

**WORK PLAN FOR THE REMOVAL
OF THE UNDERGROUND STORAGE TANK
LOCATED AT THE RECEIVING AREA (AREA 2)**

**Sunnyside Yard
Queens, New York**

March 4, 1991

Revised October 10, 1991

Prepared for:

**National Railroad Passenger Corporation
Washington, D.C.**

Prepared by:

**ROUX ASSOCIATES, INC.
775 Park Avenue
Huntington, New York 11743**

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ROUX

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FIGURES

1. Site Plan Including the Location of Underground Storage Tank, Soil Borings and Monitoring Well

APPENDICES

- A. Health and Safety Plan

1.0 INTRODUCTION

This Work Plan is submitted by Roux Associates, Inc. (Roux Associates) at the request of the National Passenger Railroad Corporation (AMTRAK) for the investigation, removal and remediation of an underground storage tank (UST) at the Sunnyside Yard, Queens, New York (Yard). Roux Associates was retained by AMTRAK to conduct a facility-wide Remedial Investigation/ Feasibility Study (RI/FS) at the Yard. During the RI phase, a hydrocarbon release was detected in the subsurface. Upon further investigation, an UST was discovered in the vicinity of the receiving area (Area 2) of the commissary building (Figure 1).

2.0 INITIAL INVESTIGATION

During the RI field investigation, a gasoline odor was detected in a soil sample collected from 2 to 4 feet (ft) below land surface (bls) in boring S-41 (Figure 1), located approximately 10 ft from the UST. To further investigate the possible subsurface contamination, a subsequent boring, S-41A (Figure 1), was drilled adjacent to boring S-41 to collect a sample for volatile organic compound (VOC) analysis. In a soil sample collected at 3 to 5 ft bls in boring S-41A, VOCs were detected in the following concentrations:

acetone - 293 micrograms per kilogram (ug/kg) (0.293 ppm);
ethylbenzene - 67 ug/kg (0.067 ppm); and
xylenes (total) - 137 ug/kg (0.137 ppm).

The reported concentrations for soil analyses have been adjusted to reflect a dry weight rather than wet weight reporting basis as was presented in the January 10, 1991, initial draft Work Plan.

In a water sample obtained in boring S-41A, VOCs were detected in the following concentrations:

ethylbenzene - 98 micrograms per liter (ug/L) (0.098 ppm); and
xylenes (total) - 275 ug/L (0.275 ppm).

A sample of the tank contents (water/product mixture) was obtained and VOCs were detected in the following concentrations:

2-butanone - 3,660 ug/L (3.66 ppm);
toluene - 3,830 ug/L (3.83 ppm);
ethylbenzene - 24,400 ug/L (24.4 ppm); and
xylenes (total) - 92,000 ug/L (92.0 ppm).

Based upon the results of the field investigation and laboratory analysis, and information provided during personal communications with AMTRAK personnel, Roux Associates concludes the following.

- An approximately 800 gallon UST exists beneath a 3 ft by 8 ft concrete pad located between the radio shop and a flammable gas storage shed and contains approximately 500 gallons of liquid.
- According to Yard personnel, the UST was most probably used for petroleum hydrocarbon (gasoline) storage, but may have also been used for solvent storage from a once active painting operation.
- The high concentrations of toluene, ethylbenzene and xylenes (primary constituents of gasoline) in the tank contents suggests that the UST contains hydrocarbons and water.
- The presence of 2-butanone in the tank contents indicates that solvents may have been stored in the tank at some time.
- The presence of hydrocarbon constituents and solvents in the soil and ground-water samples near the UST suggest that the tank may have overflowed or leaked.

3.0 RECOMMENDATIONS

Roux Associates' recommendations are based upon the results of the field investigation and laboratory analysis, knowledge of the Yard, and experience in UST investigations in the Queens, New York, area. All work will be performed under the supervision of a Roux Associates hydrogeologist. All invasive work performed during this investigation will be in accordance with the Health and Safety Plan (HASP) included as Appendix A. This is a revised version of the HASP included as Appendix A of the February 27, 1990, "Work Plan for the Remedial Investigation and Feasibility Study, Sunnyside Yard, Queens, New York."

