

HEALTH AND SAFETY PLAN  
for the  
REMEDIAL INVESTIGATION  
AND FEASIBILITY STUDY  
at the  
VOLNEY LANDFILL SITE  
OSWEGO COUNTY, NEW YORK



Prepared for :

**NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

50 Wolf Road, Albany, New York 12233

Henry G. Williams, Commissioner

**DIVISION OF SOLID AND HAZARDOUS WASTE**

Norman H. Nosenchuck, P.E. - Director

**URS Company, Inc.  
625 Delaware Avenue  
Buffalo, New York**

**September 1985**

SITE SAFETY PLAN

PROJECT NAME: REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT THE  
VOLNEY LANDFILL SITE

PROJECT NUMBER: 3510@

PROJECT MANAGER: DANIEL W. ROTHMAN

HEALTH AND SAFETY OFFICER: GEORGE C. MORETTI

DATE OF PLAN PREPARATION: SEPTEMBER 1985

DATES OF PLANNED FIELD ACTIVITIES: SEPTEMBER - DECEMBER 1985

## TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION .....	1
2.0 KEY PERSONNEL AND ORGANIZATION .....	3
3.0 HAZARD EVALUATION OF SITE .....	5
4.0 WORK ZONES .....	9
5.0 SITE ACCESS .....	12
6.0 FIELD MONITORING .....	13
7.0 DECONTAMINATION PROCEDURE .....	14
8.0 EMERGENCY PROCEDURES .....	15
9.0 RECORDKEEPING .....	18
10.0 SAMPLE HANDLING, TRANSPORTATION AND SHIPMENT .....	19
11.0 MEDICAL SURVEILLANCE .....	20
12.0 TRAINING .....	23
13.0 SELECTION OF PROTECTIVE CLOTHING .....	24
14.0 SELECTION OF RESPIRATORY EQUIPMENT .....	26
15.0 GENERAL SAFETY RULES .....	27

## LIST OF TABLES

		<u>Page No.</u>
3-1	Chemical Hazard Suspected at VOLNEY LANDFILL...	6
3-2	Cooling Power of Wind on Exposed Flesh Expressed as an Equivalent Temperature .....	8
13-1	Protective Clothing Requirements Applicable to Each Field Activity .....	25

## LIST OF FIGURES

2-1	Organization Chart .....	4
4-1	Work Zones at VOLNEY LANDFILL .....	10
8-1	Route to Hospital .....	16

## APPENDICES

APPENDIX 1 - EMERGENCY RESPONSE AGENCIES

APPENDIX 2 - DECONTAMINATION PROCEDURES

APPENDIX 3 - ATMOSPHERIC HAZARD GUIDELINES

## 1.0 INTRODUCTION

The purpose of this document is to identify specific health and safety procedures which will be instituted during the Remedial Investigation at the Volney Landfill site. This document sets forth procedures which will be applicable to warm weather and cold weather operations. In this regard, safety procedures will address not only the potential for exposure to hazardous chemicals, but also the potential for heat stress and cold that could result from working in protective clothing during the course of this study.

It must be noted that this document pertains only to investigative field activities and will not be applicable to remedial phase activities. Activities included in the field investigation are the following:

- a. Control Survey
- b. Surface Geophysical Studies
- c. Drilling
- d. Sampling of Soil, Surface Water and Groundwater

All URS personnel (and their subcontractors) involved in this study shall perform onsite work under the guidelines presented in this site specific safety plan. As a general guide to safety procedures at hazardous waste sites personnel are directed to the following documents:

1. URS SAFETY MANUAL - HAZARDOUS WASTE SITE INVESTIGATIONS
2. STANDARD OPERATING SAFETY GUIDES - USEPA OFFICE OF EMERGENCY AND REMEDIAL RESPONSE, HAZARDOUS RESPONSE SUPPORT PENSION
3. HAZARDOUS SUBSTANCE RESPONSE - EPA OCCUPATIONAL HEALTH AND SAFETY MANUAL

In the event of conflicting plans/requirements, personnel must implement those safety practices which afford the greatest personnel protection.

If site conditions change and it is necessary to modify Levels of Protection the onsite safety designee shall notify the Site Engineer who will consult with the Safety Officer and/or Project Manager before making recommendations to site personnel.

## 2.0 KEY PERSONNEL AND ORGANIZATION

2.1 The key personnel in this study who will be responsible for various aspects of the Health and Safety Plan are as follows.

- A. Project Manager - Daniel W. Rothman
- B. Health and Safety Officer - George C. Moretti
- C. Onsite Coordinator - Mark Hanna (Site Engineer)
- D. Designated Health and Safety Coordinator - Marc Smith

