



Hazardous Waste Site Worker
Refresher - Performance Measures
Facilitator Guide

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Midwest Consortium for Hazardous Waste Worker Training

Acknowledgments

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We encourage you to comment on these materials. Please give your suggestions to those teaching the program in which you are now enrolled, or forward them to the Midwest Consortium for Hazardous Waste Worker Training, University of Cincinnati, P.O. Box 670056, Cincinnati, Ohio 45267-0056 or click on 'contact us' at <http://med.uc.edu/eh/academics/training/mwc>.

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Disclaimer

The Occupational Safety and Health Administration (OSHA) rule to help assure worker health and safety at hazardous waste sites requires annual refresher training for those working on hazardous waste sites. Refresher training requirements are specified in 29 CFR 1910.120(e)(8). This program is intended to meet the requirements for annual refresher training.

Additional training is necessary to perform many activities. These activities include implementing the emergency response plan, identifying materials using monitoring instruments, selecting protective equipment, and performing advanced control, containment or confinement. Additional site-specific training for emergency response must be provided so that you understand how to recognize and respond to alarms at the site and can carry out any role which may be assigned during a response.

For information about this matter, consult the training instructor and/or your company safety and health plan or your company health and safety representative.

Table of Contents

Preparation	1
Closing and Evaluation	9
Appendix A – Site Simulation – Health & Safety Plan	11
Appendix B – Lesson Plan Forms	16
Appendix C – Performance Skill Checklists & Hazardous Materials Fact Sheets	19
Appendix D – Training Only: Site Work Health and Safety Plans	28
GBX Oil	Hazards: organic solvents, sludge
Brunswick Maint.	Hazards: metals, asbestos, resins, sludge
Wadda Messa	Hazards: pesticides, explosives
XYZ	Hazards: lacquers, acids, resins, TDI, solvents
XYZ Bldg 2	Hazards: lacquers, sludge, HDI
Longgone Landfill	Hazards: Acid, aromatic solvents, PCB-contaminated oil, arsenic

Introduction

This program follows the 40-Hour Site Worker program. The goals of the program are to:

- Review basic skills and knowledge about hazardous waste site work
- Engage in learning and problem-solving activities that will help to improve safety and health conditions on a site
- Implement safe work practices
- Demonstrate use of personal protective equipment for site work
- Implement procedures in a safety and health plan to control hazards
- Meet training requirements in Section (e) (8) of the Hazardous Waste Operations and Emergency Response Standard, 19 CFR 1910.120

Exercises are used throughout the program to encourage trainees to think about the potential hazards on sites and develop and implement exposure control strategies.

Delivery of this program requires that the facilitator present a site work situation with waste and remediation chemical hazards and resources for the activities, including a Mock Safety and Health Plan.

If the remediation activity is conducted in an arena, a Site Safety Plan is required and anyone in Levels A or B must have medical clearance for training.

Performance measures are used throughout to document skills.

The following guidance is provided to instructors preparing to present the program.

Sample Agendas

There are two important exercises that can be incorporated into this refresher: HCS 2012 and 8HR Risk Management (see <http://med.uc.edu/eh/academics/training/mwc/exercise-resources>). Three sample agendas, tailored to various versions of this refresher, are presented on the following pages.

Agenda 1 - Basic

Introduction

Your experience is important to training

Activity—Thinking About Past Years in Waste Site Work (Looking Back and Forward from the Modular Refresher here:

<http://med.uc.edu/eh/academics/training/mwc/exercise-resources>)

Getting Ready—Hazard assessment and control

Activity—Site Characteristics

Activity—Hazard Assessment

Activity—Setting Work Zones

Activity—Selecting PPE and Air Monitoring

Plan a Work Activity

Activity--Work Briefing

Activity—Double check PPE and Air Monitoring Selection

Get to Work Simulation

Activity—Entry Briefing

Activity--Donning/Doffing PPE

Activity—A work activity

Activity—Decontamination

Critique and Follow-up

Activity—Debrief and Critique

Closing

Agenda 2 - HCS 2012 is included in the training

Introduction

Your experience is important to training

Activity—Thinking About Past Years in Waste Site Work (Looking forward and Back from the Modular Refresher here:

<http://med.uc.edu/eh/academics/training/mwc/exercise-resources>)

Getting Ready—Hazard assessment and control

Activity—Site Characteristics

Activity—HCS2012 (insert HCS2012 exercise)

Activity—Hazard Assessment

Activity—Setting Work Zones

Activity—Selecting PPE and Air Monitoring

Plan a Work Activity

Activity--Work Briefing

Activity—Double check PPE and Air Monitoring Selection (omit, but cover verbally)

Get to Work Simulation

Activity—Entry Briefing

Activity--Donning/Doffing PPE

Activity—A work activity

Activity—Decontamination

Critique and Follow-up (cover the idea, but complete only as time allows)

Activity—Debrief and Critique

Closing

Agenda 3 - HCS 2012 not needed and group is candidate to develop Risk Reduction Plan

Introduction

Your experience is important to training

Replaced by exercise at end of program (see below)

Getting Ready—Hazard assessment and control

Activity—Site Characteristics

Activity—Hazard Assessment

Activity—Setting Work Zones

Activity—Selecting PPE and Air Monitoring

Plan a Work Activity

Activity--Work Briefing

Activity—Double check PPE and Air Monitoring Selection (omit, but cover verbally)

Get to Work Simulation

Activity—Entry Briefing

Activity--Donning/Doffing PPE

Activity—A work activity

Activity—Decontamination

Critique and Follow-up

Activity—Debrief and Critique

Activity—Developing a Plan to reduce risk (complete the 8HR Risk Management Exercise here: <http://med.uc.edu/eh/academics/training/mwc/exercise-resources>.

Activity 1 in the Risk Management Exercise addresses past activities, followed by identifying a hazard to remediate and developing a plan.)

Closing

Resources

The following are resources to be used in program development, and delivery as appropriate for the agenda used:

- Participant Guide
- Facilitator Guide from the 40-hour site worker program
- Hard copy or databases to find information (e.g., NIOSH Pocket Guide, SDS)
- HCS2012 Exercise
- OSHA Quick Cards
- 8HR Risk Management Exercise

Instructor Preparation

- Review site safety plan for training facility (Appendix A is Plan from 40H)
- Review relevant sections of the 40-Hour Site Worker Program Facilitator Guide
- Prepare lesson plan for material/sections to be presented
 - Relevant sections of a site health and safety plan
 - Obtain from an employer
 - Include site map
 - Prepare mock version (see below for factors to consider)
 - Include site map
 - Use a mock site from a previous scenario-based refresher (See Appendix D)

Factor	Initial Condition	Any change expected?	Describe change
Weather conditions			
Topography			
Surrounding vegetation, waterways, highways, drains			
Site buildings and layout (map is best)			
Time of day			
Overall description of work in progress			
Safety hazards present or anticipated			
Hazardous material(s) on site			
Hazardous remediation materials			
Emergency Alerting signals			
Emergency Response Plan			
Incompatibles nearby			
PPE needed			

CPC			
RPE			
Work Practices to be used (need SOG for each)			
Create site map			
Air concentrations reported			

- Develop lesson plan using:
 - reconnaissance from the employer(s)
 - evaluation report from last presentation to this group (contract program only)
 - select work activity(s)
 - assemble required SOPs/SOGs (minimum: Hazard Assessment, PPE, Monitoring, Work Task(s), Decon, Debriefing/Critique)

Standard lesson plan forms are shown in Appendix B

- Assemble resources—SDS, NIOSH Pocket Guide, glove charts, Levels of Protection graphics, etc.
- Copy Performance Checklists and the Hazardous Materials Fact Sheets for participant use (these will be retained as part of the program file). See Appendix C for set of materials.
 - NOTE: Successful Completion for this program is defined as:
 - Attendance
 - 100% on all Performance Skills Checklists
 - Simulation Performance Skills Checklists
 - >=70% on Hazardous Material Fact Sheets (individual assessment of each participant)

All must be documented in the Program File

- Complete 'correct' Hazardous Materials Fact Sheets based on the scenario for the participants to use in the activities
- Copy any supporting exercises needed (Looking Back and Forward, HCS, Risk Management) depending on agenda
- Print or be prepared to display the final agenda, as part of program introduction
- File agenda and lesson plan including site description, medical clearance for training needs, training site safety plan per Training Center procedures
- This becomes the Facilitator Guide documentation for the program
- Assure there is time for the following, in order to determine successful completion:
 - Review attendance documentation
 - Grade individual Hazard Materials Fact Sheet exercise answer sheets (if anyone scores <69%, implement remediation policy)
 - Collect Activities Performance Skills Checklists to be included in program file
 - Collect Simulation Performance Skills Checklists to be included in the program file

Training center personnel will assure that all registration and evaluation materials are available for use in the program, and processed appropriately. Note: if the Risk Management exercise is used, the standard evaluation forms go to ESC and the Plan and supporting materials go to Tim Hilbert as shown in the Facilitator Guide for that exercise.

Run the activities, as shown in the Participant Guide for the site characteristics, hazards and work activity(s) selected. Use Summary section of each section to review importance and facilitate discussion.

CLOSING AND PROGRAM EVALUATION

This concludes the program.

Time Requirement: .25 hour
Number of Instructors: 1

Materials

The following materials will be needed:

- Chalkboard, marker board or easel with paper
- Markers or chalk
- Evaluation forms

Objectives

- Review activities conducted as part of the site work scenario
- Answer questions
- Review need for annual refresher
- Thank participants

Teaching Methods

Discussion

Suggested Instructor Preparation

- Review agenda and chemicals included in the scenario
- Assess 'successful completion' for each participant

Minimum Content Requirements

The following are minimum content requirements for the section:

- Answer questions
- Participants complete and hand in evaluation forms
- Thank participants

Questions You May Be Asked

“What happens if I do not take a refresher?” If needed for a job, you will not be up-to-date and may be required to take this program again. Some employers ‘stretch’ the requirement to 18 months, if the refresher is taken ASAP, but it is a gamble.

Presentation of the Session

Thank participants for attending the program.

This is an opportunity for final questions and to assure that the list of questions generated on day has been addressed during the program.

Evaluation is important to continued program improvement. This should not be rushed. Provide 15 minutes to complete the program evaluation forms and collect them.

Appendix A

NOTE: Modify the resource below from the 40H program for the site description and task(s) to be included in the Refresher program.

Site Simulation—Health and Safety Plan

Trainer Qualifications for Site Simulation

1 lead instructor and 3 or more helpers are needed at a minimum for the mechanics of conducting the simulation. See the NIEHS Minimum Criteria for most recent guidance for specific tasks included in the simulation (download from key documents at <http://tools.niehs.nih.gov/wetp/>).

All personnel are medically certified for use of respiratory protection and unrestricted physical activity. At least one instructor is certified in First Aid and CPR (if EMS is on site, this requirement can be waived). Specialized training in heat stress related illnesses is recommended. See the OSHA heat stress guidance at <https://www.osha.gov/SLTC/heatillness/index.html>.

The lead trainer must have successfully completed formal, documented training or otherwise possess the skills, ability and knowledge gained through actual experience to recognize the use of and to anticipate the problems in the use of Levels A, B and C PPE.

Personal work experience in the use of Levels A, B and C protection is recommended. The lead trainer should have prior experience in training personnel in the use and decontamination of Levels A, B and C PPE. All trainers must have a working knowledge of the Emergency Response Plan.

Emergency Response Plan for the Conduct of the 40H Site Simulation

Introduction

The Site Simulation Exercise is a complex multi-part exercise that integrates much of the training of the 40-hour Site Worker Program into a hands-on simulation during which participants don and perform tasks in Levels A, B and C PPE.

As with any hands-on simulation or exercise there are numerous potential safety hazards (e.g., crushed by a falling drum). In order to assure that instructors and participants are aware of these potential hazards and how to react, the minimum safety requirements shown below must be implemented during every Site Simulation Exercise.

Safety Briefing

Before the Site Simulation Exercise is started, all program attendees will receive a safety briefing that covers the contents of this plan. (You may want to have participants sign an acknowledgement of participation in the briefing.) If in-suit radios are not used, a clear set of hand signals must be established, verified and used during the Exercise.

Emergency Communications

- Emergency communication equipment (telephone or 2-way radio) will be present on the site.
- Communication equipment will be verified to be working before the Exercise begins.
- Emergency telephone numbers and directions to the site will be posted at each telephone on site.
- Maps to the nearest treatment center should be posted in the event it is elected to transport a non-emergency case for treatment.

Emergency Medical treatment

- At least one instructor present on the site shall have completed at least the equivalent of the Red Cross Basic CPR course (8 hours).
- At least one instructor present shall have current certification in the Red Cross Basic CPR Course or its equivalent (8 hours).
- A standard First Aid Kit shall be available for use during the Site Simulation Exercise.

- Use of a standby EMS crew is preferable (if available) instead of the above.

Site Access

- There shall be at least two entrance/exit points to the simulation site.
- If the Site Simulation Exercise is conducted in a public area, a sign shall be posted identifying it as a training simulation.

Physical Hazards

- Heavy lifting and physical exertion will be required. Extra caution is required because of the additional stresses from PPE wear. Use of proper lifting technique is essential.
- The bulky, heavy PPE increases potential for falling because it restricts range of motion and changes the center of gravity. The extra weight also increases the risk of injury from a fall. These problems will be magnified if the simulation site is not on level ground. A non-suited safety person must stay close to each suited person.
- Handling and moving drums is always hazardous but even more so in PPE. All instructors and course attendees on site are required to wear safety shoes. Extra care and attention is required to protect the hand from pinching or crushing injuries.

Heat Stress

- Heat stress due to wearing heavy equipment and chemical protective suits must be a major concern in summer months and cannot be ignored even in cold weather.
- All attendees should be familiar with heat stress from classroom presentations and be able to recognize it.
- Adequate drinking water and electrolyte replacements (e.g., Gatorade) must always be available. At high heat stress levels up to two liters of liquid per hour may be required by each person to maintain body fluid levels.
- Air temperature and humidity should be monitored before suits are donned. This information is available from the National Weather Service or the local airport weather station.