3.1 Task I - UST Removal

- The tank contents will be pumped out using a vacuum truck, containerized, transported off site, and disposed of in accordance with appropriate requirements. Documentation of proper disposal will be provided.
- The 3 ft by 8 ft concrete pad will be removed.
- The tank will be uncovered and removed from the ground, along with any accessible associated piping.
- The tank will be rendered inert by use of carbon dioxide (CO₂) and cut open on both ends using a non-sparking hydraulic nibbler. The tank will then be degassed, cleaned, and transported off-site for recycling. The cleaning procedure will include the following: the tank will be cut in half using the non-sparking hydraulic nibbler and cleaned without entry; the inside of the tank will be steam cleaned; all materials used or generated in the cleaning process will be containerized and properly disposed of. The tank will be visually inspected by the on-site hydrogeologist to assure that all of the contents have been removed before it is transported off-site.

3.2 Task II - Contaminated Soil Removal

- Prior to excavation of the tank and surrounding soils, soil samples will be collected from three pre-excitation borings (Figure 1) and will be analyzed for VOCs to determine the extent and degree of contamination (see Section 3.5, Task V).
- An estimate of the volume of soil to be excavated and the disposal requirements will be determined based upon a review of the pre-investigation boring data.
- Soil in the excavation will be investigated for the presence of hydrocarbon contamination by noting any visual staining and screening the soil with a photoionization detector (PID) for VOCs.
- The visually contaminated soil around the tank will be excavated to the water table.

- The soil will be removed from the site within 90 days from the date that it was excavated and will be transported and disposed of in accordance with New York State's requirements. Documentation of proper disposal will be provided.
- While the excavated soil is temporarily stored on-site, the soil will be staged in an area located to the north of the Metro Shop and will be stored in a manner designed to preclude any contamination of the staging area and any exposures to on-site personnel.
- The soil will be placed on competent plastic sheeting with a berm constructed around the edges to prohibit any runoff.
- The soil will be covered and secured with plastic sheeting to prevent rainwater from infiltrating the soil pile; to prevent airborne spread of contaminated soil; to prevent exposure of on-site personnel to the soil; and to limit the amount of vapors emanating from the soil.
- The size and shape of the soil pile will be determined by the volume of material excavated and by the space available for staging.
- The area will be designated off limits to on-site personnel by the use of caution tape and appropriate placards.
- Representative samples will be collected from the soil stockpile on the last day of the excavation work. The soil sampling will be performed for waste classification purposes. The analyses to be performed will include VOC (Method 8240), TCLP, corrosivity (pH), ignitability, and reactivity.

Excavated soil will be separated into two stockpiles, each containing soil of a relatively equal degree of contamination based upon visual examination and PID screening. A representative sample will be collected from each stockpile and submitted for analysis. We propose to sample three locations, at varying depths, within each stockpile and to composite the samples in the field to obtain one representative sample per stockpile.

- Post-excavation sidewall soil samples will be collected from the excavation and will be analyzed using USEPA Method 8240 which includes benzene, toluene, ethylbenzene, xylene (BTEX), 2-butanone (MEK), and acetone.
- Soil and ground-water samples will be analyzed according to the NYSDEC Analytical Services Protocols (ASP) procedures. However, ASP Quality Assurance/Quality Control (QA/QC) documentation will not be requested and data validation will not be performed.

The proposed clean-up levels provided by the NYSDEC for the compounds detected in the soil are the following:

benzene	0.5 ppm
toluene	1.5 ppm
xylene (total)	1.2 ppm

ethylbenzene	5.5 ppm
acetone	0.11 ppm
2-butanone	0.3 ppm

3.3 Task III - Liquid Removal

- If free product is present in the excavation, it will be pumped out with the vacuum truck.

3.4 Task IV - Backfill of Excavation

- Following excavation work, sidewall samples will be collected as described above and the excavation will be backfilled with clean sand.
- If BTEX, MEK or acetone contamination is detected in the sidewall samples, a decision will be made whether to reopen and continue the excavation or to mitigate further contamination during a remediation phase.
- Any piping that was unable to be removed (e.g., beneath a foundation or tracks) will be capped and abandoned in place.