2.2 The chain-of-command for the administration of the Health and Safety Plan is presented in Figure 2-1.

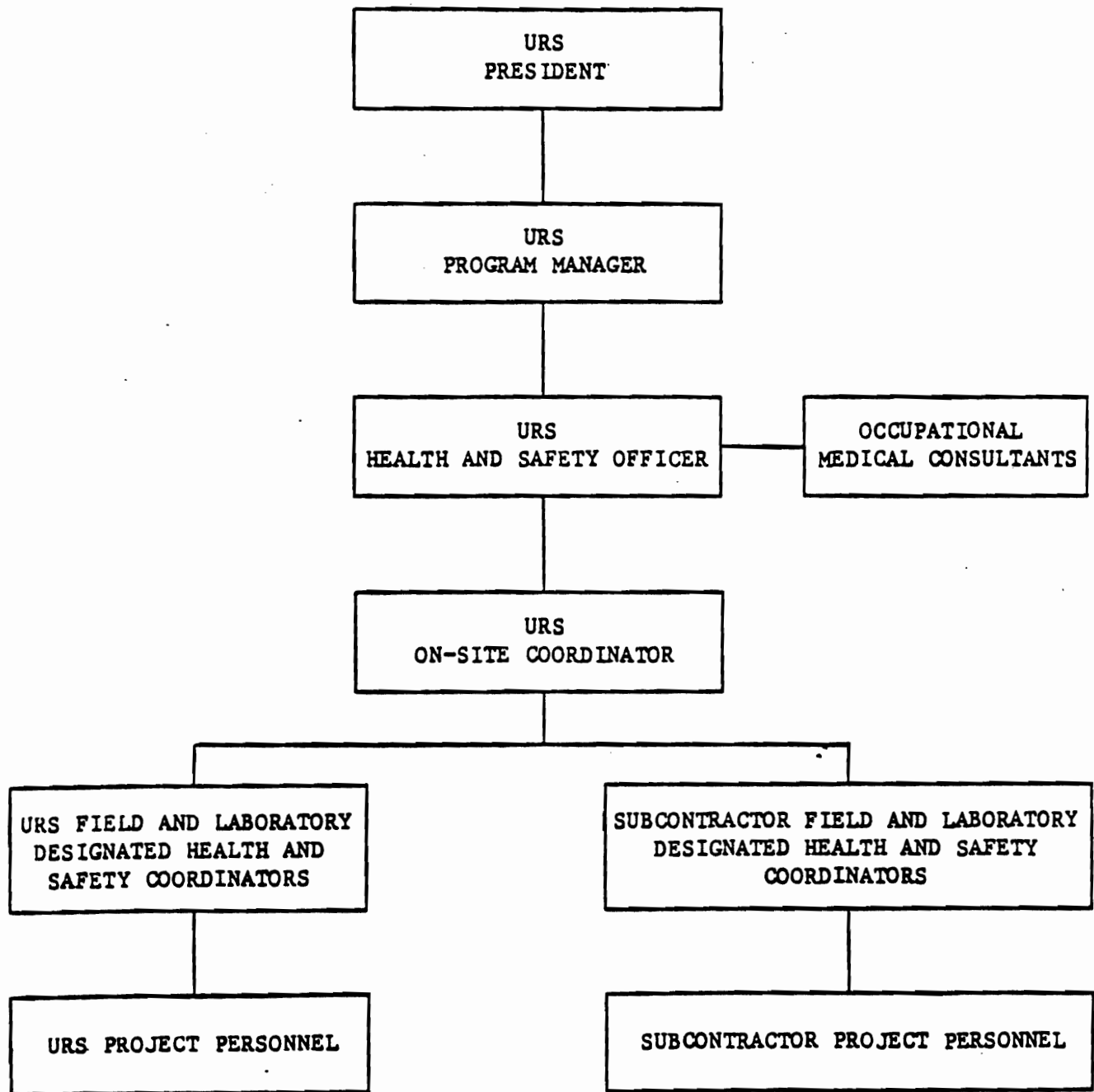


Figure 2-1 Organization Chart



### 3.0 HAZARD EVALUATION OF SITE

The hazards which will exist at the site during the field activities can be grouped into three categories:

- a. Chemical
- b. Heat stress
- c. Cold weather
- d. Physical hazards

These hazards are discussed below.

#### 3.1 Chemical

The Volney Landfill Site as described in the Work/QA Plan contains no surficial waste materials. However, drums of materials similar to those encountered at the main PAS site in Oswego are suspected to be buried at this site. Therefore, hazardous chemicals may be encountered during drilling and sampling activities especially at onsite location. It is very likely that the levels that will be encountered will be low.

A list of suspected chemical hazards which may be encountered at the Volney Landfill is presented in Table 3-1.

#### 3.2 Heat Stress

The field activities during this phase of work will be conducted during September to November. Therefore, warm weather could be a factor and personnel working on-site who will be wearing protective clothing and respirators could be subject to heat stress. This situation should be monitored periodically especially on days when the temperature exceeds 60°F.

TABLE 3-1  
 CHEMICAL HAZARDS SUSPECTED AT THE VOLNEY LANDFILL SITE

Chemical	Physical State	Concentration (High/Low/Trace)	Skin <sup>A</sup> Penetration	Potency <sup>B</sup> (Through Skin) (Systemic)	Potency <sup>B</sup> (Local)	PEL (Air)
Benzene		Low	2	3	2	1.0 ppm
1,2-Dichloroethane	Liquid	Low	2	2	2	100 ppm
1,2-Trans-Dichloroethylene	Liquid	Low	2	2	2	200 ppm
Ethylbenzene	Liquid	Low	2	2	2	100 ppm
Methylene Chloride	Liquid	Low	2	2	2	500 ppm
Toluene	Liquid	Low	1	1	1	100 ppm
Trichloroethylene	Liquid	Low	2	2	2	100 ppm
Xylenes	Liquid	Low	2	1	1	100 ppm
Phenol	Liquid/Solid	Low	2	2	2	100 ppm
Nickel-(Ammonium Sulfate)	Solid	Low	1	--	2	1 mg/m <sup>3</sup>
Cyanide	Gas	Low	3	3	--	5 mg/m <sup>3</sup>

- A. Skin Penetration
- 0 Negligible Penetration (solid - polar)
  - 1 Slight Penetration (solid - nonpolar)
  - 2 Moderate Penetration (liquid/solid - nonpolar)
  - 3 High Penetration (gas/liquid - nonpolar)

- B. Potency (Systemic)
- 3 Extreme Hazard (LD<sub>50</sub>: 1 mg/kg-50 mg/kg)
  - 2 Moderate Hazard (LD<sub>50</sub>: 50-500 mg/kg)
  - 1 Slight Hazard (LD<sub>50</sub>: 500-15,000 mg/kg)
- Potency (Local)
- 3 Extreme - Tissue destruction/necrosis
  - 2 Moderate - Irritation/inflammation of skin
  - 1 Slight - Reddening of skin
- Lethal amount to a 70-kilogram man
- drops to 20 ml
  - 1 ounce - 1 pint (1 pound)
  - 1 pint - 1 quart (2.2 pounds)

### 3.3 Cold Weather

The primary hazard of cold weather is frost bite particularly of the extremities, face (especially nose) and ears. Frostbite can be avoided by wearing adequate clothing to protect those areas at greatest risk.