- The lead instructor on site must monitor heat stress condition and adjust work/rest times and breaks to insure everyone drinks enough fluid.
- All instructors and attendees must insure they drink adequate liquids to avoid becoming a heat casualty.
- Shading in the break area is recommended.
- Cool weather may present opposite problems, as the suit is removed a person could shill from cold air hitting the body.

Wearing level A and B

- Wearing Level A and B protection presents additional hazards which need attention:
 - Weight—the additional weight increases stress and affects mobility and balance
 - Claustrophobia—some people cannot be enclosed in a suit. They must be calmed and removed from the suit.
 - Hyperventilation—the stress of the suit or respirator causes some people to hyperventilate. They must be calmed and removed from the suit to restore normal breathing.
 - Breathing Rate—under stress the breathing rate increases and the SCBA tanks will empty faster than the rated time. This means less work can be accomplished.
 - Low Pressure Alarm—people wearing SCBAs should be reminded that the low pressure alarm does not mean the air is gone, but there is 3 to 5 minutes remaining. This additional reminder may help to prevent panic when someone's alarm sounds.
- While wearing level A or B, each person shall have a 'buddy' within an arms length who is not suited and can react provide assistance in any emergency
- All SCBA face masks will be cleaned/disinfected between users
- All Level A training suits should be sprayed with a disinfectant and towel (paper) dried between users

Responsibilities

Instructors

- Insure that all issues listed in this plan have been discussed in class prior to the Site Simulation Exercise.
- Insure all participants are aware of the hazards, how to recognize and react to them.
- Have at least three instructors present at all times during the Exercise (four preferable). One shall be designated as lead and have overall responsibility for the exercise.

Attendees

- Be aware of hazards from classroom and hands-on training
- Be aware of all aspects of the site safety briefing
- Watch yourself and your fellow participants to try to avoid hazards.

Weather

In the event of adverse or inclement weather, the lead instructor must determine if the Exercise can be conducted without endangering participants substantially beyond the inherent risks of the Exercise under the best conditions. Weather conditions to be considered include but are not limited to excessive heat or cold, rain, snow, limited visibility, high winds.

Plans should exist for use of an alternate sheltered site to avoid disruption due to weather.

Emergency Stop

An emergency stop signal (e.g., hand position, air horns) that is separate and distinct from any signal used as a training stimulus will be used to terminate the exercise in case of an emergency.

All personnel on site must know the emergency stop signal.

Appendix B

Lesson Plan Form 1

Teaching Methods for This Lesson Plan	Audiovisual Requirements
<ul style="list-style-type: none"> <input type="checkbox"/> Lecture <input type="checkbox"/> Discussion <input type="checkbox"/> Question and answer <input type="checkbox"/> Hands-on simulation <input type="checkbox"/> Team teaching <input type="checkbox"/> Small-group exercises <input type="checkbox"/> Case study <input type="checkbox"/> Other (describe): 	<ul style="list-style-type: none"> <input type="checkbox"/> Training handbook <input type="checkbox"/> Supplemental handbook material <input type="checkbox"/> CD ROM <input type="checkbox"/> Web Sites: <input type="checkbox"/> Easels and paper, chalkboards or marker boards <input type="checkbox"/> Hands-on simulation <input type="checkbox"/> Other (describe):
Reference Materials	Special Space or Facility Requirements
	<p>(List any room size or special facility regulations here, such as set-up areas, equipment storage concerns, etc.)</p>

Suggested Discussion Questions	Suggested Instructor Preparation

Lesson Plan Form 2

Subject Area or Element	Detail	Reference Number or Citation
Major subject heading or Roman numeral item from outline format.	Detailed breakdown of subject area or element. This area will necessarily occupy more space than the column to the left.	e.g., page number in training notebook, section number of regulation, or audiovisual material.

Appendix C

Performance Skill Checklists and Hazardous Materials Fact Sheets

Performance Skills Checklists

Activity 2: Site Characteristics

Activity 4: Setting Work Zones and Communication

Activity 5: Selecting PPE and Air Monitoring Equipment

Activity 6: Work Briefing

Activity 8: Entry Briefing

Activity 9: Donning/Doffing PPE

Activity 10: A Work Activity

Activity 11: Decontamination

Hazardous Materials Fact Sheets

Waste

Remediation/support Chemical

Performance Skills Checklists

Trainee ID _____

Performance Skills Checklist - Activity 2: Site Characteristics

Can you describe the following?

- a. Topography..... Yes No
- b. Hazardous materials present on the site and potential hazards Yes No
- c. Potential hazards Yes No

Performance Skills Checklist – Activity 4: Setting Work Zones and Communication

- 1. Did you determine the following zones?
 - a. Hot Yes No
 - b. Warm Yes No
 - c. Cold Yes No
- 2. Did you establish a staging area? Yes No
- 3. Did you notify everyone of the site alerting signals?..... Yes No
- 4. List any gaps in the information provided:

Performance Skills Checklist – Activity 5: Selecting PPE and Air Monitoring Equipment

My/our work assignment _____

Hazard(s) _____

1. What level of protection did you select for a needed role?

Level A for _____ (insert role)

Level B for _____ (insert role)

Level C for _____ (insert role)

Level D for _____ (insert role)

2. What CPC did you select?

a. Suit (type/material) _____

b. Respirator/cartridge _____

c. Glove material

▪ Inner _____

▪ Middle _____ (if applicable)

▪ Outer _____

d. Boots _____

3. What type of monitoring device did you select?

a. pH Yes No

b. 4/5-Gas Yes No

c. Detector tube Yes No

d. Other Yes No

Specify: _____

e. None, because: _____

Performance Skills Checklist – Activity 6: Work Briefing

- 1. Were these tasks in the overall work plan?
 - a. Site entry..... Yes No
 - b. Material handling Yes No
 - c. Decon Yes No

- 2. Were site characterization method and results reviewed? Yes No

- 3. Were the following resources evaluated?
 - a. Personnel..... Yes No
 - b. Equipment/supplies..... Yes No
 - c. Information..... Yes No

- 4. Were these jobs assigned during this work?
 - a. Project Manager Yes No
 - b. Safety and Health Officer Yes No
 - c. Decontamination..... Yes No
 - d. Work Team I Yes No
 - e. Back-up Work Team II Yes No

- 5. Were the following used to minimize hazards?
 - a. Training..... Yes No
 - b. Barriers Yes No
 - c. PPE..... Yes No
 - d. Work practices Yes No

Performance Skills Checklist – Activity 8: Entry Briefing

1. Were you part of briefing that covered the following?
 - a. Site details Yes No
 - b. Hazards Yes No
 - c. Tasks Yes No
 - d. Communications Yes No
 - e. Emergency signals Yes No
2. Did you complete the following before initiating tasks?
 - a. Review the SOG Yes No
 - b. Buddy system Yes No
 - c. Verify decontamination line is ready Yes No
3. Was there an opportunity to ask questions about all procedures? Yes No

Performance Skills Checklist – Activity 9: Donning/Doffing PPE

1. Did you inspect the PPE before donning it? Yes No N/A
2. Did your buddy make pull tabs when taping boots, pants, gloves, and sleeves? Yes No N/A
3. Did you perform a positive- and/or negative-pressure check of your respirator face piece? Yes No N/A
4. Did your buddy review the communications system you would use? Yes No N/A
5. Did you don the PPE ensemble completely using a SOG? Yes No N/A
6. Did you receive a pre-entry briefing? Yes No N/A
7. Did you perform an assigned task? Yes No N/A
8. Did you touch the outside of your suit while it was being removed? Yes No N/A

9. Did you properly remove your inner gloves? Yes No N/A

Performance Skills Checklist – Activity 10: A Work Activity

1. Did you select the proper PPE? Yes No N/A
2. Was hazard evaluation information provided? Yes No
3. Indicate the methods used to limit the exposure.
- a. Work practice Yes No
 - b. Distance Yes No
 - c. PPE Yes No
 - d. Buddy system Yes No
4. Did you work in a manner to minimize contamination in the work area? Yes No
5. Did you use an air monitoring device to detect or measure exposure? Yes No

Performance Skills Checklist – Activity 11: Decontamination

1. Was all necessary decontamination equipment available?..... Yes No
2. Was the decontamination line appropriate for the contaminant? Yes No
3. Was one person in charge of the decontamination line at all times? Yes No
4. As a member of a team, did you assemble a decontamination line? Yes No
5. Did personnel going through decontamination always move toward cleaner areas? Yes No
6. Were decontamination workers wearing appropriate levels of protection? Yes No

7. Were personnel decontaminated according to the steps listed in the SOG? Yes No
8. Did the decontamination team decontaminate themselves before leaving the area? Yes No
9. Were contaminated materials disposed of properly? Yes No

Hazardous Materials Fact Sheet – Waste Chemical

Chemical Name _____

Physical Form _____

PEL/STEL/IDLH _____

Flash point/LEL/UEL _____

pH (if applicable) _____

Solubility in water _____

Specific Gravity _____

Relative Gas Density/Vapor Density _____

Vapor Pressure _____

Major Routes of Exposure _____

Target Organs _____

Acute Effects _____

Chronic Effects _____

Incompatible Materials _____

Hazard Statements _____

Precautionary Statements _____

Signal Word _____

Hazardous Materials Fact Sheet – Remediation/support Chemical

Chemical Name _____

Physical Form _____

PEL/STEL/IDLH _____

Flash point/LEL/UEL _____

pH (if applicable) _____

Solubility in water _____

Specific Gravity _____

Relative Gas Density/Vapor Density _____

Vapor Pressure _____

Major Routes of Exposure _____

Target Organs _____

Acute Effects _____

Chronic Effects _____

Incompatible Materials _____

Hazard Statements _____

Precautionary Statements _____

Signal Word _____

Appendix D

Training Only: Site Work Health and Safety Plans

GBX Oil	Hazards: organic solvents, sludge NOTE: pages 84, 85, 87, 90 purposively omitted
Brunswick Maint.	Hazards: metals, asbestos, resins, sludge NOTE: pages 81, 87, 88, 92, 93 purposively omitted
Wadda Messa	Hazards: pesticides, explosives NOTE: pages 85, 86, 88 purposively omitted
XYZ	Hazards: lacquers, acids, resins, TDI, solvents NOTE: pages 85, 86, 88 purposively omitted
XYZ Bldg 2	Hazards: lacquers, sludge, HDI NOTE: pages 81, 87, 88, 90, 91, 94 purposively omitted
Longgone Landfill	Hazards: Acid, aromatic solvents, PCB-contaminated oil, arsenic NOTE: pages 83, 84, 86, 90 purposively omitted

I. SCOPE OF WORK FOR THE GBX OIL COMPANY PROJECT

A. PURPOSE OF WORK

The GBX Oil Company is involved in decommissioning and closure of its Pucker River facility. This facility consisted of an oil refinery operation that contained three surface impoundments for the storage of surface and waste waters from the refinery operations. Waste waters in these ponds were allowed to settle prior to treatment of the leachate at a nearby waste water treatment plant. ABC Remediation has been contracted to remove the liquid and sludge from the ponds.

ABC Remediation is to remove the remaining liquid in Ponds 1, 2, and 3 and transport it to the nearby waste water treatment plant. The remaining sludge from Ponds 1, 2, and 3 are to be transported to an approved hazardous waste incinerator. Services include decontamination and removal of existing pump machinery.

Remediation services are expected to begin in August of this year and are expected to be completed by January of next year.

B. PROPERTY HISTORY

The refinery operated from 1920 until 1984, when it was closed due to failure to meet current EPA air emissions requirements. The site covers approximately 75 acres of river flood plain property, with approximately 20 acres of the property devoted to surface ponds. A storm levee protects the property on the east side. State Highway Route 45, which runs along the eastern edge of the storm levee, has often been closed during river floods. Refer to the site plan for additional details.

Residents of the nearby community of Pucker complained of odors emanating from the property and were instrumental in forcing the plant closure. A search of the local newspapers shows that the GBX Oil Company had several major accidents attributable to "equipment failure." Reportedly, the GBX preventive maintenance program for its equipment was never followed or enforced.

C. CURRENT PROPERTY STATUS

Site characterization was performed by G.E.O. Physical Consultants in April 1991. Ponds 1 and 3 contain refinery sludge, and additional testing revealed no further contaminants. Results of the laboratory analysis of the refinery sludge and lagoon bottom soils for Pond 2 indicate the following chemicals: Benzene, Ethyl benzene, Naphthalene, Toluene, Xylene, and Polynuclear Aromatics (PNA) that include Chrysene, Benzo (a) pyrene, Phenanthrene, and Pyrene.

II. SITE-SPECIFIC SAFETY PLAN FOR GBX OIL COMPANY REMEDIATION

A. GENERAL INFORMATION

PROJECT NAME: GBX Oil Company
PROJECT NO.: 365
LOCATION: Carson River, USA
PLAN PREPARED BY: ABC Remediation Company
DATE: June 20, 1992
REVIEWED BY: Carol H. Rice, PhD, CIH DATE: July 12, 1992

OBJECTIVE(S):

The GBX Oil Company is involved in a decommissioning and closure of Ponds 1, 2, and 3, and the closure plan for this facility was approved by the state EPA in April, 1991.

PROPOSED DATE OF EXPLORATION: Fall 1992

NPDES PERMIT FILED: Yes No

BACKGROUND REVIEW: Complete

PRELIMINARY: Completed April 1991

DOCUMENTATION/SUMMARY:

Overall Hazard:

Serious Moderate Low Unknown

SCOPE OF WORK:

1. Pump remaining liquid and transport.
2. Excavate and remove sludge material from Ponds #1, #2, and #3.
3. Transport sludge to hazardous waste incinerator.
4. Decontaminate and dispose of pumping equipment.