3.5 Task V - Define Extent of Subsurface Contamination

The location of the UST near the flammable gas storage shed, the radio shop, the concrete pavement of the receiving area, active and abandoned tracks, underground sewers, and water and electric lines severely limits the scope of the investigation that can be conducted to define the extent of potential subsurface contamination.

- Roux Associates proposes to incorporate the data obtained from the five soil borings drilled in the immediate area (Figure 1), as part of the RI, into this investigation and proposes to install three pre-excavation borings (Section 3.2, Task II) to better define the extent of potential contamination and assist in determining disposal requirements of the soil. The soil borings will be sampled continuously from grade to 5 ft below the water table (approximately 10 ft bls). The soil samples will be visually inspected in the field for staining and screened with a PID for VOCs. Based upon PID readings and location relative to the UST, approximately four boring samples will be submitted for laboratory analysis with a specified three-day laboratory turnaround. The results of these analyses will be used to estimate the volume of soil to be excavated, thereby insuring an adequate area is prepared for temporary stockpiling prior to removal and disposal.
- Soil samples from the borings will be analyzed using USEPA Method 8240 which includes benzene, toluene, ethylbenzene, xylene (BTEX), acetone and 2-butanone (MEK). Total petroleum hydrocarbons (PHC) analysis will not be performed on the samples so that we can differentiate the contaminants associated with the UST

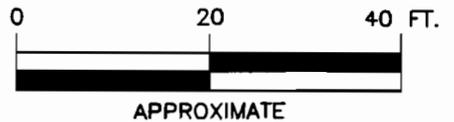
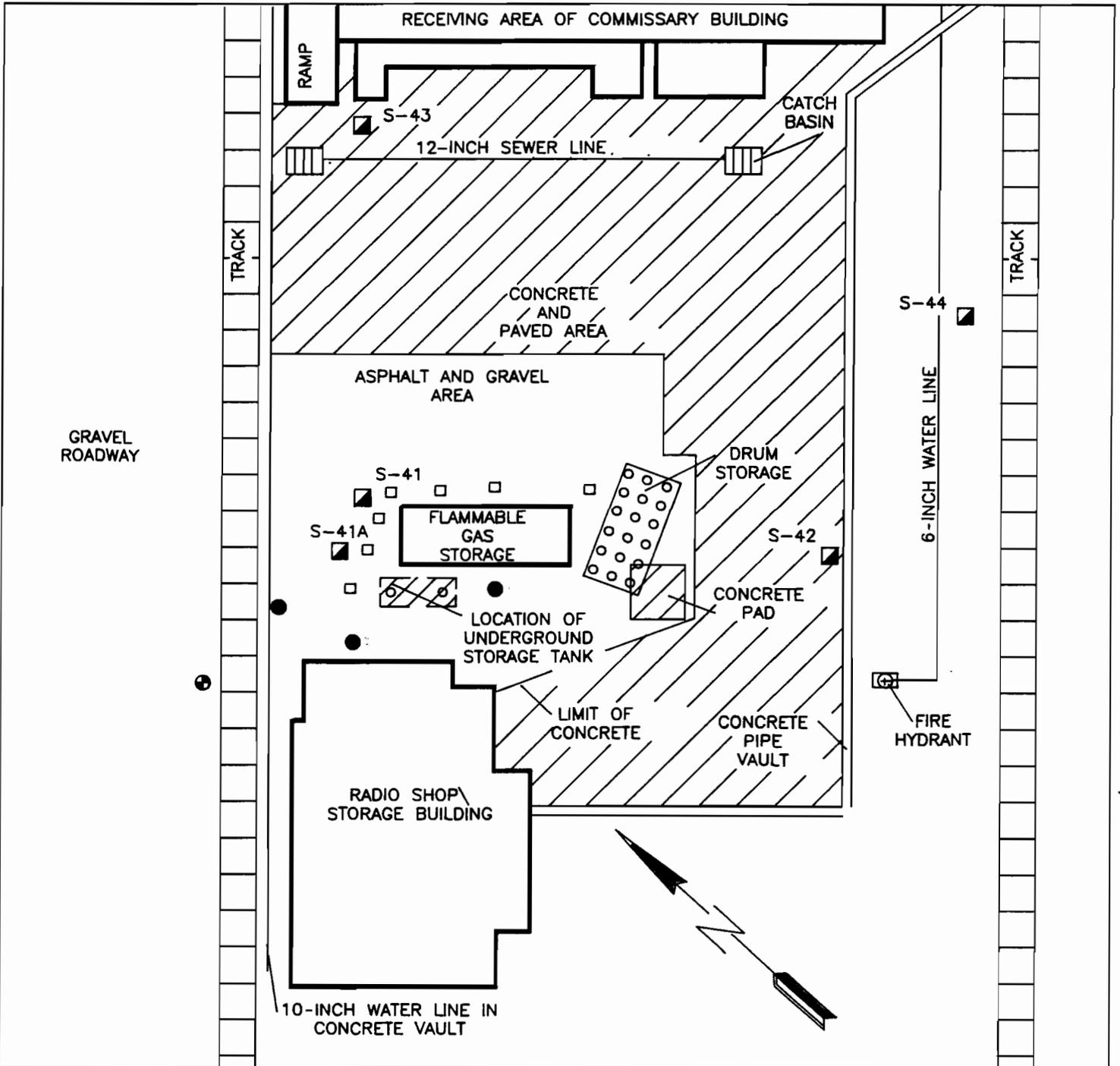
from others that might be encountered. The site-wide delineation of petroleum hydrocarbon contaminated soil is being addressed in the Remedial Investigation.