Wind can play a significant role in causing frostbite at temperatures at which it normally would not be a problem (Table 3-2).

Most of the Remedial Investigation will be conducted during moderate temperature conditions. However, the environmental sampling and some of the survey work may be conducted during colder weather. Personnel will be monitored during these periods if conditions in Table 3-2 are encountered.

### 3.4 Physical Hazards

The greatest potential hazard is associated with operation of heavy machinery onsite. Accidents which typically occur in such situations result in head, foot and other bodily injuries to personnel.

Other physical hazards include brush, debris, (broken glass) and holes onsite which may cause injury to personnel working onsite.

TABLE 3 - 2 COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS AN EQUIVALENT TEMPERATURE (UNDER CALM CONDITIONS)

Estimated wind speed (in mph)	Actual Thermometer Reading (° F.)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-124
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-21	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER (for properly clothed person) Maximum danger of false sense of security.			INCREASING DANGER Danger from freezing of exposed flesh			GREAT DANGER					

#### 4.0 WORK ZONES

Three areas will delineated onsite by ropes and/or signs. They are the support area, the contamination reduction area, the exclusion are and the offsite area (See Figure 4-1).

4.1 Support Area - The support area which will include an office trailer and parking facilities will be located on the east side of the site near the Silk Road entrance. This area will be a clean zone in which no special protective equipment must be worn. A first aid kit and fire extinguisher will be located in the office trailer.

4.2 Contamination Reduction Area - This area will be located near the support area onsite. Personnel decontamination will be conducted in this area. Decontamination of personnel will only be necessary for drilling personnel after working on bore holes which will be drilled through the sanitary landfill (BW 18 and BW 19). This area will include the following items necessary for decontamination of personnel and equipment:

1. Source of water
2. Stream or high pressure hot water cleaner
3. Brushes
4. Wash tubs
5. Boot tree to air dry washed boots
6. 55-gallon waste drums to dispose of used tyvek suits and gloves and equipment decon water.
7. Eyewash Station

GROUNDWATER MONITORING WELL SUMMARY

Monitoring Well	No. of Wells in Cluster	Bottom of Deep Well
BW1	2	Just above till
BW2	1	Below water table
BW3	1	Below water table
BW4	1	Below water table
BW5	2	Just above till
BW6	1	Below water table
BW7	2	Just above till
BW8	1	Below water table
BW9	2	Just above till
BW10	1	Below water table
BW11	3	In bedrock
BW12	1	Just above till
BW13	1	Just above till
BW14	1	Just above till
BW15	1	Just above till
BW16	3	In bedrock
BW17	3	In bedrock
BW18	1	Bottom of refuse
BW19	1	Bottom of refuse

LEGEND

- ⊙ BW - SOIL BORING CONVERTED TO MONITORING WELLS OR MONITORING WELL CLUSTER
- ▲ SS - SURFACE WATER AND SEDIMENT SAMPLING LOCATION

Approximate Scale  
1" = 576'