WORK LIMITATIONS:

1. Normal daylight hours.
2. Suspend work if it begins to rain or lightning appears.

SITE DESCRIPTION

The GBX site is located on the riverfront property of GBX Oil Company, which operated from the early 1920's until 1984, when the refinery closed. The site covers approximately 75 acres and is bounded on the east by a levee belonging to the Carson River Drainage and Levee District, and on the west by the Des Plaines River, within the river flood plain. Fisher Oil Company and the town of Pucker are to the south, and the city of Carson River is to the north of the site.

B. SITE AND WASTE CHARACTERISTICS

FACILITY DESCRIPTION:

The major features of the site include three surface impoundments (Pond 1, 2 and 3) and an approximately 15-acre solidification pond. Ponds 1 through 3 were used by GBX Oil Company for the storage of surface and waste waters from the refinery operations prior to treatment at a nearby waste water treatment plant. The ponds contain refinery sludge.

PRINCIPAL DISPOSAL METHOD:

Surface disposal followed by waste water treatment.

UNUSUAL FEATURES:

Flood control levee, 345 KV transmission line (overhead)

STATUS: Inactive

HISTORY: Numerous equipment failures. Public complaints of odor.

BIOLOGICAL INDICATORS: None observed. Site is fenced, and site is secure.

PATHWAYS FOR DISPERSION OF HAZARDOUS MATERIALS:

Air, water, transported on-site equipment.

WIND DIRECTION: Primarily from the Northeast.

DRAINAGE: Stormwater treated on-site. Discharge to the Carson River.

CONTAMINANTS EXPECTED:

Benzene, Ethyl Benzene, Toluene, Xylene, PNA's, Naphthalene, API Sludge

WASTE TYPE(S):

Liquid X Solid Sludge X Gas

CHARACTERISTIC(S):

Corrosive Ignitable X Radioactive Volatile X

Toxic X Reactive Unknown Other

C. HAZARD EVALUATION

Consideration in developing this site safety plan was given to the potential hazard of the known chemicals, evaluating the toxicity, ignitability, reactivity, corrosiveness, physical state, and the quantity of the raw or waste materials that were expected to be generated, stored, or disposed of on-site.

EXPLOSIVE GASES:

LEL Action Level: 10% LEL on combustible gas meter

Required Action: Stop work, retreat.

Re-evaluate for flammability.

Resume work when LEL is less than 10%LEL.

Monitor continuously.

Airborne contaminants will be kept below TVL/PEL levels in the breathing zone, thereby also controlling against an explosion hazard.

PHYSICAL HAZARDS:

Care will be taken to prevent slips due to the sludge. Care will be taken when working around Ponds #1, #2, and #3 because of the potential for drowning and/or submersion. Care will be taken to avoid overhead power lines because of the potential for electrocution. All SOPs for safe heavy equipment operations will be enforced.

NOISE:

Equipment operators and all employees working around the excavation and other heavy equipment operations will wear hearing protection with a minimum NR rating of 25 dB.

CONFINED SPACE:

None anticipated. Only shallow open excavations and filling operations will occur on-site.

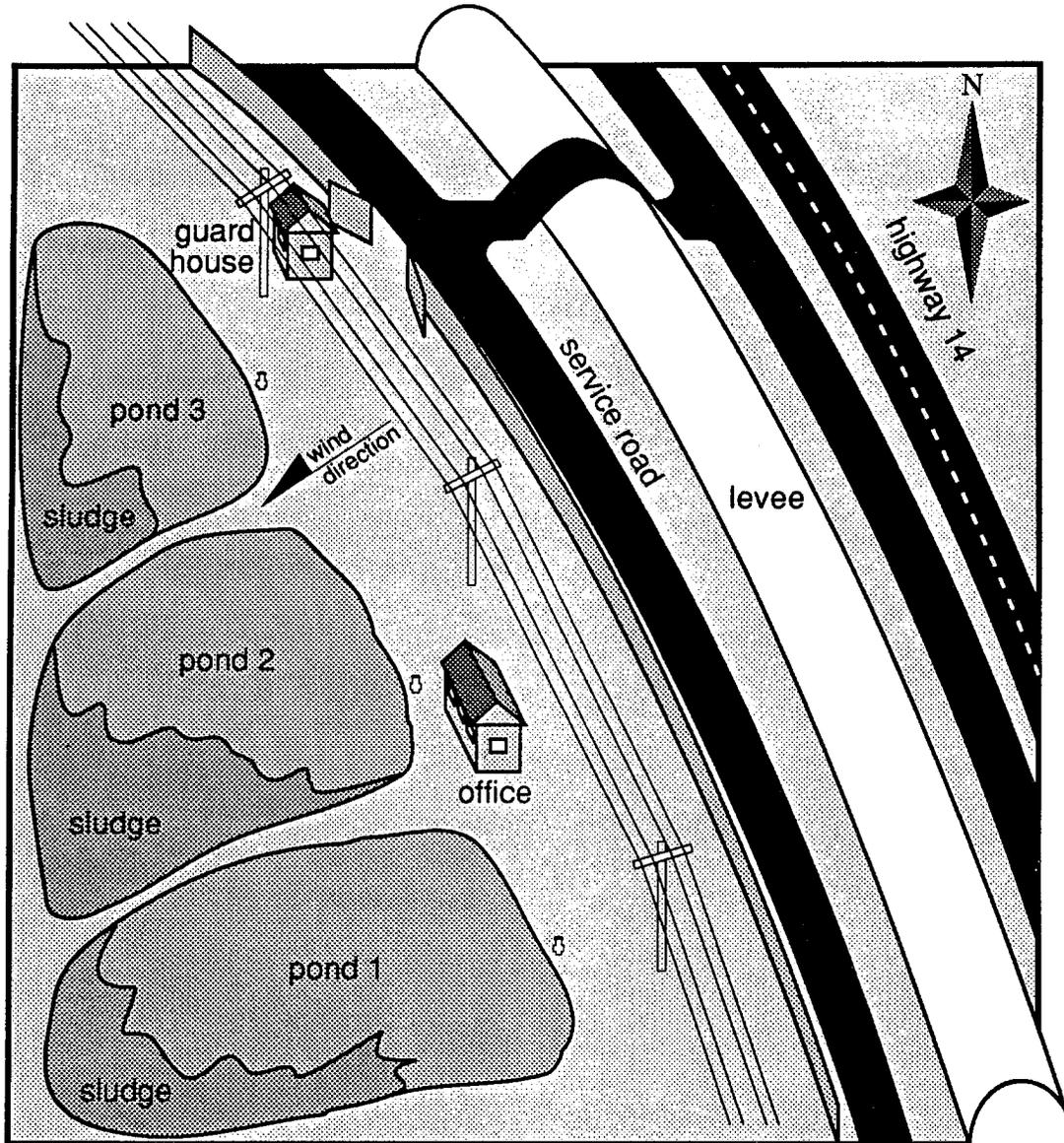
WEATHER:

Adverse weather conditions may be present during the scheduled time of field operations. Both heat and cold conditions could be experienced during the fall start-up time for operations. Exposure to cold temperatures and heat stress can be hazards to safe work. Exposure may also be exacerbated by wearing PPE ensembles.

D. ON-SITE CONTROL

Control boundaries are identified on the attached site map. The map shows the areas of the site to be secured and identifies the perimeters. Safe perimeter has been established and is shown on the map. No unauthorized person should be in this area.

Specific Site Entry Procedures: a site safety briefing will be held and the field engineer will answer any questions, make sure everyone understands the plan, and have everyone sign the Employee Waiver. Decontaminate all equipment prior to arrival and departure, wearing an appropriate level of protection for the task. The safety consultant will walk over work locations with the HNu to survey and document background. Document that above-ground clearance has been made, indicated by marked work locations. Advise field crew of telephone locations. Proceed to work locations.



B water hydrant

Site Map of the GBX Oil Company

E. REQUIRED PERSONAL PROTECTIVE EQUIPMENT

The following protective clothing materials are required for the specific task with the anticipated substances. No changes to the specified levels of protection shall be made without the approval of the Site Safety Consultant.

JOB TASK: Laborer who is spotting the transfer of sludge from the heavy equipment to the truck which takes the material to the incinerator.

POTENTIAL EXPOSURES:

Benzene	0.07 ppm
Ethyl benzene	185 ppm
Toluene	87 ppm
Naphthalene	14 ppm
Xylene	95 ppm
API Sludge	0.2 mg/m ³

F. DECONTAMINATION PROCEDURES

Personal Hygiene: No smoking, drinking, chewing, or eating while working on the job site.

Wash hands and face at breaks, before eating, applying cosmetics, lip balm, and prior to leaving site.

Retain wash water in drum. Soil samples, if shown to possess contaminants upon laboratory analysis, will be returned to the site. All contaminated cuttings or soil should be placed on plastic sheeting or into the appropriate open-headed 55-gallon drums for subsequent disposal. PPE that is disposable should be placed in covered drums on site.

Levels A, B, and C PPE are available.

EMERGENCY DECONTAMINATION PROCEDURES:

Remove all clothing in order:

1. Sound alarm.
2. Outer boots, garment, and outer gloves;
3. Inner gloves, and goggles;
4. Respirator;
5. Irrigate affected areas.
6. Seek medical attention immediately.

G. EMERGENCY PROCEDURES

The following standard emergency procedures will be used by on-site personnel. The Safety Consultant shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

PERSONNEL INJURY IN THE EXCLUSION ZONE:

Upon an injury in the Exclusion Zone, if possible prior to movement, contact an ambulance and then the designated medical facility. Notify designated emergency contacts as soon as possible. No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

FIRE/EXPLOSION:

The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

PERSONNEL PROTECTIVE EQUIPMENT FAILURE:

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Zone and complete decontamination. The Safety Consultant will be notified immediately to determine follow-up actions. Reentry shall not be permitted until the equipment has been repaired or replaced.

OTHER EQUIPMENT FAILURE:

If any other equipment on site fails to operate properly, the Site Safety Consultant shall be notified to determine the effects of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the assigned tasks, all personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions taken.

H. EMERGENCY CONTACTS/ROUTES

In the event of an emergency, the following will be notified:

GBX Vice President	I. M. Rich	606-257-4089
ABC Safety and Health Officer	S. Muerto	192-4231
CHEMTREX (24 hr. HOTLINE)		1-800-424-9300
National Response Center		1-800-424-8802

EMERGENCY TELEPHONE NUMBERS ARE TO BE VERIFIED PRIOR TO ANY SITE ACTIVITIES.

Ambulance	Everdye Ambulance	192-3030
Hospital Emergency Room	Pucker Community Hospital	192-1010
Poison Control Center	Savior Hospital	192-1012
Police	Carson River Police	654-3210
Fire Department	Fire Station #3	654-3210
Airport	None within 50 miles	
Explosives Unit	None within 50 miles	
Safety Consultant	C.H.A.S.E.	642-4273

EMERGENCY ROUTES:

Hospital: Exit Site and go south on Highway 45. After crossing railroad tracks, go left on county road "CD." Take a right on Covered Bridge Road. Go left at stop sign, and proceed to emergency room entrance of Pucker Community Hospital.

Other: Medical evacuation helicopter from Hop Cops (606-221-1089). Flight time approximately 50 minutes (one way) in good weather.

Emergency routes are to be driven by all personnel prior to site activities.

I. EMPLOYEE WAIVER

I have received the health and safety plan for the work site. I have read this plan, had the opportunity to ask questions. I understand the information in this plan and had 3 days on-site training. I have participated in education and training programs in compliance with Federal OSHA 29 CFR 1910.120(e) 40 hours initial instruction and 8 hours of refresher training and am currently participating in the medical surveillance program as outlined in the Health and Safety Manual.

Name (please print)

Signature

Signature / /
Date

III. MEDICAL SURVEILLANCE PROGRAM

PERSONNEL INCLUDED IN PROGRAM

1. All new employees prior to beginning work at the GBX Oil Company site will complete a pre-employment physical, which shall at a minimum include: a chest x-ray, pulmonary function test, blood lead test, and urinalysis. In addition to the pre-employment physical, the potential employee shall complete a detailed occupational and medical history questionnaire. The examining physician shall determine any limitations for respiratory and other personal protective equipment and certify these results to the employer. A copy of this respiratory fitness letter shall be placed in the employee's personnel file.
2. Employees who, in an emergency situation, have been exposed above the OSHA-PEL to any or all of the hazardous substances listed below will have additional exams.
 - 2a) An emergency is an unplanned or unexpected release of any of the toxic substances listed in the facility description to which a worker may be exposed, without regard to respiratory protection.

IV. ON-SITE ORGANIZATION AND COORDINATION

The following personnel roles are needed on the site. A person may be designated to perform more than one function.

PROJECT MANAGER:

Primarily responsible for the fulfillment of the terms of the contract. Oversees operations and ensures that all legal and safety requirements are met. Keeps the project on schedule and within budgetary guidelines. Hires and directs all contractor personnel. Provides daily progress reports to the client on the achievement of phase goals.

SITE SUPERVISOR:

Functions as on-site coordinator. Oversees all operations for the Project Manager. Reports in a regular and comprehensive manner to the project manager. Implements the site perimeter and maintains site security. Supervises laborers, technicians, and equipment operators. Ensures all health and safety procedures are followed, especially those concerning personal protective equipment, decontamination, and mechanical operations.

FIELD TEAM LEADER:

Supervises field laborers, technicians, and equipment operators at the direction of the on-site supervisor. Carries out the instructions of the Site Supervisor.

LABORER:

Performs tasks as assigned by the Field Team Leader and Site Supervisor. Includes drum-handling, assisting equipment operators and technicians.

EQUIPMENT OPERATORS:

Operates and maintains equipment as directed by the Field Team Leader and Site Supervisor.

TECHNICIAN:

Undertakes duties as assigned to monitor activities of Laborers and Equipment Operators, collect and analyze samples, facilitate completion of work requirements.