- One monitoring well will be installed hydraulically downgradient of the UST. During drilling, soil samples will be collected continuously to 7 ft below the water table (approximately 13 ft bls) and screened in the field for evidence of contamination as previously described. The observations will be recorded on the field logs. The monitoring well will be constructed of 10 slot, 4-inch diameter stainless steel well screen set from 7 ft below to 3 ft above the water table. A 4-inch diameter threaded PVC casing will extend from the top of the well screen to land surface. A Morie No. 1 equivalent gravel pack will be placed in the annulus around the well screen and will extend approximately 1 ft above the top of the screened interval. A 1 ft bentonite plug will be placed on top of the gravel pack and hydrated with potable water. A protective casing will be grouted in place and a locking cap will be installed on the well. Upon completion, the monitoring well will be developed by mechanical surging and pumping with a centrifugal pump (or bailer, depending on the hydraulic properties of the well) to ensure that a good connection exists between the aquifer and the well screen. If free product is present, the development water will be containerized and disposed of properly. If no free product is present, a "recharge-pit" will be constructed, as specified in the RI/FS Work Plan, and the development water will be allowed to infiltrate back into the ground adjacent to the well.
- The drill cuttings from soil borings will be used to backfill the boreholes. Contaminated drill cuttings requiring containment may be generated while installing the monitoring well. Therefore, all cuttings generated during installation of the monitoring well will be stockpiled with the evacuated soil.

3.6 Task VI - Ground-Water Sampling

The ground-water samples will be analyzed using USEPA Method 624 which includes benzene, toluene, ethylbenzene and xylene (BTEX). In addition, acetone and 2-butanone will be incorporated into the analysis. A field blank and trip blank will be analyzed to insure the integrity of the sample.

As requested by the NYSDEC, Roux Associates has considered performing ground-water analysis using USEPA Method 524.2. However, it is Roux Associates' opinion that this method is unsuitable because the present concentrations of contaminants are considerably higher than the detection levels mandated for drinking water standards (Method 524.2), and therefore the analysis will result in inconclusive data. This method can be employed, if required, for final closure after remediation is completed.