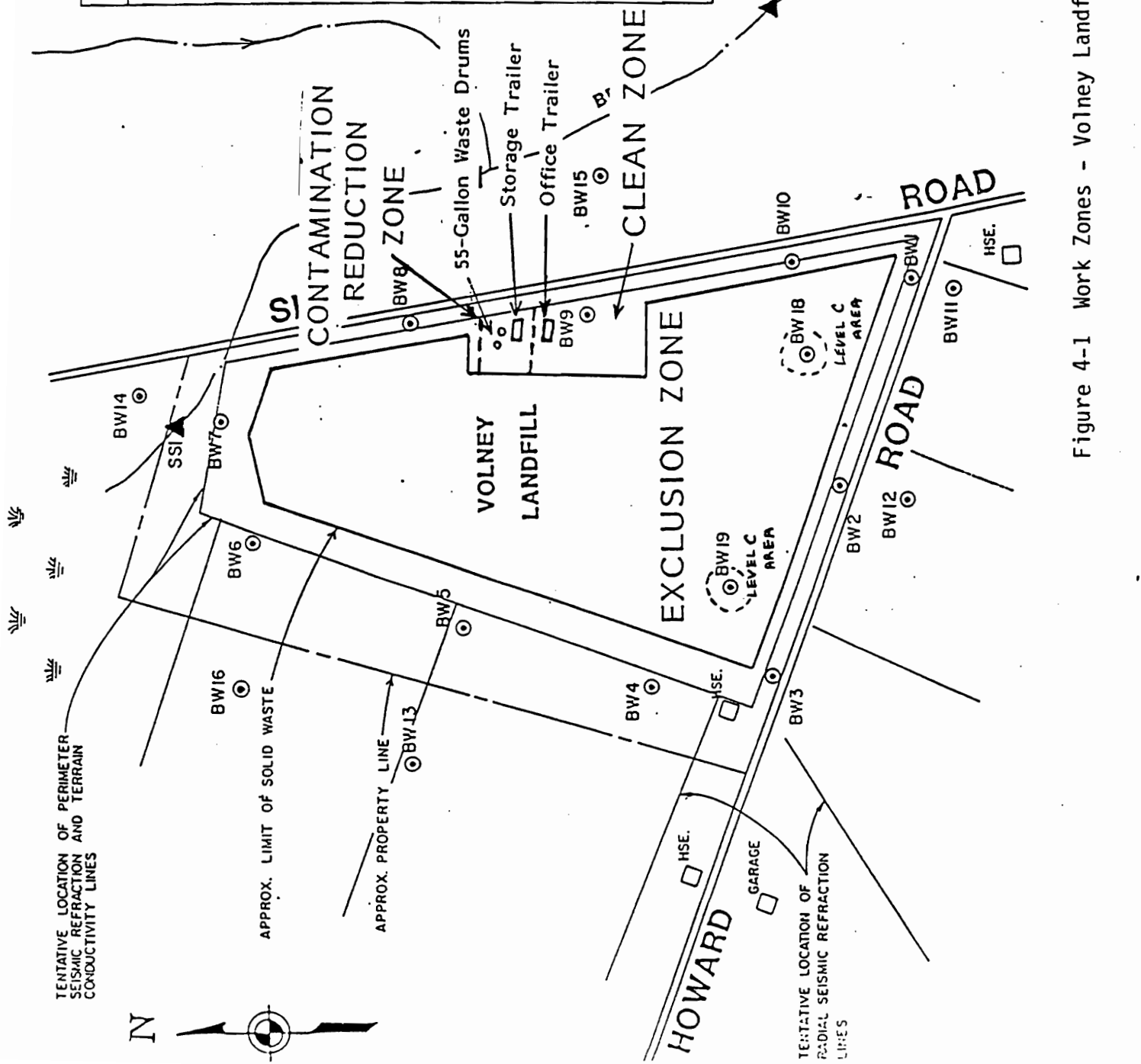


Figure 4-1 Work Zones - Volney Landfill

## 8. Storage Trailer

4.3 Exclusion Area - This zone will include the balance of the site. Personnel entering this zone must do so only when wearing the proper protective and safety equipment as outlined elsewhere in this plan.

4.4 Offsite Area - Additional work will be performed in offsite areas (boreholes, surface sample collections. Work in these areas will be performed in Level D protection. The soils from the drilling activities as well as the hole will be monitored using an organic vapor detector. Excursions of the vapor detector or odors emanating from the drill hole will be brought to the attention of the Health and Safety Officer and may require the implementation of Level C protection for offsite drilling.

## 5.0 SITE ACCESS

Site access will be controlled by a fence. Offsite work areas such as boring locations will be roped off to warn public of the open hole.



## 6.0 FIELD MONITORING

Periodically, air monitoring onsite will be conducted using an organic vapor detector. The results of this monitoring will be used to advise personnel regarding existing conditions and to help determine the level of protective clothing and respirators. Monitoring will also be conducted during all drilling operations to detect any releases of organic gases/vapors using the above mentioned detector. This monitoring will be used to protect personnel from unsafe and/or unhealthful conditions.

## 7.0 DECONTAMINATION PROCEDURES

Contaminated materials must be decontaminated or isolated immediately. All materials must be assumed contaminated if they have been brought onto the site.

EPA-approved procedures for decontamination will be followed in this program (See Appendix 2). Requirements for decontamination will be limited by using disposable sampling equipment. Vehicles entering the site will be restricted to an absolute minimum, but vehicles which leave the site must be washed. Vehicle decontamination calls for large quantities of water, soap and brushes, and a collection system for the contaminated wash water.

The major decontamination activity will be associated with protective clothing (e.g. reuseable boots and gloves). Water will be available to team members for rinsing off splashes that may land on them. Tyvek outer clothing will be discarded. The decontamination shed will be set up to decontaminate splashed clothing when spills occur and to decontaminate clothing and equipment of team members leaving the contaminated zone. Decontamination will consist of a thorough soap and water wash.

Personal hygiene is the final step in decontamination. It is impractical to install shower facilities at the site, but all team members who have worked on the site should immediately return to their hotels to change clothing and shower after preceding through the onsite decontamination of outer clothing. All clothing worn onsite should be laundered separately from street clothing before rewearing.

In order to minimize contamination of sample handlers and laboratory personnel, sample bottles will be tightly capped in the field, label secured and placed in a plastic bag and sealed.

## 8.0 EMERGENCY PROCEDURES

The most likely incidents for which emergency planning is required are:

- a. a sudden release of hazardous gases/vapors during drilling or drum staging and sampling
- b. a drilling rig accident resulting in a physical injury to one or more persons; and
- c. flashing of the borehole during drilling which subsequently results in a fire.

Emergency procedures established to deal with these incidents include escape routes, signals for evacuating work parties, emergency communications, and procedures for fire.

### 8.1 Escape Routes

Flags will be positioned near the drilling rigs and at various other locations to indicate wind direction. In the event of a sudden release or fire, all personnel will move away from the location of the incident in an upwind direction and then to the site exit point at the command trailer. Personnel downwind of the incident will first move to the perimeter of the site and then upwind to the command trailer.

### 8.2 Signal for Evacuation

In the event of a sudden release or fire requiring the immediate evacuation of personnel, the signal for evacuation will be three quick blasts on an air horn. Both the geologist monitoring the borehole and the drill rig operator will have two air horns in their possession. These air horns will be kept in a conspicuously visible location for quick access by other personnel as well.