V STANDARD OPERATING PROCEDURES

A. PERSONAL PRECAUTIONS

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that involves hand-to-mouth transfer of material is prohibited in any area designated contaminated.
2. Hands and face must be thoroughly washed upon leaving the work area.
3. 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.
4. No facial hair which interferes with a satisfactory fit of the mask-to-face-seal is allowed on personnel required to wear respirators.
5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit, or place equipment on drums, containers, on the ground.
6. Medicine and alcohol can worsen the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake is prohibited.
7. All personnel must adhere to the information contained in the Site Safety Plan.
8. Contact lenses cannot be worn when respirator protection is required or when the hazard of a splash exists.
9. Personnel will be made aware of symptoms for toxic chemicals on site and for heat and cold stress.
10. Respirators shall be cleaned and disinfected after each day's use or more often if necessary.
11. Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained breathing apparatus will be inspected at least once a month, and before and after each use.
12. The employee will be familiar with all sections of the established respirator program and site safety plan.

B. OPERATIONS

1. All personnel going on-site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
2. Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
3. Personnel on-site 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 extremely hazardous entries.
4. Visual contact must be maintained with entry and safety personnel. Entry team members should remain close together to assist each other during emergencies.
5. During continual operations, on-site workers will act as safety backup to each other. Off-site personnel will provide emergency assistance.
6. Personnel must practice unfamiliar operations prior to undertaking the procedure of the GBX Oil Company Site Safety Plan. Entrance and exit locations must be designated and emergency escape routes delineated. Warning signals for site excavation must be established.
7. Communications using radios, hand signals, or other means must be maintained between initial entry members at all times. Emergency communications should be prearranged in case of radio failure, necessity for evacuation of site, or other reasons.
8. Wind indicators visible to all personnel must be strategically located throughout the site.
9. The work area will be areas surrounding Ponds 1, 2, and 3.
10. Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established.
11. Frequent and regular inspections of site operations will be conducted to ensure compliance with the Site Safety Plan. If any changes in operation occur, the Site Safety Plan must be modified to reflect change.
12. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150 Subpart F.

I. SCOPE OF WORK FOR THE BRUNSWICK MAINTENANCE FACILITY GENERAL CONTRACTOR: SMARTFOLKS, INC.

A. Purpose of Work

Smartfolks, Inc will safely dispose of hazardous chemicals in the Brunswick Maintenance Facility through a Phase III clean-up operation of the building and surrounding area. Phase I and II — Preliminary Investigation and Site Characterization — are already completed. Remediation services will begin in September 1997 and are expected to be completed by March 1998.

B. Property History

The Brunswick Maintenance Facility was completed in 1944. The building has served nuclear development sites throughout the region, including the DMB-5 site in nearby Nobodyville. In addition to basic maintenance functions, the facility has also served as a uranium foundry from 1944 through 1971. Numerous additions and improvements have been made on the building, including addition of a second level and exterior storage shed during the 1950's and construction of an acid pond for industrial waste in 1982. As the demand for nuclear development decreased with the end of the Cold War, the Brunswick Maintenance Facility was abandoned in 1992 after a period of declining activity.

The facility is 300 yards north of the Countryfresh River. To the northeast is the acid pond, secluded by a pine grove. A deteriorating parking lot and a storage shed lie to the west of the facility. The site is fairly isolated, with a camp two miles east and a small farm three miles west as the closest neighbors.

C. Current Property Status

Phase I and II studies of the site show that both the building itself and the surrounding soil and water may be contaminated. The structure is insulated with asbestos fibers, and both the interior and exterior paint are lead-based. Lead paint chips have been discovered on the edges of the rooms on all three floors. Beryllium and uranium dusts have been detected on the machinery surfaces. Epoxy resins also may be contaminants at the facility.

On the basement level, two fifty-five gallon drums marked "degreasing sludge" sit in the southeast corner of the room. They are dusty but full and intact. Various pieces of machinery have been left on the floor. A crumbling concrete stairway in the northwest corner leads to the ground and first floors.

On the ground floor, several open flasks of mercury have been discovered on a table in the northeast corner. Along the eastern wall, some flasks have apparently broken and leaked mercury through cracks in the wall. Maintenance equipment has been left around the room here also.

The first-floor ceiling is circled by a system of heating pipes that are covered with a thick layer of dust. The maintenance equipment is also covered with a thick layer of dust. An industrial elevator on the north side of the building is suspended at the first floor. Two small windows are on both the east and west walls of the room.

Initial soil borings reveal mercury contamination in the soil to the east of the building. Water samples of the Countryfresh River indicate that the stream may be contaminated by the facility's wastes.

A chemical inventory, based on information from the site investigation, includes two 55-gallon drums of degreasing sludge. The drums are full and intact.

II. SITE-SPECIFIC SAFETY PLAN FOR BRUNSWICK MAINTENANCE FACILITY REMEDIATION

A. General Information

PROJECT NAME: Brunswick Maintenance Facility D&D
PROJECT NO.: 420
LOCATION: Nobodyville County, New York
PLAN PREPARED BY: Smartfolks, Inc.
DATE: June 1997
REVIEWED BY: Felipe Howard, CIH DATE: June 1, 1997

OBJECTIVES:

Phase I and II site assessments have been completed. Phase III operations at Brunswick Maintenance Facility will now begin. This step involves the clean-up, removal, and safe disposal of the remaining chemical wastes. The building and surrounding areas will also be remediated.

SCOPE OF WORK:

1. Remove, package in approved DOT containers, and transport chemicals for proper disposal to landfill or incinerator.
2. Decontaminate existing structure.
3. Properly dispose of waste materials including wash solution.
4. Perform final survey of property to locate any contaminants.

SUMMARY OF OVERALL HAZARD:

Serious Moderate Low Unknown

SPECIFIC HAZARDS PRESENT:

Poison by inhalation; poison by contact; sensitization; flammable liquids; usual construction site hazards

WORK LIMITATIONS (Time of day, heat, cold, etc.)

1. Normal daylight hours.
2. Suspend activity if it begins to rain or lightning appears.
3. Winter work required to complete job on time.

SITE DESCRIPTION:

The 105,000 square foot Brunswick Maintenance Facility sits on 3.2 acres. The site is located three hundred yards north of the Countryfresh River. This river as well as the soil to the east of the building show signs of contamination by mercury, lead, and other chemicals. Ten yards west of the building is a small wooden shed with a deteriorating parking lot immediately north. Neither of these structures is included in the remediation process. An acid pond, secluded by a pine grove, has been built about one hundred yards northeast of the main building.

Two miles downstream from the facility is Camp Countryfresh, a summer camp for underprivileged urban youth. The camp uses the river for recreational activities. Three miles upstream is a small, organic vegetable farm that also has the river as its water source. Ten miles north of the facility, the Nobodyville State Nature Preserve begins. Trees in the southern region of the preserve have begun to show signs of contamination.

The two-story building and the surrounding soil and groundwater will be remediated.

B. Site and Waste Characteristics

FACILITY DESCRIPTION:

The site was most recently a maintenance shop for nuclear development centers in New York and the Atlantic region, particularly the DMB-5 site in nearby Nobodyville. Besides its basic maintenance functions, the facility also served as a uranium foundry from 1944 through 1971. All activity ended in 1992, when the demand for nuclear weapons declined with the end of the Cold War.

The two-story steel-frame structure has interior and exterior walls of masonry. The floors are concrete. An industrial elevator runs from the ground to the first floor. Numerous additions and improvements have been made, including the shed and upper floor in the 1950's and the acid pond in 1982. No major spills or accidents have been reported.

HISTORY: No other history.

STATUS: Inactive

UNUSUAL SITE FEATURES:

The Countryfresh River is located three hundred yards south of the building. Two miles east downstream is a summer camp. Four miles northwest upstream is an organic vegetable farm. A nature preserve is located ten miles north, just above the interstate highway. On the site is an acid waste pond.

BIOLOGICAL INDICATORS:

The pines in the grove surrounding the acid pond have begun to turn yellowish and limp. Trees in the nature preserve also have become diseased.

DISPERSION PATHWAYS:

Contaminants can be spread by air, soil, groundwater, and vehicle tires.

WIND DIRECTION:

Winds generally come from the northwest.

DRAINAGE:

The ground slopes down towards the Countryfresh River.

ANTICIPATED CONTAMINANTS:

Mercury, asbestos, lead, uranium, epoxy resin, and beryllium can be expected.

WASTE TYPE (S):

Liquid Solid Sludge Vapor

CHARACTERISTICS:

Corrosive Ignitable Radioactive Volatile
Toxic Reactive Unknown

PRINCIPAL DISPOSAL METHOD:

Transportation packaging will comply with D.O.T. Performance and Packaging Standards (49 CFR 107). Disposal should be in an EPA-approved landfill or incinerator. Check with the facility for additional packaging or quantity restrictions.

C. Hazard Evaluation

Site Safety plans develop through careful evaluation of the potential hazards of the known chemicals. Their toxicity, ignitability, reactivity, corrosiveness, and physical state are analyzed before the actual clean-up begins. In addition, the quantity of the hazardous waste must be determined.

EXPLOSIVE GASES:

Whenever possible, airborne contaminants will be kept below TLV/PEL levels in the breathing zone through supplied ventilation, thereby controlling against an explosion hazard.

PHYSICAL HAZARDS:

Note land features, vehicle movement, fire, explosion, liquid pools, uneven terrain, slippery conditions, electrical sources, welding, etc. that may create hazards. In order to complete the work on schedule, active remediation will be conducted during November, December, and January — traditionally very cold months in New York.

NOISE:

Equipment operators and all employees working around the forklift will wear hearing protection with a minimum NR rating of 25 dB.

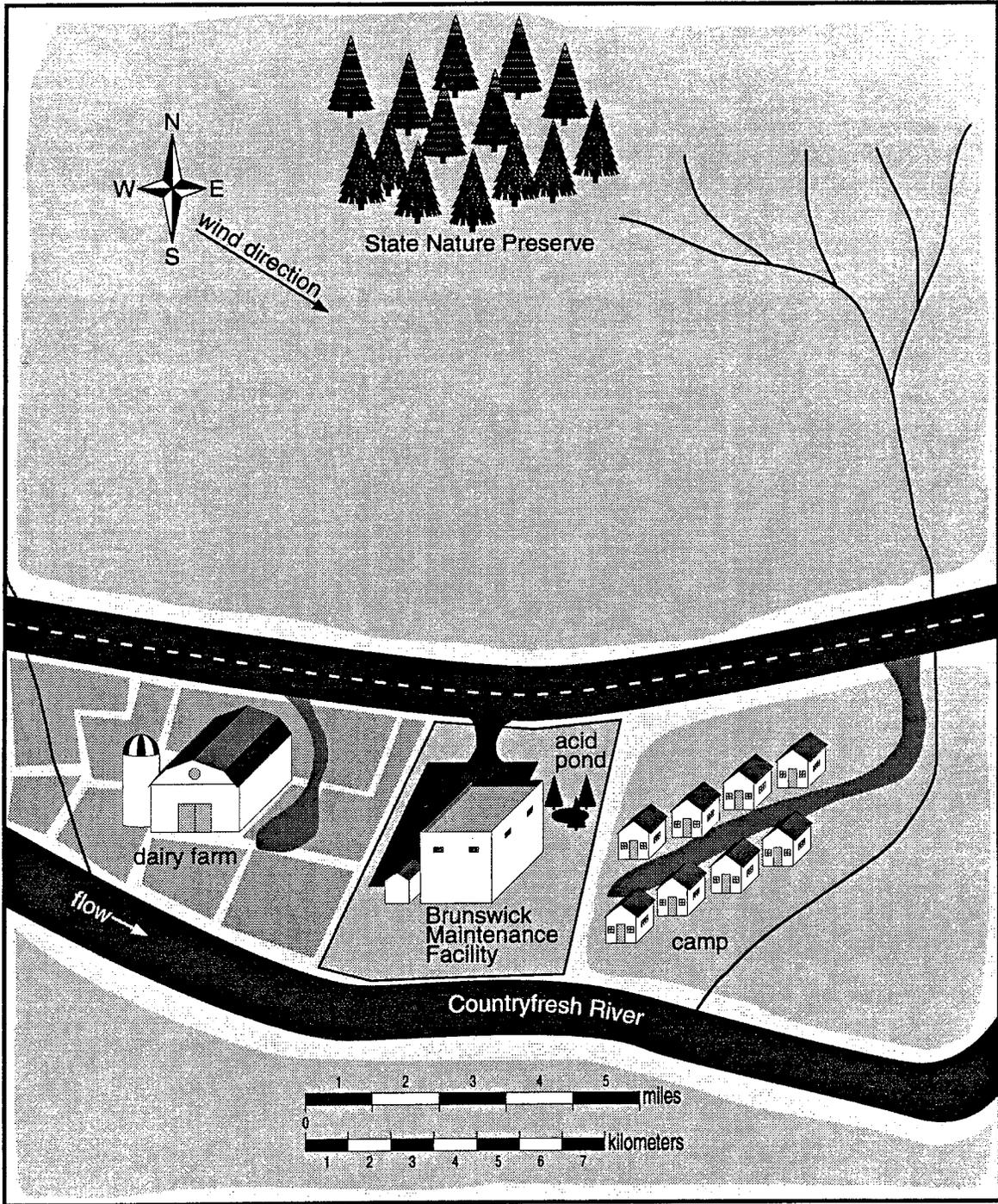
DUSTS: Dusts may be found on the heating pipes, maintenance equipment, drums, and in the air. Appropriate respiratory protection must be worn.

D. On-Site Control

Control boundaries are identified on the attached site map. The map shows the areas of the site to be secured and identifies the perimeters. A safe perimeter has been drawn and is shown on the map. No unauthorized person should be in this area.