EXPLANATION

- S-43 LOCATION AND DESIGNATION OF SOIL BORING
- LOCATION OF PROPOSED SOIL BORING
- LOCATION OF PROPOSED MONITORING WELL
- CONCRETE
- LOCATION OF STEEL POSTS

Title:			
SITE PLAN INCLUDING THE LOCATION OF UNDERGROUND STORAGE TANK, SOIL BORINGS AND MONITORING WELL			
Prepared For:			
AMTRAK CORPORATION			
 ROUX ASSOCIATES INC <small>Consulting Ground-Water Geologists & Engineers</small>	Compiled by: B.W.	Date: 12/90	FIGURE 1
	Prepared by: C.L.	Scale: SHOWN	
	Project Mgr: J.D.D.	Revised: 2/91	
	File No: 055091US		

APPENDIX A
Health and Safety Plan

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Health and Safety Plan

1.0 INTRODUCTION

This plan outlines health and safety procedures to be followed by Roux Associates, Inc.'s (Roux Associates) employees and subcontractors hired by Roux Associates during any site investigation and cleanup activities performed at the Yard. This health and safety plan was developed in accordance with current OSHA guidelines outlined in 29 CFR Part 1910.

These procedures include emergency chain of command, personnel protective equipment, basic safety equipment, air monitoring, training program, employee medical surveillance program, and decontamination of personnel and equipment.

A Health and Safety Officer (HSO) will be appointed to ensure all that all Health and Safety Plan (HASP) activities are correctly implemented. The HSO's resume will be submitted to NYSDEC prior to the start of the investigation.

2.0 EMERGENCY PROCEDURES

If a medical emergency occurs, only limited first aid will be available onsite. If the victim(s) cannot be transported without substantial risk, call for an ambulance. If the victim(s) can be transported without substantial risk of additional injury, the nearest hospital is:

Astoria General Hospital
25-10 30th Avenue
Astoria, NY
General Number : (718) 932-1000

2.1 Emergency Phone Numbers

In case of the need for emergency help, the following phone numbers will be maintained at the site:

Police Emergency	911
AMTRAK Police	(212) 630-7113 (ATS: 521-7113)
AMTRAK Environmental Control	(212) 630-7249
AMTRAK Yard Facility Manager	(212) 630-7565
Fire Emergency	(718) 847-6600
Ambulance	911
Poison Control Center	(800) 962-1253
National Response Center	(800) 424-8802

2.2 Chain of Command

In case of difficulties at the site requiring notification of Roux Associates the following is Roux Associates' contacts listed in order of priority:

Roux Associates, Inc.
775 Park Avenue, Suite 255
Huntington, New York 11743
(516) 673-7200

Joseph Duminuco, Roux Project Manager
Home Phone Number (516) 735-3140

Linda Wilson, Roux Health and Safety Officer
775 Park Avenue, Suite 255
Huntington, New York 11743
(516) 673-7200

3.0 PERSONNEL PROTECTIVE EQUIPMENT

Based on the available information, it is anticipated that a modified version of Level D protection will be adequate for most tasks to be performed at the site.

The modified level D protection will consist of:

- (a) Coveralls, disposable (poly-coated Tyvek)
- (b) Gloves, chemical resistant, disposable
- (c) Boots, chemical resistant, disposable
- (d) Hard hat
- (e) Safety glasses or chemical splash goggles.

A photoionization analyzer will continuously monitor the work zone for changes in organic vapor levels. Level D areas are defined as areas where gross ambient organic vapor levels (monitored on a real time basis) are from site background to 5 ppm.

Level D protection will be upgraded to Level C protection if concentrations of organic vapors exceed 5 parts per million (ppm) or toxic airborne substances are known or suspected.

Level C areas are defined as areas where gross ambient organic vapor levels (monitored on a real-time basis) are greater than 5 ppm but less than 500 ppm or where the presence of toxic airborne substances are known or suspected.

Level C Protection consists of:

- (a) Full face air-purifying respirator (OSHA/NIOSH approved)
- (b) Coveralls, disposable (poly-coated Tyvek or Saranex)
- (c) Gloves, chemical resistant, disposable (taped to coveralls)
- (d) Boots, chemical resistant, disposable (taped to coveralls)
- (e) Hard hat

Work will cease if levels of organic vapors exceed 500 ppm. If this condition persists in the work zone, the work plan will be modified to a higher level of protection.