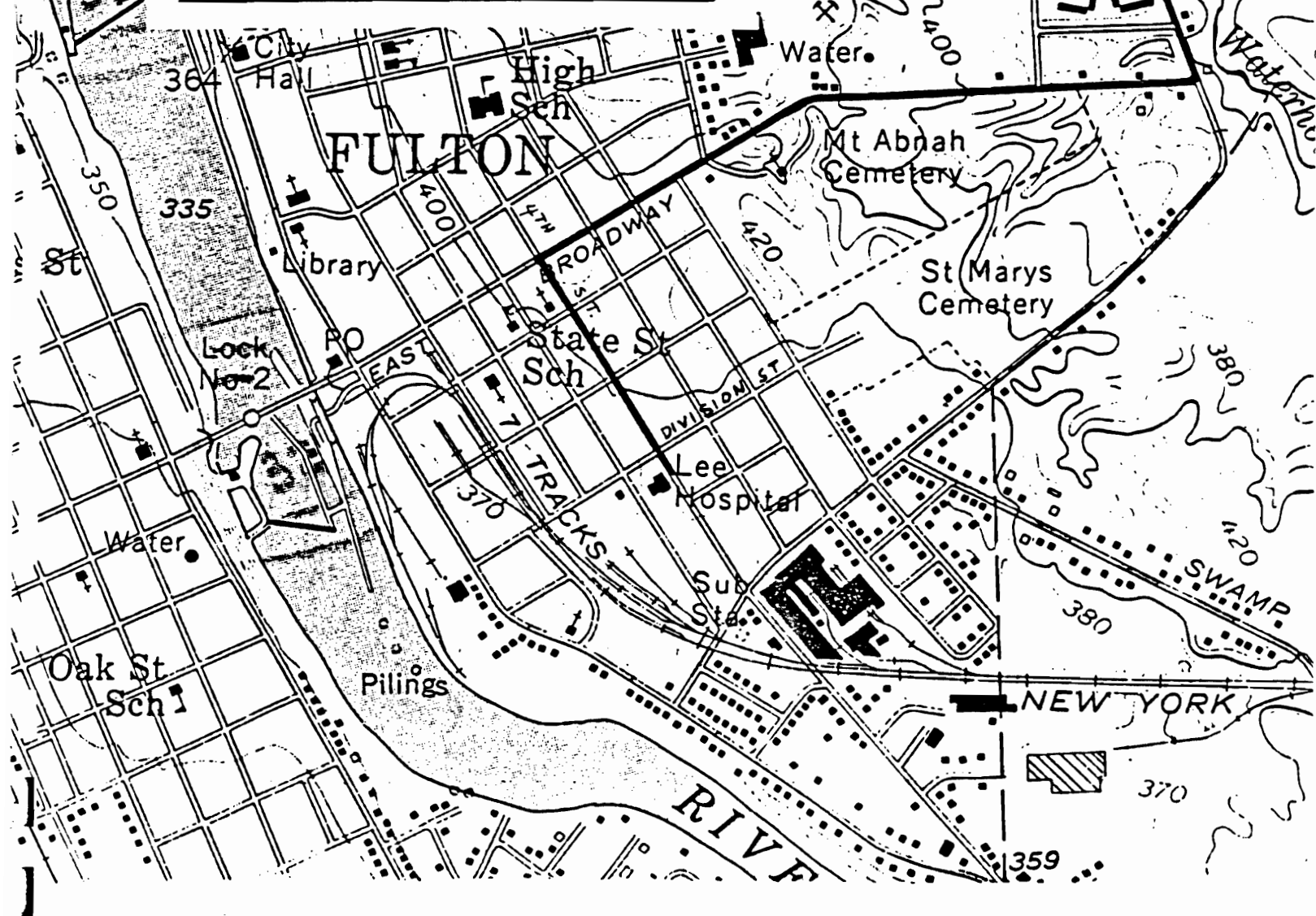
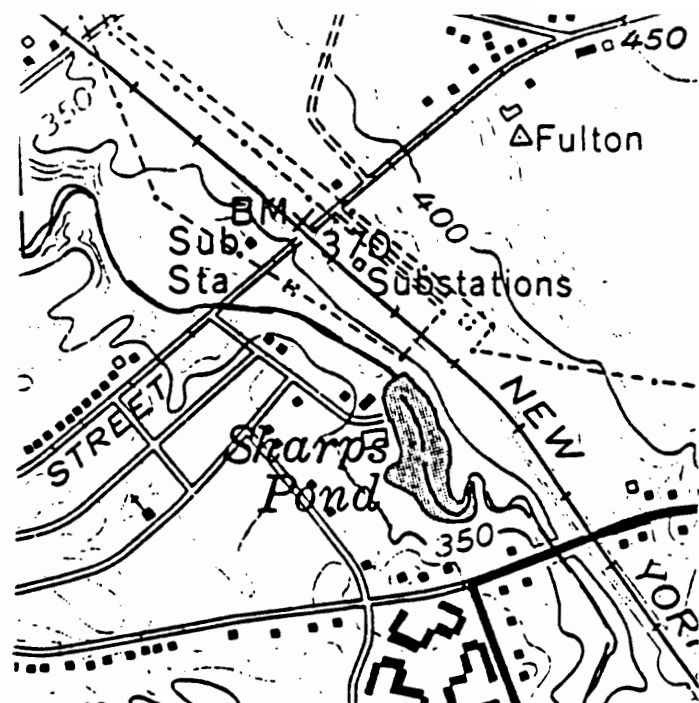
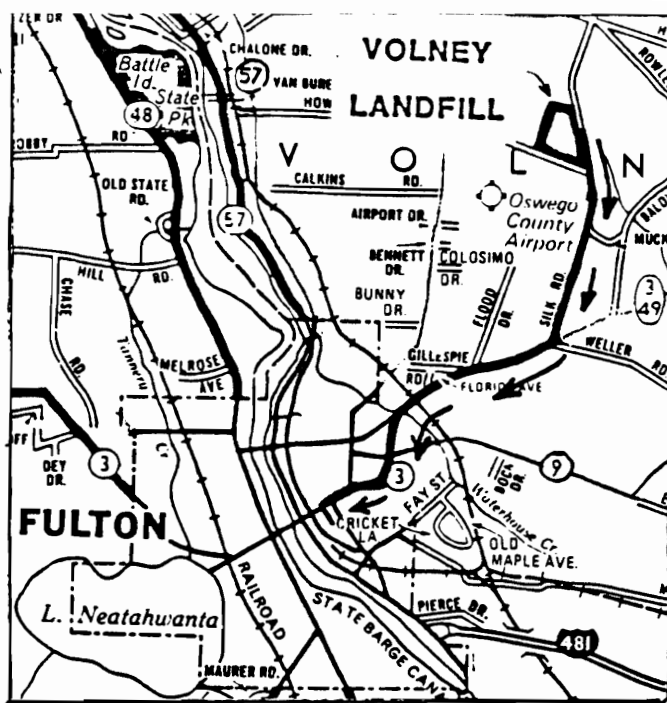