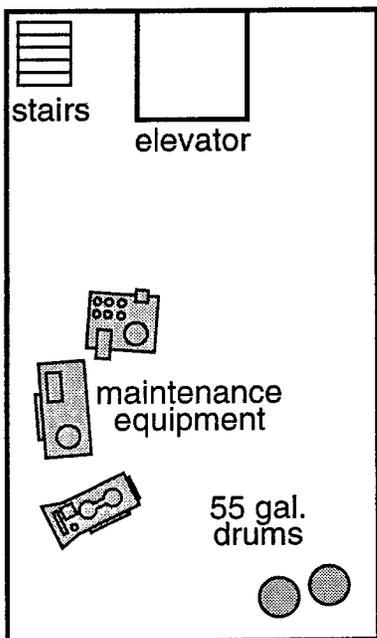
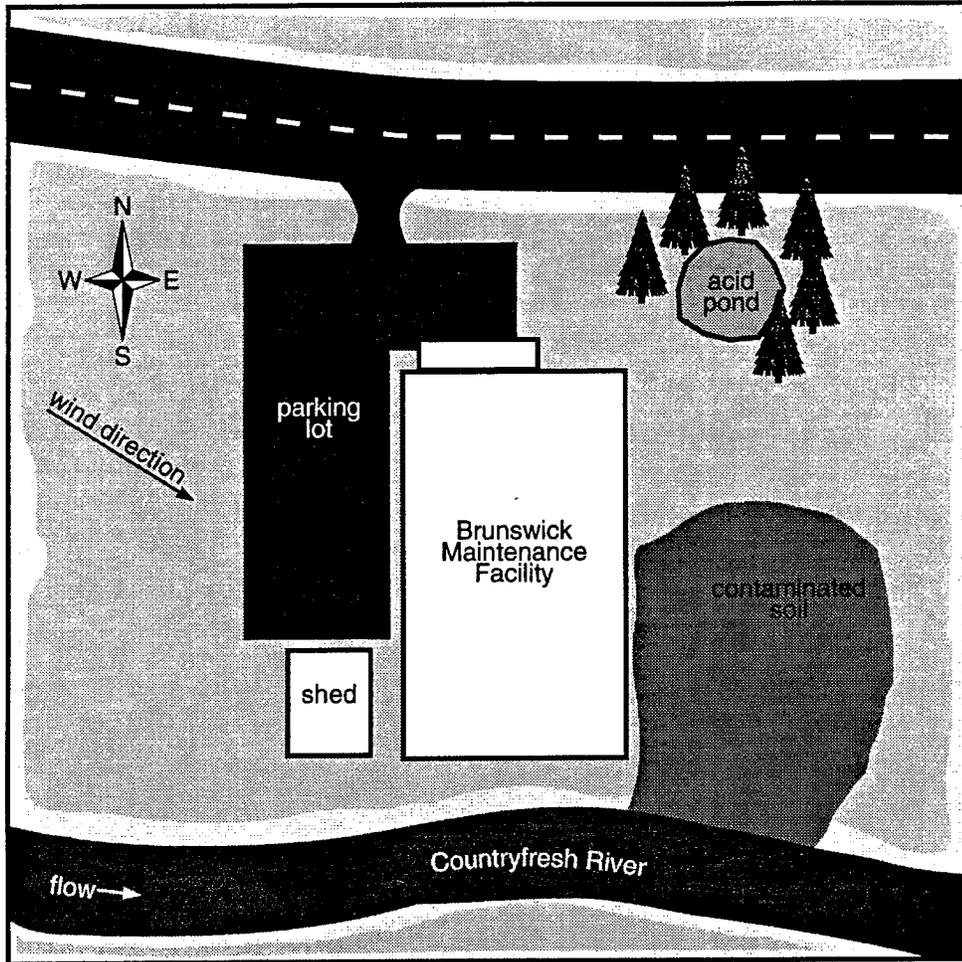
Specific Site Entry Procedures: A site safety briefing will be held, and the field engineer will answer any questions. Make sure everyone understands the plan, and have everyone sign the Employee Waiver. While wearing an appropriate level of protection for the task, decontaminate all equipment prior to departure. The safety consultant will walk over work locations with a HNu photoionizer to survey and document background. Document that above-ground clearance has been made, indicated by marked work locations. Advise field crew of telephone locations. Proceed to work locations.

Brunswick Maintenance Facility

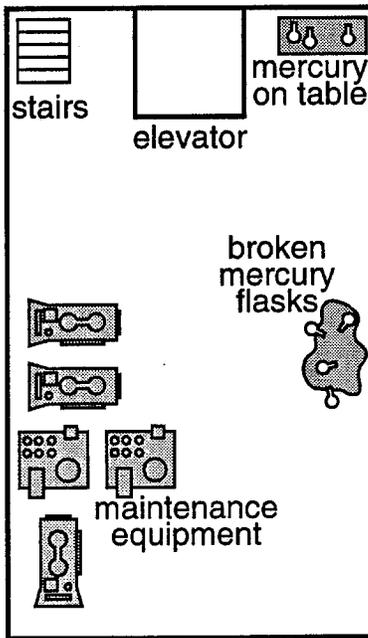


Overhead Site Map of the Brunswick Maintenance Facility

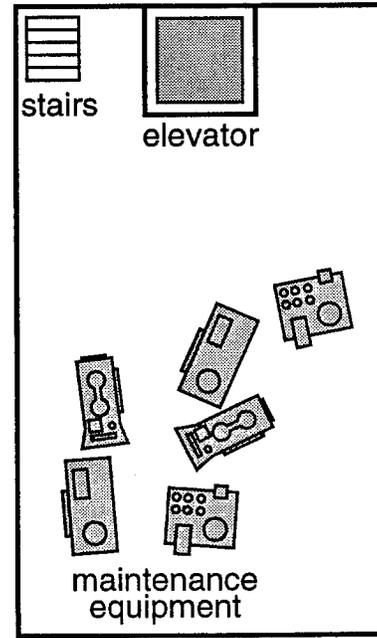
Brunswick Maintenance Facility



basement



ground floor



first floor

Detailed Site Map of the Brunswick Maintenance Facility

E. Required Personal Protective Equipment

The following protective clothing materials are required for the specific task with the anticipated substances. No changes to the specified levels of protection shall be made without the approval of the Site Safety Consultant.

JOB TASK: Soil Mover (Laborer);
Vacuummer (Laborer)

CHEMICAL
EXPOSURES: mercury, lead,
beryllium, uranium,
unknown chemicals

PERSONAL
PROTECTIVE
EQUIPMENT: half-mask chemical cartridge respirator, goggles, and protective
clothing if chance of contact

F. Decontamination Procedures

Personal Hygiene: No smoking, drinking, chewing, or eating while working on the job site.

Wash hands and face at breaks; before eating, applying cosmetics, or lip balm; and prior to leaving site.

Retain wash water in drum. Soil samples, if shown to possess contaminants upon laboratory analysis, will be returned to the site. All contaminated cuttings or soil should be placed on plastic sheeting or into the appropriate open-headed 55-gallon drums for subsequent disposal. PPE that is disposable should be placed in covered drums on site.

Levels A, B, and C PPE are available.

EMERGENCY DECONTAMINATION PROCEDURES:

Perform in order:

1. Sound alarm.
2. Remove in order:
 - a) Outer boots, outer gloves, and garment;
 - b) goggles and respirator
 - c) Inner gloves
3. Irrigate affected areas.
4. Seek medical attention immediately.

G. Emergency Procedures

The following standard emergency procedures will be used by on-site personnel. The Safety Consultant shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury in the Exclusion Zone:

Upon an injury in the Exclusion Zone, if possible prior to moving the individual, contact an ambulance and then the designated medical facility. Notify designated emergency contacts as soon as possible. No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

Fire/Explosion:

The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personnel Protective Equipment Failure:

If any site worker experiences a failure or flaw in equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Zone and complete decontamination. The Safety Consultant will be notified immediately to determine follow-up actions. Reentry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure:

If any other equipment on site fails to operate properly, the Site Safety Consultant shall be notified to determine the effects of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the assigned tasks, all personnel shall leave the Zone until the situation is evaluated and appropriate actions taken.

Heat and Cold:

Temperature extremes put extra physical stress on the body. Long periods of exposure to heat may cause illness, particularly if an employee is not used to working in hot areas. Also, heat builds up inside protective clothing, so there is a risk of heat stress even if outside temperatures are moderate. Cold stress is less common but may occur if work is required outdoors or in unheated buildings in winter months.

Signs and Symptoms of Heat Stress

Heat Cramps

Symptoms: Painful muscle spasms

Cause: Profuse sweating and drinking large amounts of water

Treatment: Provide liquids with electrolytes (sodium, potassium) like diluted Gatorade™.

Heat Exhaustion

Symptoms: Weakness; fatigue; dizziness; pale, cool, moist skin; heavy sweating; headache; nausea; and fainting

Cause: Reduced blood volume resulting from dehydration from profuse sweating and insufficient replacement of water and salts.

Treatment: If worker is conscious, have him/her rest in a cool place. Replace water and electrolytes lost in sweat. If worker is unconscious, get medical help immediately. DO NOT give liquids if person is unconscious.

Heat Stroke

Symptoms: Very dry, hot skin with red mottled or bluish appearance; confusion; convulsions; unconsciousness; rapidly rising temperature

Cause: Body becomes overheated because the worker does not sweat. Can be fatal.

Treatment: Call for medical help immediately. Move person to cool place. Remove PPE. Use wet towels or water and fan to cool while waiting for help.

**Heat stroke is a life-threatening emergency.
Medical attention is required.**

Cold also may be a hazard. If the body is overexposed to cold, the following problems could occur:

Frostbite

Symptoms: Face, hands, or feet become numb.

Cause: The body is exposed to extreme cold for a long period of time.

Treatment: Frostbitten tissue should be gently warmed and not exposed to further cold.

Hypothermia

Symptoms: Body temperature may lower or worker may shiver or feel drowsy. If body temperature is reduced to 80°F (or below), unconsciousness is often followed by death.

Cause: The body is wet, cold, or exhausted, and the response to minimize heat loss becomes ineffective if body temperature goes below 86°F.

Treatment: Warm the body. Get medical assistance.

Specific training is required to deal with these emergencies. The potential for these stresses at your facility should be recognized in advance and appropriate precautions taken.

H. Emergency Contacts

Emergency numbers are to be verified prior to any site activities.

In the event of an emergency, notify the following personnel:

Initial Emergency Contact	Frida Buffett	948-8732
Ambulance	Ma and Pa's Volunteer Life Squad	948-1845
Hospital Emergency Room	Madre de Salud	821-4803
Poison Control Center	Nobodyville Poison Control Center	821-3997
Police	Nobodyville Police	948-6239
Fire Department	Big Red Engine Company	948-8543
Airport	Greater Nobodyville Airfields	821-2576
Explosives Unit	Nobodyville Bomb Squad	948-1385
Safety Consultant	Sanzone Brothers	821-6161

I. Employee Waiver

I have received the health and safety plan for the work site. I have read this plan and had the opportunity to ask questions. I understand the information in this plan and had 3 days on-site training. I have participated in education and training programs in compliance with Federal OSHA 29 CFR 1910.120(e), including 40 hours initial instruction and 8 hours of refresher training, and I am currently participating in the medical surveillance program as outlined in the health and safety manual.

Name (please print)	Signature	/ / Date
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III. MEDICAL SURVEILLANCE PROGRAM

Personnel Included in Program

1. All new employees prior to beginning work at the Brunswick Maintenance Facility site will complete a pre-employment physical, which shall at a minimum include: a chest x-ray, pulmonary function test, blood lead test, and urinalysis. In addition to the pre-employment physical, the potential employee shall complete a detailed occupational and medical history questionnaire. The examining physician shall determine any limitations for respiratory and other personal protective equipment and certify these results to the employer. A copy of this respiratory fitness letter shall be placed in the employee's personnel file.
2. Employees who, in an emergency situation, have been exposed above the OSHA PEL to any hazardous substances will have additional exams.

An emergency is an unplanned or unexpected release of any of the toxic substances listed in the facility description to which a worker may be exposed, without regard to respiratory protection.

IV. ON-SITE ORGANIZATION AND COORDINATION

The following personnel roles are needed on the site. A person may be designated to perform more than one function.

Project Manager:

- Primarily responsible for the fulfillment of the terms of the contract.
- Oversees operations and ensures that all legal and safety requirements are met.
- Keeps the project on schedule and within budgetary guidelines.
- Hires and directs all contractor personnel.
- Provides daily progress reports to the client on the achievement of phase goals.

Site Supervisor:

- Functions as on-site coordinator.
- Oversees all operations for the Project Manager.
- Reports in a regular and comprehensive manner to the project manager.
- Implements the site perimeter and maintains site security.
- Supervises laborers, technicians, and equipment operators.
- Ensures all health and safety procedures are followed, especially those concerning personal protective equipment, decontamination, and mechanical operations.

Field Team Leader:

- Supervises field laborers, technicians, and equipment operators at the direction of the on-site supervisor.
- Carries out the instructions of the Site Supervisor.

Laborer:

- Performs tasks as assigned by the Field Team Leader and Site Supervisor, including drum-handling and assisting equipment operators and technicians.

Equipment Operators:

- Operate and maintain forklift as directed by the Field Team Leader and Site Supervisor.

Technician:

- Undertakes duties as assigned to monitor activities of Laborers and Equipment Operators, collects and analyzes samples, facilitates completion of work requirements.

V STANDARD OPERATING PROCEDURES

A. Personal Precautions

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that involves hand-to-mouth transfer of material is prohibited in any area designated contaminated.
2. Hands and face must be washed thoroughly upon leaving the work area.
3. Whenever decontamination procedures for outer garments are in effect, the entire body should be washed thoroughly as soon as possible after the protective garment is removed.
4. No facial hair which interferes with a satisfactory fit of the mask-to-face-seal is allowed on personnel required to wear respirators.
5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit, or place equipment on drums, containers, or the ground.
6. Medicine and alcohol can worsen the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists, unless specifically approved by a qualified physician. Alcoholic beverage intake is prohibited.
7. All personnel must adhere to the information contained in the site safety plan.
8. Contact lenses cannot be worn when respiratory protection is required or when a splash hazard exists.
9. Personnel will be made aware of symptoms for toxic chemicals on site and for heat and cold stress.
10. Respirators shall be cleaned and disinfected after each day's use or more often if necessary.
11. Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained breathing apparatus will be inspected at least once a month and before and after each use.
12. The employee will be familiar with all sections of the established respirator program and site safety plan.

