

5.10 TEST PIT EXCAVATION AND SAMPLING

Test pits will be excavated at selected locations to determine the nature of the subsurface materials and any geophysical anomalies in the following potential source areas (see Figure 4):

- Drum Disposal Area D-4 (4 pits),
- Drum Disposal Area D-5 (3 pits),
- Drum Disposal Area D-6 (2 pits), and
- Filled-in Ponds (1 to 2 pits per pond, depending on the former pond's size).

5.10.1 Excavation

The test pits will be excavated using a backhoe capable of digging a 12-foot deep trench. Each pit will have a minimum dimension of 4 ft wide by 8 ft long with a depth of 10 ft or until 2 ft of undisturbed material is encountered, whichever is greater. If undisturbed soil is not encountered after excavating to a depth of 10 ft, alternative investigative methods will be proposed for EPA approval.

At each pit, the overburden will be carefully excavated and placed beside the trench. This material will be used to backfill the trench after completion of the excavation. During excavation, soil will be placed on polyethylene sheeting. Every effort will be made to minimize the potential for drum or tank rupture. Personnel and equipment within the exclusion zone, including the backhoe and operator, will remain upwind of the test pit during the investigation, whenever possible. At no time will anyone enter the test pits. The cabin of the backhoe will be equipped with explosion-proof glass, and all HASP (Section 7.0) protocols will be followed by all field personnel in the exclusion zone.

5.10.2 Test-Pit Soil Sampling

An HNU or an equivalent photoionization detector will be used to scan the soil in each backhoe bucket. All field readings will be recorded on a Daily Log (Appendix B). A soil sample will be collected periodically as follows:

1. The sampling station location will be identified and recorded. A clean stainless steel trowel will be driven into the soil that has been placed beside the trench. The field geologist will collect samples from the soil as 2-ft intervals are excavated.

2. The samples will be placed in the appropriate containers.

3. Certified clean containers will be used. Care will be exercised to avoid breakage and to eliminate the entry or contact of any substance with the interior surface of the bottles, vials or caps other than the sediment or soil sample being collected. Caps will not be removed until the actual time of sampling and then just long enough to fill the container.

4. VOC vials will be filled first and to the maximum extent possible to minimize the volume of headspace within the vial.

5. The samples for the remainder of the parameters will be collected in the specified containers, ensuring that the sample volume is adequate for the required analyses. Samples will be homogenized, prior to filling the sample containers, in a decontaminated stainless steel pan with a decontaminated stainless steel spoon or spatula, using the coning and quartering method.

6. Sampling containers will be labeled with the depth and date of sample collection. All samples will be preserved at approximately 4°C by placing the containers into iced laboratory coolers as soon as possible.

7. The coolers will be stored in a secure area until they are relinquished to a common carrier or courier for overnight delivery to the laboratory. Surface sediment and soil samples will be shipped on a daily basis, if practical.

The sample with the highest field PID reading for each pit will be shipped for laboratory analysis. Samples will be preserved and shipped in accordance with the protocols outlined in the QAPP (Section 6.0). A soil/sediment sampling log will be completed in indelible ink to permanently document each individual sample collected. In addition to the identification markings on the container, other pertinent information relative to a sample or group of samples, such as color and grain size, will be documented.

A photograph will be taken as each individual sample is collected. The film roll and photograph numbers corresponding to an individual sample will be logged next to the sample identification numbers on the soil/sediment sampling log. The sample identification number will be written on the back of the corresponding photograph after the film is processed.

When the test pit has been excavated to specified dimensions and sampling has been completed, photographs will be taken highlighting the stratification of the soil and debris on vertical surfaces of the test pit. Flash equipment will be used to illuminate darkened areas of the pit. A "target pole," similar to a level rod, with 6-inch black and white blocked increments will be placed in the test pit and photographed along with the soil stratigraphy to help judge the depth and thicknesses of the strata when the photographs are being studied. Detailed field notes will include physical description, color, shape, orientation, depth to any buried materials, and the film roll and photograph number.

Should it be necessary to leave the site during the period when the pit is open, it will be barricaded to prevent accidental entry by personnel or equipment. When the investigation of an individual test pit is complete and the field manager is satisfied that all available information has been documented, the pit will be backfilled using the "last out- first in" method whenever possible. The backfilled material will be compacted/tamped back into

place using the bucket of the backhoe. The centerline of both ends of the test pit will be market with 4-foot long stakes. The stakes will be topped with flagging of sufficient quantity and length to be visible to surveyors from 100 yards away.

Prior to leaving the exclusion zone, and after each test pit, sampling equipment including the bucket and other backhoe parts will be pressure-steam cleaned directly over the backfilled excavation to ensure that soils and wash water do not run off from the test pit area.

The horizontal location of the test pits will be established by a New York State certified surveyor.

5.10.3 Buried Drum And/Or Tank Handling and Sampling

Drums encountered during test pit excavation will be sampled to characterize the contents. The procedures for handling, opening, sampling and disposal are described below.

Drum and/or tank sampling may be hazardous to worker health and safety because it may involve direct contact with unidentified wastes. If a drum or tank is encountered during test pit excavation, a drum grappler will be attached to the backhoe for removal. This is recommended to keep the operator removed from the drum or tank thereby reducing the likelihood of injury if the drum or tank detonates or ruptures. If a drum or tank is leaking, the backhoe operator will be instructed to immediately place it into an overpack. In case of an explosion, grappler claws and a shield will help protect the operator by deflecting the force of explosion. All site personnel involved with the handling or sampling of drums will be made fully aware of all safety procedures detailed in the HASP (Section 7.0), to maximize worker safety.

Drums and/or tanks will be opened and sampled on-site. Drums and tanks will be opened by one of the following remote-controlled devices:

- pneumatically operated impact wrench to remove drum bungs
- hydraulically or pneumatically operated drum and/or tank pierce

If the drum or tank is swelling or bulging, all steps will be performed with greater care. Excess pressure in a drum or tank will be released in a remote location.

Samples from drums and tanks encountered during test pit excavation will be obtained with a Coliwasa lowered through the pierced hole in the drum or tank. Samples will be analyzed for RCRA hazardous waste characterization parameters and TCL parameters. For any drum or group of drums, or tank or group of tanks, Respondents may propose alternative sampling and analysis, with full technical rationale for same, for EPA's consideration and approval. In the event excavation beyond the bounds of the test pit is necessary for a removal action or an emergency response action, Respondents will propose appropriate drum and tank sampling and analysis requirements for EPA approval.

5.10.3.1 Disposal

The fate of buried drums and tanks will be determined after the contents have been analyzed. All waste materials will be disposed of in accordance with prevailing Federal and New York State regulations.