Figure 8-1 Route to Hospital

### 8.3 Other Signals

Emergency hand signals to be used by personnel wearing air-purifying respirators are the following:

1. Hand gripping throat: Can't breathe
2. Grip partners wrist or place both hands around wrist: Leave area immediately, no debate!
3. Hands on top of head: Need assistance
4. Thumbs up: OK, I'm alright, I understand
5. Thumbs down: No, negative

### 8.4 Emergency Communications

A telephone will be installed in the command trailer to provide a quick means for completing emergency communications. The name, telephone number, and location of each pertinent local agency (e.g. police, medical facility, ambulance, fire department, etc.) will be conspicuously posted next to the telephone. This information is also given in Appendix 1 of this document.

### 8.5 Fire

The drill rig operator will be responsible for having a fire extinguisher available at the drill rig. It will further be the operator's responsibility to practice fire prevention measures such as periodically cleaning the rig to keep it free of accumulated oil/grease or other combustible materials. However, in the event of a drill rig fire or any other fire which cannot be controlled with available fire extinguishers, the local fire department will be summoned.

## 9.0 RECORDKEEPING

### 9.1 Personnel Exposure

A site log with a required sign-in, sign-out procedure will document the time spent by each team member on the site. This information will be supplemented by periodic air monitoring using a portable organic vapor detector to measure total nonmethane hydrocarbon levels in the air.

### 9.2 Protective Equipment

A checklist will track all protective equipment brought into the field each day to ensure that decontamination is performed in the field and that any additional preparation, such as sanitizing face masks, is performed prior to reuse. Any equipment malfunction must be noted on the checklist and repaired before reuse. Other routine maintenance checks will be scheduled and recorded on a regular basis to ensure that protective equipment is effective at all times.

### 9.3 Incident Reports

Any chemical release to air, water, or soil must be reported to the Safety Officer. Any personnel exposure resulting from such a release or from protective equipment failures must be reported in writing within 24 hours to the Safety Officer.

## 10.0 SAMPLE HANDLING, TRANSPORTATION AND SHIPMENT

### 10.1 Handling

All samples will be properly labeled and placed in clean containers before being removed from the site. To minimize the hazards to laboratory personnel associated with sample handling, sample volumes sent to the lab will be no larger than necessary and all sample containers will be enclosed in a clean sealed plastic bag prior to shipment.

### 10.2 Transport

All samples collected at the site will be taken to the command trailer for preparation for shipment to appropriate laboratories. No samples, specimens, or other materials will be removed from the site other than those which will be transmitted to the command trailer or sample bank or to designated disposal areas. Samples will be transported to the sample bank only in approved vehicles. All samples will be properly packaged following the sampling protocols to preserve the integrity of the sample and to prevent the inadvertent escape of contaminants. In addition, all samples will be placed in a suitable container before transport in the event of leakage. Provisions for documented chain of custody are discussed in the Work/QA Project Plan.

### 10.3 Shipping

Shipping containers and labeling procedures will follow the protocol established in the QA/QC Manual. Samples will be packed in ice chests filled with vermiculite and "Blue Ice". Department of Transportation regulations for sealing and marking the ice chests will be followed. Samples will be shipped by the Federal Express Corporation or on common carrier trucks.

## 11.0 MEDICAL SURVEILLANCE

All personnel who will be entering the site on this project must undergo a medical evaluation before participating in the study. The purpose of the medical screening program is:

- o Assessment of health status of personnel prior to work, including ability to use respiratory protection.
- o Evaluation and care of personnel in the event of a work-related accident or illness.

This examination will be conducted by a board certified physician in internal or occupational medicine who is familiar with the proposed program and the job descriptions of each individual.

At a minimum the medical screening will consist of:

- o medical and occupational history
- o physical examination with particular attention to the cardiopulmonary systems, general physical fitness, skin, blood forming, hepatic, renal and nervous systems
- o urinalysis that includes
  - specific gravity
  - pH
  - microscopic examination
  - protein
  - acetone
  - glucose
- o blood analyses to include



- complete blood count
  - hemoglobin
  - albumin, globulin, total protein
  - total bilirubin
  - serum glutamic oxalacetic transaminase
  - lactic dehydrogenase
  - alkaline phosphatase
  - calcium
  - phosphorous
  - uric acid
  - creatine
  - urea nitrogen
  - cholesterol
  - glucose
- o pulmonary function test
- o additional tests which may be ordered by the physician based on history and physical examination include:
- chest X-ray
  - electrocardiogram
  - stress test
  - additional tests

Based on this examination, the physician will certify to each contractor that an individual is either healthy and capable of fully participating in the program, or restricted. All medical records will be held by the examining physical in accordance with OSHA regulations on confidentiality. Any person exposed to high levels of hazardous substances (such as a sudden release during drilling operations) will be required to undergo a repeat medical to ascertain the advisability of continued work onsite.

Emergency medical services (i.e., fire and police departments and the local hospital) will be notified of activities at the site (See Appendix I). Their telephone numbers, as well as that of the local poison control center, will be conspicuously posted next to the field telephone. The Safety Officer will map the best routes to emergency medical facilities and the Supervising Geologist on Site Engineer will ensure that at least two drivers receive explicit directions before any site work is initiated (Figure 8-1).