B. Operations

1. All personnel going on-site must be trained adequately about the anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
2. Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
3. Personnel on-site must use the buddy system when wearing respiratory protective equipment. As a minimum, a third person, suitably equipped as a safety back-up, is required during extremely hazardous entries.
4. Visual contact must be maintained with entry and safety personnel. Entry team members should remain close together to assist each other during emergencies.
5. During continual operations, on-site workers will act as safety back-up to each other. Off-site personnel will provide emergency assistance.
6. Personnel must practice unfamiliar operations before actual remediation of the Brunswick Maintenance Facility. Entrance and exit locations and emergency escape routes must be designated. Workers should know communication signals.
7. Communications using radios, hand signals, or other means must be maintained among entryway workers at all times. Emergency communications should be prearranged in case of radio failure, necessity for evacuation of the site, or other reasons.
8. Wind indicators visible to all personnel must be located strategically throughout the site.
9. The work area will be limited to the two-story structure and surrounding contaminated areas.
10. Procedures for leaving a contaminated area must be explained before work begins. Work areas and decontamination procedures must be established.
11. Frequent and regular inspections of site operations will be conducted to ensure compliance with the site safety plan. If any changes in operation occur, the site safety plan must also be changed.
12. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150 Subpart F.

I. SCOPE OF WORK FOR THE WADDA MESSA LANDFILL

A. PURPOSE OF WORK

Phase I and II (Preliminary Investigation and Site Characterization) have been completed for the Wadda Messa Landfill. The landfill is leaking 2,4-D, DNT, and TNT into the water table. ABC Remediation is charged with stopping the flow of contaminants by installing leachate and soil gas recovery systems in the landfill. ABC Remediation will also install a clay cap over the landfill.

B. PROPERTY HISTORY

In 1941, the U.S. Army acquired approximately 17,000 acres in St. Rich County for construction of the Wadda Messa Ordnance Works. The limestone was excavated to provide building materials for the ordnance works complex. The ordnance works produced TNT and DNT explosives between 1941 and 1944. Briefly reopened during 1945 and 1946, the ordnance works were subsequently closed and declared surplus by the Army in 1946. The excavated limestone pits were used by the Army during the 1940's for disposal of chemically contaminated materials.

The Army reactivated the chemical plant site in 1967 for conversion to a 2,4-D production facility. The herbicide was produced for two years before the Army shut down the operation. The Army did partially decontaminate some of the buildings. Some rubble and process equipment were placed in the landfill. Since that time, the chemical plant and the landfill have been unused. Throughout the period of waste disposal, a variety of waste was disposed in the landfill. This waste included structural steel, drums of solid and liquid chemical waste, process equipment, concrete, soil, etc.

The EPA listed the landfill on the National Priorities List (NPL) in July 1987. This listing was expanded in March 1989 to include the chemical plant. At that time the expanded listing was designated as the Wadda Messa Landfill, Wadda Messa Chemical Plant. The landfill and the chemical plant are under the control of the U.S. Department of Defense (DOD) and occupy 220 acres.

C. CURRENT PROPERTY STATUS

The landfill occupies an excavated limestone bluff above the Little Muddy River flood plain. The limestone formation contains cracks, and the waste is contaminating the local ground water. The landfill is approximately 1,100 feet long and 450 feet wide, covering about 9 acres. Approximately 95,000 cubic yards of chemically contaminated waste have been placed in the landfill. DOD has installed 26 ground water monitoring wells on the north and south sides of the slough. Data from these wells show that ground water between the landfill and the slough is contaminated with chemicals from the landfill. However, the slough appears to act as a barrier to ground-water migration south of the slough.

OBJECTIVES:

The proposed action is being carried out by ABC Remediation as a separate operable unit under CERCLA. The RI/FS process for this action has been completed, and the Record of Decision has been signed by the EPA Region VII.

The proposed action involves:

- recovery of ground water within the landfill.
- shaping waste piles.
- characterizing the waste to meet the requirements of CERCLA and associated ARARs.
- installing a clay cap.

SCOPE OF WORK:

The first phase is the capping of the landfill. Once the landfill is capped, ground water and off-site soils will be characterized to determine the nature and the extent of contamination. This characterization program will be adequate to support the CERCLA decision making process for final clean-up of the ground water.

There are four basic components to capping at Wadda Messa Landfill:

1. Reshaping and grading of the waste pile and the installation of the clay cap.
2. Installation of the synthetic cap.
3. Installation of additional monitoring wells and site characterization.
4. Installation of leachate and soil gas recovery systems which involve drilling both in and outside of the waste pile. Drilling will occur approximately six months after the cap installation.

B. SITE AND WASTE CHARACTERISTICS

STATUS: Inactive

UNUSUAL SITE FEATURES:

Femme Osage Slough, Little Muddy River, porosity of terrain

BIOLOGICAL INDICATORS:

None noted at this time.

DISPERSION PATHWAYS:

Air, ground water, tracked on vehicles.

WIND DIRECTION:

Generally from the west.

DRAINAGE:

Sandy soils sloping towards alluvial terrain.

ANTICIPATED CONTAMINANTS:

2,4-D, DNT, and TNT

WASTE TYPE (S) :

Liquid Solid Sludge Gas

CHARACTERISTICS:

Corrosive Ignitable Radioactive Volatile
Toxic Reactive Unknown

PRINCIPAL DISPOSAL METHOD:

Recovered materials will be drummed and stored on-site.

SUMMARY OF OVERALL HAZARD

Serious Moderate Low Unknown

The physical characteristics of the bulk waste are not completely known. Therefore, the waste will be excavated using an observational method. Anticipated hazards include: free liquids, greater concentrations of chemical contamination than estimated; higher level of protection required for personnel; instability of landfills surface (e.g., free liquids below surface).

Present estimates place the maximum depth of the waste material at 40 feet. Current conceptual plans call for the waste to be shaped to provide drainage. Bulldozers and graders would be used for shaping and placing the clay cap. A hydraulic crane would be used to remove or reposition heavy structural shapes. A bulldozer would work the landfill at the face of the waste pile to push the waste. This method assumes the waste will be adequately dewatered.

If engineering controls are required to control dusts or vapor emissions, the following may be implemented:

- application of water to reduce dust.
- reduction of the exposed working face.
- covering of the exposed face with flexible membrane sheeting.
- application of mechanical ventilators.
- cessation of work until airborne concentrations stabilize.

SPECIFIC HAZARDS PRESENT:

Explosion hazard; Poison by inhalation; Flammable Liquids; Usual construction site hazards

WORK LIMITATIONS (Time of day, heat, cold, etc.):

1. Normal daylight hours.
2. Suspend activity if it begins to rain or lightning appears.

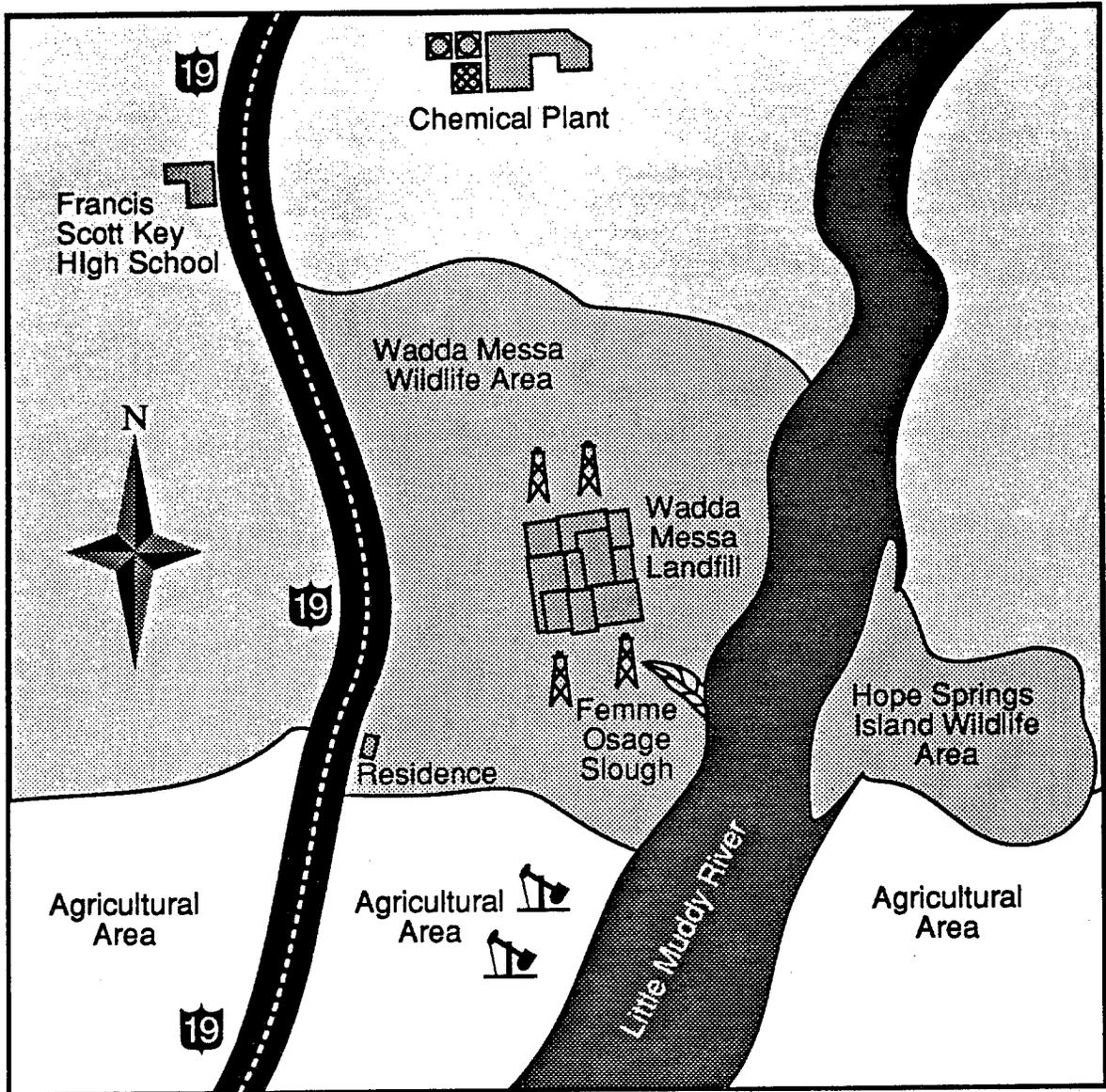
SITE STATUS:

Environmental monitoring in the vicinity of the Wadda Messa Landfill indicates the landfill is leaking and that contaminants are migrating toward a county well field which provides potable water for over 60,000 people. In response to this potential threat, the U.S. DOD has determined that expedited response is necessary to safeguard the public health.

D. ON-SITE CONTROL

Control boundaries are identified on the attached site map. The map shows the areas of the site to be secured and identifies the perimeters. Safe perimeter has been established and is shown on the map. No unauthorized person should be in this area.

Specific Site Entry Procedures: a site safety briefing will be held and the field engineer will answer any questions, make sure everyone understands the plan, and have everyone sign the Employee Waiver. Decontaminate all equipment prior to arrival and departure, wearing an appropriate level of protection for the task. The safety consultant will walk over work locations with the HNu to survey and document background. Document that above-ground clearance has been made, indicated by marked work locations. Advise field crew of telephone locations. Proceed to work locations.



 Monitoring Wells  Alluvial Wells

Site Map of the Wadda Mesa Landfill

E. REQUIRED PERSONAL PROTECTIVE EQUIPMENT

The following protective clothing materials are required for the specific task with the anticipated substances. No changes to the specified levels of protection shall be made without the approval of the Site Safety Consultant.

JOB TASK: Seamer

POTENTIAL EXPOSURE: 2,4-D, DNT, TNT

F. DECONTAMINATION PROCEDURES

Personal Hygiene: No smoking, drinking, chewing, or eating while working on the job site.

Wash hands and face at breaks; before eating, applying cosmetics, lip balm; and prior to leaving site.

EMERGENCY DECONTAMINATION PROCEDURES:

Remove all clothing in order:

1. Sound alarm;
2. Outer boots, garment, and outer gloves;
3. Inner gloves, and goggles;
4. Respirator;
5. Irrigate affected areas;
6. Seek medical attention immediately.

Retain wash water in drum. Soil samples, if shown to possess contaminants upon laboratory analysis, will be returned to the site. All contaminated cuttings or soil should be placed on plastic sheeting or into the appropriate open-headed 55-gallon drums for subsequent disposal. PPE that is disposable should be placed in covered drums on-site.

G. EMERGENCY PROCEDURES

The following standard emergency procedures will be used by on-site personnel. The Safety Consultant shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury in the Exclusion Zone:

Upon an injury in the Exclusion Zone, if possible prior to movement, contact an ambulance and then the designated medical facility. Notify designated emergency contacts as soon as possible. No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

Fire/Explosion:

The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personnel Protective Equipment Failure:

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Zone and complete decontamination. The Safety Consultant will be notified immediately to determine follow-up actions. Reentry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure:

If any other equipment on site fails to operate properly, the Site Safety Consultant shall be notified to determine the effects of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the assigned tasks, all personnel shall leave the Zone until the situation is evaluated and appropriate actions taken.