When the possibility exists that explosive gases may be released from the soils during excavation and drilling operations, the atmosphere will be monitored with an explosimeter. When levels approach the lower explosive limit (25 percent L.E.L.), work will cease until explosive gases have sufficiently dispersed.

It will be the responsibility of the senior on-site Roux Associates representative to inform all on-site Roux Associates personnel of the level of personnel protection required in all work situations. All contractors and subcontractors are responsible for supplying their personnel with the necessary safety equipment.

Basic safety equipment will be kept on-site for monitoring and responding to emergency situations. In addition to equipment previously mentioned, basic safety equipment will include, but is not limited to, the following:

- (a) portable eye wash
- (b) ABC type fire extinguishers
- (c) first aid kits
- (d) photoionization analyzer

4.0 EMPLOYEE MEDICAL SURVEILLANCE PROGRAM

All Roux Associates employees involved in field operations have had medical examinations. Follow-up exams are conducted at a frequency of every 12 months for employees involved in field investigations. All contractors and subcontractors are responsible for their own medical surveillance programs.

5.0 TRAINING PROGRAM

All personnel who enter work zone (the designated area where activities are being performed pursuant to this Work Plan) must have received a minimum of forty hours of comprehensive health and safety training in accordance with 29 CFR Part 1910. All contractors and subcontractors will assume responsibility for the training of their personnel.

It will be required that all Roux Associates personnel (including all contractors and subcontractors) scheduled to perform work in the work zone review a copy of this Health and Safety Plan.

In addition to the procedures outlined in this Plan, all Roux Associates personnel (including all contractors and subcontractors) will be informed of any applicable Yard safety rules to be observed while working at the Yard.

6.0 DEFINITION OF WORK AREAS AND DECONTAMINATION PROCEDURES

Based on health and safety considerations, certain areas at the Yard may be considered a restricted "workzone" while work is taking place. If restricted access is necessary, the appropriate work zone, including but not limited to any heavy equipment, drill rig and all associated sampling equipment located therein, will be a restricted access area. Entry to and exit from the work zone will be provided only to those persons directly involved in tasks associated with the work plan and only if the prescribed level of personnel protection is worn. Prior to leaving a restricted access area all personnel and equipment will be decontaminated.

During the actual uncovering and removal of the UST, the workers in the adjacent "radio shop" will be evacuated as a precaution. In addition, the contents of the adjacent flammable gas storage pad will be removed before the excavation work begins.

If 5 ppm organic vapors is exceeded in the work (exclusion) zone, air monitoring will be undertaken between the exclusion zone and the nearest downwind, non-RI related target population. Work will be suspended if readings exceed 5 ppm outside of the exclusion zone.

3.7 Task VII - Report Preparation

Upon completion of the field investigation and receipt of the laboratory analytical data, a report will be prepared that summarizes the data, findings, and conclusions derived from the investigation and any recommendations, if appropriate.

Areas are defined as levels C or D corresponding to the level of personnel protection required for each situation.

6.1 Restricted Access Area Level D

Level D access will be areas in which no health hazards are known to exist and where organic vapor concentrations are below 5 ppm. All Roux Associates personnel entering the work zone are required to be wearing Level D personnel protection as described in Section 3.0 of this Health and Safety Plan.

Decontamination procedures prior to leaving Level D areas will consist of brushing loose soil from clothing and equipment, and washing equipment with mild detergent and water. Disposable gloves, boots, scoops, paper towels and Tyvek suits will be discarded in the trash receptacles provided within these areas. Drill rigs will be brushed clean of soil.

6.2 Restricted Access Area Level C

Level C access will be those areas where organic vapors exceed 5 ppm (but less than 500 ppm), or where the presence of toxic airborne substances are known or suspected to exist.

Entry to Level C areas will be provided only to those Roux Associates and subcontractor personnel wearing Level C personnel protection as described in Section 3.0 of this Plan.

Liquid wastes generated in Level C restricted access areas will be drummed for proper disposal. Dry material such as suits and gloves will be disposed of in accordance with state and federal guidelines.