All field personnel will be trained in the recognition of heat stress (eg. heat cramps, heat exhaustion, heat stroke) related to working in warm weather conditions. No person will work alone in the field. Personnel working in protective clothing and respirators will also be monitored every two hours for heat stress.

Water and portable eye wash stations will be strategically located for immediate access by project personnel. In the event of any skin or eye contact, the affected individual will be immediately rinsed and brought to a physician.

## 12.0 TRAINING

Prior to any site activities, the team members will participate in a training session developed by the Safety Officer. A second training session will also be conducted onsite prior to the start of drilling operations. At a minimum, the training will cover:

- o first aid: recognition of conditions requiring emergency or medical care and simple steps to take until help arrives
- o rescue operations and nearby emergency facilities
- o decontamination procedures
- o special hazards
- o personnel protective equipment use, maintenance, fit testing
- o monitoring for the release of hazardous substances during drilling or drum sampling operations.

### 13.0 SELECTION OF PROTECTIVE CLOTHING

Based on the known facts relative to the site (see Section 3.0 - Hazard Evaluation), the protective clothing which will be worn is presented in Table 13-1. As indicated, various levels of protection have been identified as related to specific field activities. The rationale for this approach is two-fold. First, it is desired to provide adequate protection to those personnel who potentially might be exposed to hazardous substances (e.g. drill-rig or sampling personnel subject to a sudden release). Second, it is desired to minimize the potential for heat stress to personnel conducting field work which entails no apparent risk of exposure (e.g. control survey, surface geophysical studies, etc.). In the latter case, protective clothing will be made to these personnel for use at their discretion. In addition, organic gas/vapor emissions will be monitored during all drilling operations and the level of protection upgraded for all involved personnel when dictated by the monitoring results.

TABLE 13-1

PROTECTIVE CLOTHING REQUIREMENTS APPLICABLE TO EACH FIELD ACTIVITY

Protective Clothing	Field Activity									
	Control Survey		Surface Geophysical Studies		Drilling		Environmental Sampling		Environmental Sampling	
	Onsite	Offsite	Onsite	Offsite	Onsite**	Offsite	Onsite	Offsite	Onsite	Offsite
Inner Gloves	PVC-disposable*	N/A	PVC-disposable*	N/A	PVC disposable** gloves	N/A	PVC disposable	PVC disposable	PVC disposable	PVC disposable
Outer Gloves	Neoprene* Reusable	N/A	Neoprene* Reusable	N/A	Neoprene** Reusable	N/A	Neoprene Reusable	Neoprene Reusable	Neoprene Reusable	Neoprene Reusable
Outer Wear	Tyvek* Long Sleeve Shirt Long Pants	Long Sleeve Shirt Long Pants	Tyvek* Long Sleeve Shirt Long Pants	Long Sleeve Shirt Long Pants	Tyvek**	Long Sleeve Shirt Long Pants	Tyvek	Tyvek	Tyvek*	Tyvek*
Work Boots	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety	Steel-toe Safety
Outer Boots	Neoprene or Butyl Reusable	N/A	Neoprene or Butyl Reusable	N/A	Neoprene or Butyl Reusable	N/A	Neoprene or Butyl Reusable	Neoprene or Butyl Reusable	Neoprene or Butyl Reusable	Neoprene or Butyl Reusable
Hardhats	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A	N/A
Eye Protection	Safety Glasses	N/A	Safety Glasses	N/A	Full-face**	Safety** Respirator	Full-face Goggles	Full-face Respirator	Safety Respirator	Safety Respirator
Ear Protection	N/A	N/A	N/A	N/A	Yes	Yes	N/A	N/A	N/A	N/A
Respiratory Protection	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A

1 Drilling at the proposed holes through the sanitary landfill will be conducted at Level C respiratory protection - full-face respiratory with organic vapor cartridges/  
 \* Optional at the discretion of the individual  
 \*\* Protective clothing requirements applicable to drill-rig personnel working near borehole. These requirements are optional for the drill rig operator and geologist.

#### 14.0 SELECTION OF RESPIRATORY EQUIPMENT

As indicated by the hazard evaluation, the greatest potential for exposure to hazardous gases/vapors will be during drilling operations. Therefore, during all such onsite activities, field personnel working in close proximity to the borehole or collecting samples will be required to wear full-faced air purifying respirators. Only approved respirators will be used. In addition, an organic vapor detector will be used to monitor gases/vapors released from the borehole to detect conditions which require personnel to leave the area and upgrade the level of protection. It is not expected the level B protection will be necessary on or off the site. Offsite activities will be done initially at level D which will be upgraded to level C if vapor monitoring indicates the need to do so.

Cartridges which will be used will be those specified and approved for removal of organic vapors. All personnel requiring respirators will be fit tested. In addition, all other personnel working at the site but not involved in drilling or sampling activities (survey crew, geophysical crew) will also be provided with respirators. The use of respirators by these personnel will be required in designated level C areas near the piles of waste drums and optional in other areas. However, these personnel will be instructed to wear their respirators anytime they enter an area having a distinct odor.

## 15.0 GENERAL SAFETY RULES/FACILITIES

### 15.1 Personal Precautions

- a. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increase the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated contaminated.
- b. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities.
- c. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
- d. No facial hair, which interferes with a satisfactory fit of the mask-to-face-seal, is allowed on personnel required to wear respiratory protective equipment.
- e. Contact with contaminated or suspected contaminate surfaces should be avoided. Whenever possible, don't walk through puddles, mud, and other discolored surfaces; kneel on ground; lean, sit, or place equipment on drums, containers, vehicles, or the ground.
- f. Medicine and alcohol can enhance the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel on field operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake should be minimized prior to and abstained from during operations.