H. EMERGENCY CONTACTS

In the event of an emergency, the following will be notified:

Name T. Bushmeister

Telephone No. 942-8623

EMERGENCY TELEPHONE NUMBERS ARE TO BE VERIFIED PRIOR TO ANY SITE ACTIVITIES

Ambulance	Little Muddy Ambulance	242-8241
Hospital Emergency Room	Hope Springs Hospital	242-3224
Poison Control Center	Femme Osage Regional Chemical Unit	242-2528
Police	Hope Springs Metro Police	242-9271
Fire Department	Metro Fire Station #67	242-5274
Airport	Little Muddy Field	242-5168
Explosives Unit	Metro Police	242-9871
Safety Consultant	C.H.A.S.E.	642-4273

I. EMPLOYEE WAIVER

I have received the health and safety plan for the work site. I have read this plan, had the opportunity to ask questions. I understand the information in this plan and had 3 days on-site training. I have participated in education and training programs in compliance with Federal OSHA 29 CFR 1910.120(e) 40 hours initial instruction and 8 hours of refresher training and am currently participating in the medical surveillance program as outlined in the Health and Safety Manual.

Name (please print)	Signature	/// Date
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III. MEDICAL SURVEILLANCE PROGRAM

Personnel Included in Program

1. All new employees prior to beginning work at the Wadda Messa site will complete a pre-employment physical, which shall at a minimum include: a chest x-ray, pulmonary function test, blood lead test, and urinalysis. In addition to the pre-employment physical, the potential employee shall complete a detailed occupational and medical history questionnaire. The examining physician shall determine any limitations for respiratory and other personal protective equipment and certify these results to the employer. A copy of this respiratory fitness letter shall be placed in the employee's personnel file.
2. Employees who, in an emergency situation, have been exposed above the OSHA-PEL to any or all of the hazardous substances listed below will have additional exams.
 - 2a) An emergency is an unplanned or unexpected release of any of the toxic substances listed in the facility description to which a worker may be exposed, without regard to respiratory protection.

IV. ON-SITE ORGANIZATION AND COORDINATION

The following personnel roles are needed on the site. A person may be designated to perform more than one function.

Project Manager:

Primarily responsible for the fulfillment of the terms of the contract. Oversees operations and ensures that all legal and safety requirements are met. Keeps the project on schedule and within budgetary guidelines. Hires and directs all contractor personnel. Provides daily progress reports to the client on the achievement of phase goals.

Site Supervisor:

Functions as on-site coordinator. Oversees all operations for the Project Manager. Reports in a regular and comprehensive manner to the project manager. Implements the site perimeter and maintains site security. Supervises laborers, technicians, and equipment operators. Ensures all health and safety procedures are followed especially those concerning personal protective equipment, decontamination, and mechanical operations.

Field Team Leader:

Supervises field laborers, technicians, and equipment operators at the direction of the on-site supervisor. Carries out the instructions of the Site Supervisor.

Laborer:

Performs tasks as assigned by the Field Team Leader and Site Supervisor. Includes drum-handling, assisting equipment operators and technicians.

Seamer:

Lays and seams the synthetic cap materials. Checks for integrity and oversees any work which may compromise the seams of the synthetic cap.

Site Safety Officer:

Maintains proper medical surveillance including preentry and exit physical examinations. Provides hazard communication information. Trains employees on safe work practices. Monitors worker and area exposures. Provides guidance on the selection of personal protective equipment including respirators. Recommends proper decontamination procedures. Recommends the perimeters of work zones. Advises the Project Manager on all health and safety matters for both the on-site workers and the public. Responsible for implementation of compliance with all federal and state health and safety regulations.

Technician:

Performs tasks as assigned by the Field Team Leader and Site Supervisor. Includes environmental monitoring and sampling. Monitors contamination levels of workers and equipment. Maintains communications equipment including portable and mobile radios and telephone service at the site.

Equipment Operators:

Operate and maintain equipment as directed by the Field Team Leader and Site Supervisor.

V STANDARD OPERATING PROCEDURES

A. PERSONAL PRECAUTIONS

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that involves hand-to-mouth transfer of material is prohibited in any area designated contaminated.
2. Hands and face must be thoroughly washed upon leaving the work area.
3. 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.
4. No facial hair which interferes with a satisfactory fit of the mask-to-face-seal is allowed on personnel required to wear respirators.
5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit, or place equipment on drums, containers, or the ground.
6. Medicine and alcohol can worsen the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake is prohibited.
7. All personnel must adhere to the information contained in the Site Safety Plan.
8. Contact lenses cannot be worn when respirator protection is required or when the hazard of a splash exists.
9. Personnel will be made aware of symptoms for toxic chemicals on site and for heat and cold stress.
10. Respirators shall be cleaned and disinfected after each day's use or more often if necessary.
11. Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self contained breathing apparatus will be inspected at least once a month, and before and after each use.
12. The employee will be familiar with all sections of the established respirator program and site safety plan.

B. OPERATIONS

1. All personnel going on-site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
2. Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
3. Personnel on-site must use the buddy system when wearing respiratory protective equipment. As a minimum, a third person, suitably equipped as a safety back-up, is required during extremely hazardous entries.
4. Visual contact must be maintained with entry and safety personnel. Entry team members should remain close together to assist each other during emergencies.
5. During continual operations, on-site workers will act as safety back-up to each other. Off-site personnel will provide emergency assistance.
6. Personnel must practice unfamiliar operations prior to undertaking the procedure of the Wadda Messa Site Safety Plan. Entrance and exit locations must be designated and emergency escape routes delineated. Warning signals for site excavation must be established.
7. Communications using radios, hand signals, or other means must be maintained between initial entry members at all times. Emergency communications should be prearranged in case of radio failure, necessity for evacuation of site, or other reasons.
8. Wind indicators visible to all personnel must be strategically located throughout the site.
9. The work area will be limited to the landfill itself.
10. Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established.
11. Frequent and regular inspections of site operations will be conducted to ensure compliance with the Site Safety Plan. If any changes in operation occur, the Site Safety Plan must be modified to reflect change.
12. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150 Subpart F.

I. SCOPE OF WORK FOR THE XYZ PAINT AND LACQUER COMPANY GENERAL CONTRACTOR: ABC REMEDIATION

A. PURPOSE OF WORK

ABC Remediation is to complete Phase III clean-up, removal, and disposal of stored chemicals; decontamination and removal of outside storage tanks; and decon-tamination of existing structures. Phase I and II (Preliminary Investigation and Site Characterization) are completed.

Remediation services are expected to begin in August of this year and are expected to be completed by January of next year.

B. PROPERTY HISTORY

The XYZ Paint and Lacquer Company was established in 1919 and used the buildings that formerly belonged to the Upper Great Lakes Grain and Flour Company. The plant formulated paints and lacquers that were used as metal and wood finishes. The plant consisted of a four-story wooden structure with an adjoining two-story concrete building. Three 4,000-gallon chemical storage tanks were placed on an exterior concrete pad to the West of the concrete building. Total site acreage is 4.5 acres.

In 1980, the wooden portions of the plant that contained the paint laboratory, shipping, purchasing, and inventory records were destroyed in a fire. The chemical storage and paint formulation area was not damaged by the fire because they were protected by a two-foot-thick concrete wall and roof. Following the fire, the plant was boarded up and closed. Vandals have broken into the concrete building and overturned drums that were stored there.

This factory is within 1/4 mile of the shoreline of one of the Great Lakes with soils that consist of sandy clay with lenses of coarse to medium sand. To the West of the site is a drainage ditch, an active railway right-of-way, and a steep bluff that is covered with second-growth forest. To the North and South of the site are abandoned factories and several active Superfund clean-up sites.

C. CURRENT PROPERTY STATUS

The results of the Phase I and II investigations indicate that there are no underground storage tanks, no major releases to the soil, and no accidents other than the fire of 1980. Soil borings indicate no ground water contamination that originates from this site. Drums that are stored outside were emptied prior to stacking to provide a wind and snow break for the northern side of the plant.

Three 4,000-gallon storage tanks appear to be not leaking and have a concrete pad and dike enclosing the area. Tanks are approximately half full and show 100% LEL when tested near the vent.

Drums inside the building are severely rusted with numerous bulging tops. A faint aromatic fruity odor was noted during initial investigations.

The building has no power source or windows. A deteriorated loading dock is present on the east end of the building with the main access through the north door. A semi-solid yellow to amber-colored coating is on the floor that resulted when some drums were overturned. Talc and solid resin chips are scattered over the floor. Seven drums labeled "Nitrocellulose - Flammable Liquid" contain a white fibrous solid that appears to have dried out. Other drums that are stored here are rusted with several bulging tops noted. An LEL reading between 8 and 15% was obtained in the building area.

A chemical inventory, based on information supplied by the owner and from site investigation, includes the following:

Inside Building

Nitrocellulose	(7 drums, stored inside, dried out)
Paint lacquer sludge	(5 drums, solidified)
Sulfuric acid	(3 plastic drums)
Toluene diisocyanate	(2 drums, full)
Talc	(2 fiber drums, solidified)
Paint Resins	(3 fiber drums, broken)
Uncharacterized	(27 metal drums, some corroded)

Outside Building

Isobutyl acetate	(Exterior 4000 gal. storage tank)
Methyl ethyl ketone	(Exterior 4000 gal. storage tank)
Methyl isobutyl ketone	(Exterior 4000 gal. storage tank)
Uncharacterized	(186 drums, empty)

II. SITE-SPECIFIC SAFETY PLAN FOR XYZ PAINT AND LACQUER COMPANY REMEDIATION

A. GENERAL INFORMATION

PROJECT NAME: XYZ Paint and Lacquer Company
PROJECT NO.: 5280
LOCATION: Mile Long Road, Great Lakes Region
PLAN PREPARED BY: ABC Remediation
DATE: May, 1991
REVIEWED BY: Carol Rice, CIH DATE: May 2, 1991

OBJECTIVES:

Phase I and II site assessments have been completed. Commence Phase III operations at abandoned paint and lacquer factory. This work involves the clean-up, removal, and disposal of the remaining chemicals. The existing structure will also be decontaminated as part of this operation. Soil clean-up is unnecessary at this time.

SCOPE OF WORK:

1. Remove, package in approved DOT containers, and transport chemicals for proper disposal to landfill or incinerator.
2. Decontaminate existing structure.
3. Properly dispose of waste materials including wash solution.
4. Perform final survey of property to locate any contaminants.

SUMMARY OF OVERALL HAZARD:

Serious Moderate Low Unknown

SPECIFIC HAZARDS PRESENT:

Explosion hazard; Poison by inhalation; Flammable Liquids; Usual construction site hazards

WORK LIMITATIONS (Time of day, heat, cold, etc.)

1. Normal daylight hours.
2. Suspend activity if it begins to rain or lightning appears.

SITE DESCRIPTION:

The site is 4.5 acres located within 1/4 mile of Great Lake shoreline. Soil is sandy clay with lenses of coarse to medium sand. Three borings were performed. None of the borings showed soil contamination. The site consists of a two-story concrete structure with an adjoining concrete pad that has three 4000-gallon storage tanks on it.

Over 40 55-gallon drums are inside the two-story structure. No water or electricity is supplied to the site. Several active Superfund sites are located nearby.

B. SITE AND WASTE CHARACTERISTICS**FACILITY DESCRIPTION:**

Site was former paint and lacquer factory. A four-story wooden building was destroyed in a fire in 1980. The remaining two-story concrete structure which housed the paint formulation and chemical storage area was abandoned shortly after the fire. Vandals broke in and overturned drums within the building.

HISTORY: Fire in 1980. No other known history or complaints.

STATUS: Inactive

UNUSUAL SITE FEATURES:

Drainage creek and active railway right-of-way west of site. Beach front located 1/4 mile east of site. Abandoned metal plating factory south of site. Superfund site 1/2 mile north involved in lakefront clean-up. Residential area located west of the site on top of the bluff.

BIOLOGICAL INDICATORS:

No staining or distressed vegetation was noted.

DISPERSION PATHWAYS:

Air, ground water, tracked on vehicles.

WIND DIRECTION:

Generally from the east, off the lake.

DRAINAGE:

Sandy soils sloping towards the lakefront.

ANTICIPATED CONTAMINANTS:

Nitrocellulose, Paint lacquer sludges, Sulfuric acid, Talc, Paint Resin, Toluene diisocyanate (TDI), Isobutyl acetate, Methyl ethyl ketone (MEK), Methyl isobutyl ketone (MIBK).

WASTE TYPE (S):

Liquid Solid Sludge Gas

CHARACTERISTICS:

Corrosive Ignitable Radioactive Volatile
Toxic Reactive Unknown

PRINCIPAL DISPOSAL METHOD:

Transportation packaging to comply with D.O.T. Performance and Packaging Standards (49 CFR 107).

Disposal in an EPA-approved landfill or incinerator. Check with facility for additional packaging or quantity restrictions.

C. HAZARD EVALUATION

Consideration in developing site safety plans is given to the potential hazard of the known chemicals, evaluating the toxicity, ignitability, reactivity, corrosiveness, physical state, and the quantity of the raw or waste materials that were expected to be generated, stored, or disposed of on-site.

EXPLOSIVE GASES:

Whenever possible, airborne contaminants will be kept below TLV/PEL levels in the breathing zone through supplied ventilation, thereby controlling against an explosion hazard.

PHYSICAL HAZARDS:

(Note land features, vehicle movement, fire, explosion, liquid pools, uneven terrain, slippery conditions, electrical, welding, etc. that may create hazards.)