## 15.2 Operations

- a. No personnel are allowed onsite without the acknowledgement and consent of the Person-In-Charge (e.g. Supervising Geologist or Site Engineer).
- b. Personnel onsite must use the "buddy" system when wearing respiratory protective equipment. As a minimum, a third person, suitably equipped as a safety backup, is required during initial entries.
- c. During continual operations, onsite workers act as safety backup to each other. Offsite personnel provide emergency assistance.
- d. Wind indicators visible to all personnel will be strategically located through the site.
- e. Drilling rigs will be kept clean and free of accumulated greases, oils and other combustible materials.
- f. No containers of fuels or other flammables will be kept within 100 feet of any drilling rig or borehole.
- g. Briefings will be held every morning prior to work activities to review the hazards present at the site, any changes in the level of personal protection required, special safety requirements for assigned work activities, and emergency responses.



## APPENDICES

APPENDIX 1

EMERGENCY RESPONSE AGENCIES

APPENDIX 1

EMERGENCY RESPONSE AGENCIES

	<u>Tel. No.</u>	<u>Address</u>
Fulton Fire Department	315/592-9575	
Fulton Police Department	315/343-1212	City Hall
Medical Facilities		
Lee Memorial Hospital	315/592-2224	510 S. 4th St.
Emergency No.	315/598-2222	
Ambulance Service	315/592-4145	13 Nestle Ave. Fulton
Environmental		
NYSDEC		
Health Dept.	315/349-3265	
State Police	315/593-1223	
Emergency Response		
HazMat Response Task Force (County Fire Control)	315/343-8571	
Utilities		
Water Svc. Dept.	315/343-2300	Fort Ontario
Electric - Niagara Mohawk	315/343-0162	Lake Road
Gas - Niagara Mohawk	315/343-2110	Lake Road

APPENDIX 2

DECONTAMINATION PROCEDURES

## APPENDIX 2

### DECONTAMINATION PROCEDURES

#### A. EQUIPMENT WORN.

The full decontamination procedure outlined is for workers wearing Level C protection (with taped joints between gloves, boots, and suit) consisting of:

- One-piece Tyvek suit.
- Twin Cartridge, full-face air purifying respirator.
- Hard hat.
- Chemical-resistant, steel toe and shank boots.
- Boot covers.
- Inner and outer gloves.

#### B. PROCEDURE FOR FULL DECONTAMINATION

##### Station 1: Segregated Equipment Drop

Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination.

Equipment: various size containers  
plastic liners  
plastic drop cloths

##### Station 2: Boot Cover and Glove Wash

Scrub outer boot covers and gloves with detergent/water.

Equipment: container (20-30 gallons)  
detergent water  
2-3 long-handle, soft-bristle scrub brushes

##### Station 3: Boot Cover and Glove Rinse

Rinse off detergent solution from Station 2 using copious amounts of water. Repeat as many times as necessary.

Equipment: container (30-50 gallons)  
or  
high-pressure spray unit

water  
2-3 long-handle, soft bristle scrub brushes

Station 4: Tap Removal/Boot Cover Removal/Outer Glove Removal

Remove tape around boots and gloves and deposit in container with plastic liner. Remove boot covers and deposit in container with plastic liner. Remove outer gloves and deposit in container with plastic liner.

Equipment: container (30-50 gallons)  
plastic liners  
bench or stool

Station 5: Canister or Mask Change

If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boots covers donned, and joints taped. Worker returns to duty.

Equipment: canister (or mask)  
tape  
boot covers  
gloves

Station 6: Splash Suit Removal

With assistance of helper, remove splash suit. Deposit in container with plastic liner.

Equipment: container (30-50 gallons)  
bench or stool  
liner

Station 7: Inner Glove Wash

Wash inner gloves with detergent/water that will not harm skin. Repeat as many times as necessary.

Equipment: detergent/water  
basin or bucket

Station 8: Inner Glove Rinse

Rinse inner gloves with water. Repeat as many times as necessary.

Equipment: water  
basin or bucket  
small table

Station 9: Facepiece Removal

Remove facepiece. Avoid touching face with gloves. Deposit facepiece in container with plastic liner.

Equipment: container (30-50 gallons)  
plastic liners

Station 10: Inner Glove Removal

Remove inner gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)  
plastic liners

APPENDIX 3

ATMOSPHERIC HAZARD GUIDELINES



## APPENDIX 3

### ATMOSPHERIC HAZARD GUIDELINES

Monitoring Equipment	Hazard	Ambient Level	Action
Combustible gas indicator	Explosive atmosphere	< 10% LEL	Continue investigation with cautions.
		10%-25%	Continue on-site monitoring with extreme caution as higher levels are encountered.
		> 25% LEL	Explosion hazard; withdraw from area immediately.
Oxygen concentration meter	Oxygen	< 19.5%	Monitor wearing SCBA. NOTE: Combustible gas readings are not valid in atmospheres with < 19.5% oxygen.
		19.5%-25%	Continue investigation with caution. SCBA not needed, based on oxygen content only.
		> 25.0%	Discontinue inspection; fire hazard potential. Consult specialist.
Radiation survey meter	Ionizing Radiation	< 1 mR/hr	Continue investigation. If radiation is detected above background levels, this signifies the presence of possible radiation sources; at this level, more thorough monitoring is advisable. Consult with a health physicist.
		> 10 mR/hr	Potential radiation hazard; evacuate site. Continue monitoring only upon the advice of a health physicist.
Colorimetric tubes	Organic and inorganic vapors/gases	Depends on chemical	Consult standard reference manual for air concentrations/toxicity data.
Photoionization detector (PID)	Organic vapors/gases	1) Depends on species	Consult standard reference manuals for air concentrations/toxicity data.
		2) Total response mode	Consult EPA Standard Operating Safety Guides.
Flame ionization detector (FID)	Organic vapors/gases	1) Depends on chemical	Consult standard reference manuals for air concentrations/toxicity data.
		2) Total response mode	Consult EPA Standard Operating Safety Guides.