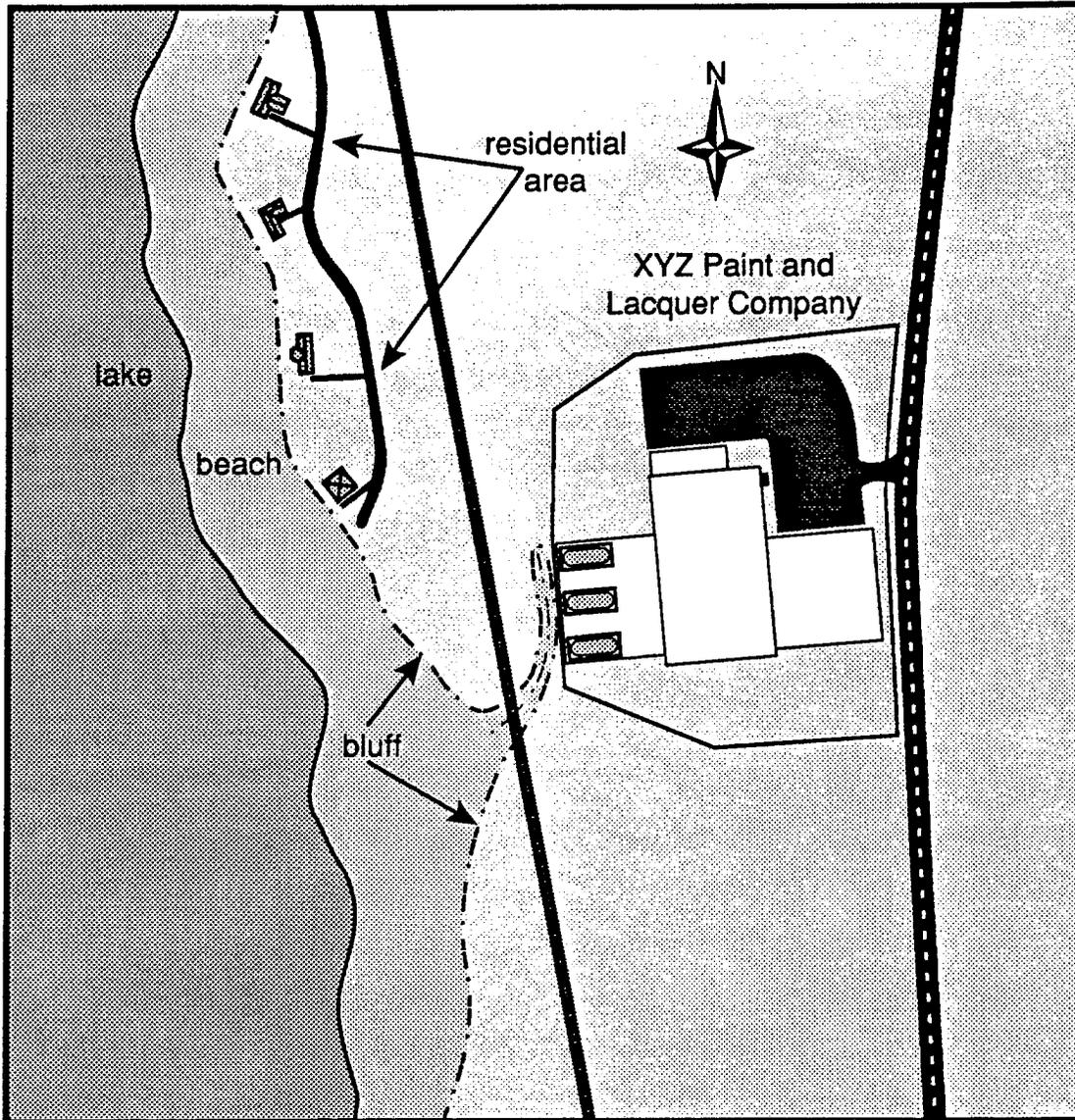
NOISE:

Equipment operators and all employees working around the forklift will wear hearing protection with a minimum NR rating of 25 dB.

D. ON-SITE CONTROL

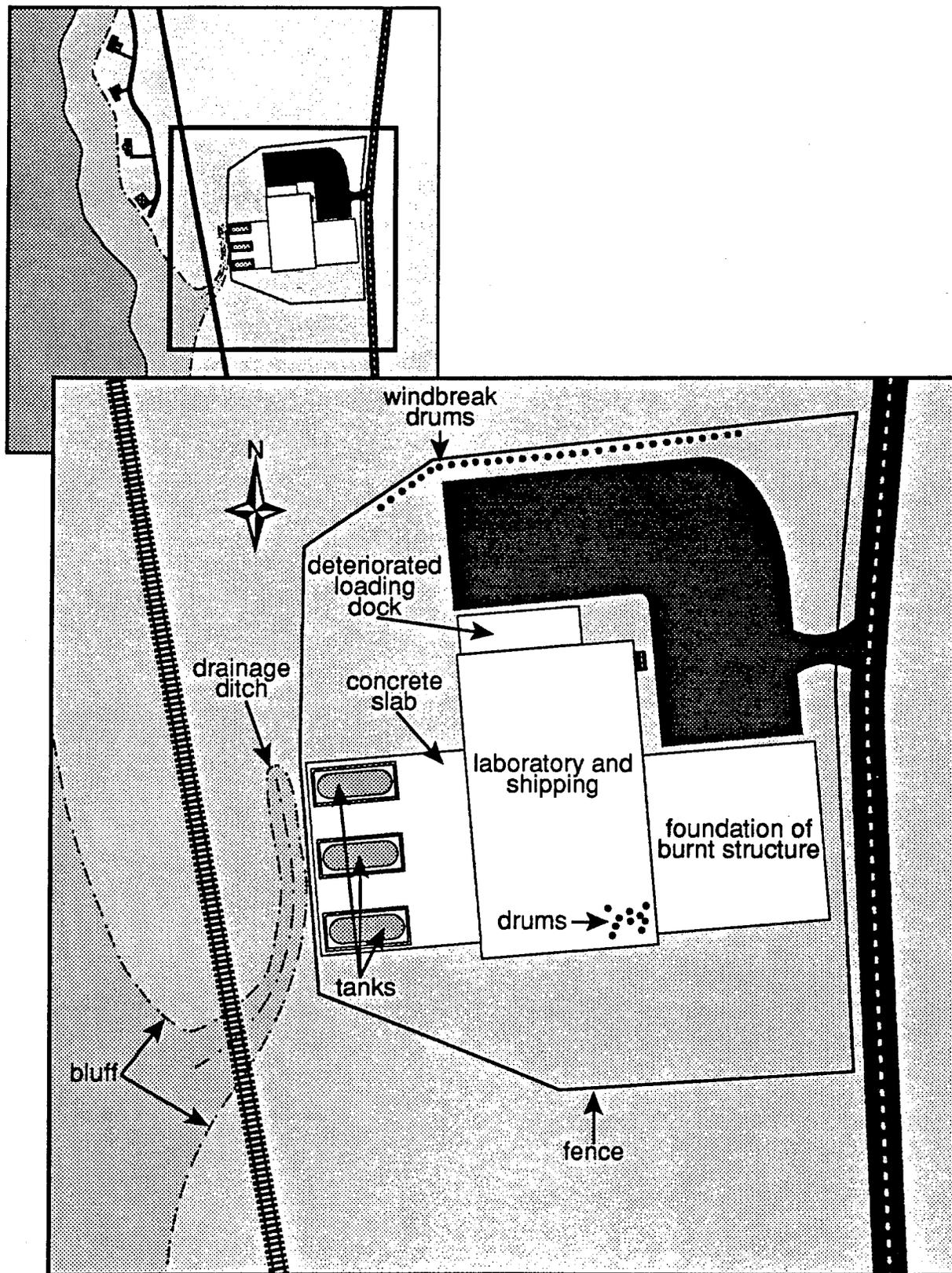
Control boundaries are identified on the attached site map. The map shows the areas of the site to be secured and identifies the perimeters. Safe perimeter has been established and is shown on the map. No unauthorized person should be in this area.

Specific Site Entry Procedures: a site safety briefing will be held and the field engineer will answer any questions, make sure everyone understands the plan, and have everyone sign the Employee Waiver. Decontaminate all equipment prior to arrival and departure, wearing an appropriate level of protection for the task. The safety consultant will walk over work locations with the HNu to survey and document background. Document that above-ground clearance has been made, indicated by marked work locations. Advise field crew of telephone locations. Proceed to work locations.



Overhead Site Map of the XYZ Paint and Lacquer Company

XYZ Paint and Lacquer Exercise



Detail Site Map of the XYZ Paint and Lacquer Company

E. REQUIRED PERSONAL PROTECTIVE EQUIPMENT

The following protective clothing materials are required for the specific task with the anticipated substances. No changes to the specified levels of protection shall be made without the approval of the Site Safety Consultant.

JOB TASK: Forklift Helper

CHEMICAL TYPE: Toluene Diisocyanate and Methyl Ethyl Keytone
(See the MSDSs at the end of this section.)

F. DECONTAMINATION PROCEDURES

Personal Hygiene: No smoking, drinking, chewing, or eating while working on the job site.

Wash hands and face at breaks; before eating, applying cosmetics, or lip balm; and prior to leaving site.

Retain wash water in drum. Soil samples, if shown to possess contaminants upon laboratory analysis, will be returned to the site. All contaminated cuttings or soil should be placed on plastic sheeting or into the appropriate open-headed 55-gallon drums for subsequent disposal. PPE that is disposable should be placed in covered drums on site.

Levels A, B, and C PPE are available.

EMERGENCY DECONTAMINATION PROCEDURES:

Remove all clothing in order:

1. Sound alarm.
2. Outer boots, garment, and outer gloves;
3. Inner gloves, and goggles;
4. Respirator;
5. Irrigate affected areas.
6. Seek medical attention immediately.

G. EMERGENCY PROCEDURES

The following standard emergency procedures will be used by on-site personnel. The Safety Consultant shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury in the Exclusion Zone:

Upon an injury in the Exclusion Zone, if possible prior to movement, contact an ambulance and then the designated medical facility. Notify designated emergency contacts as soon as possible. No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

Fire/Explosion:

The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personnel Protective Equipment Failure:

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Zone and complete decontamination. The Safety Consultant will be notified immediately to determine follow-up actions. Reentry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure:

If any other equipment on site fails to operate properly, the Site Safety Consultant shall be notified to determine the effects of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the assigned tasks, all personnel shall leave the Zone until the situation is evaluated and appropriate actions taken.

H. EMERGENCY CONTACTS

In the event of an emergency, the following will be notified:

Name E. J. Farquardt

Telephone No. 942-8623

EMERGENCY TELEPHONE NUMBERS ARE TO BE VERIFIED PRIOR TO ANY SITE ACTIVITIES

Ambulance	Metro Meat Wagon	942-8641
Hospital Emergency Room	Sisters of Mercy	944-3284
Poison Control Center	Upper Great Lakes	944-3568
	Poison Control Center	
Police	Sheboygen Metro Police	944-9871
Fire Department	Metro Fire Station #3	943-5174
Airport	Sheboygen Memorial Field	948-5168
Explosives Unit	Metro Police	944-9871
Safety Consultant	C.H.A.S.E.	642-4273

I. EMPLOYEE WAIVER

I have received the health and safety plan for the work site. I have read this plan, had the opportunity to ask questions. I understand the information in this plan and had 3 days on-site training. I have participated in education and training programs in compliance with Federal OSHA 29 CFR 1910.120(e) 40 hours initial instruction and 8 hours of refresher training and am currently participating in the medical surveillance program as outlined in the Health and Safety Manual.

Name (please print)	Signature	Date / /
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III. MEDICAL SURVEILLANCE PROGRAM

Personnel Included in Program

1. All new employees prior to beginning work at the XYZ Paint and Lacquer site will complete a pre-employment physical, which shall at a minimum include: a chest x-ray, pulmonary function test, blood lead test, and urinalysis. In addition to the pre-employment physical, the potential employee shall complete a detailed occupational and medical history questionnaire. The examining physician shall determine any limitations for respiratory and other personal protective equipment and certify these results to the employer. A copy of this respiratory fitness letter shall be placed in the employee's personnel file.
2. Employees who, in an emergency situation, have been exposed above the OSHA-PEL to any or all of the hazardous substances listed below will have additional exams.
 - 2a) An emergency is an unplanned or unexpected release of any of the toxic substances listed in the facility description to which a worker may be exposed, without regard to respiratory protection.

IV. ON-SITE ORGANIZATION AND COORDINATION

The following personnel roles are needed on the site. A person may be designated to perform more than one function.

PROJECT MANAGER:

Primarily responsible for the fulfillment of the terms of the contract. Oversees operations and ensures that all legal and safety requirements are met. Keeps the project on schedule and within budgetary guidelines. Hires and directs all contractor personnel. Provides daily progress reports to the client on the achievement of phase goals.

SITE SUPERVISOR:

Functions as on-site coordinator. Oversees all operations for the Project Manager. Reports in a regular and comprehensive manner to the project manager. Implements the site perimeter and maintains site security. Supervises laborers, technicians, and equipment operators. Ensures all health and safety procedures are followed, especially those concerning personal protective equipment, decontamination, and mechanical operations.

FIELD TEAM LEADER:

Supervises field laborers, technicians, and equipment operators at the direction of the on-site supervisor. Carries out the instructions of the Site Supervisor.

LABORER:

Performs tasks as assigned by the Field Team Leader and Site Supervisor. Includes drum-handling, assisting equipment operators and technicians.

EQUIPMENT OPERATORS:

Operate and maintain forklift as directed by the Field Team Leader and Site Supervisor.

TECHNICIAN:

Undertakes duties as assigned to monitor activities of Laborers and Equipment Operators, collect and analyze samples, facilitate completion of work requirements.

V STANDARD OPERATING PROCEDURES

A. PERSONAL PRECAUTIONS

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that involves hand-to-mouth transfer of material is prohibited in any area designated contaminated.
2. Hands and face must be thoroughly washed upon leaving the work area.
3. 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.
4. No facial hair which interferes with a satisfactory fit of the mask-to-face-seal is allowed on personnel required to wear respirators.
5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit, or place equipment on drums, containers, or the ground.
6. Medicine and alcohol can worsen the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake is prohibited.
7. All personnel must adhere to the information contained in the Site Safety Plan.
8. Contact lenses cannot be worn when respirator protection is required or when the hazard of a splash exists.
9. Personnel will be made aware of symptoms for toxic chemicals on site and for heat and cold stress.
10. Respirators shall be cleaned and disinfected after each day's use or more often if necessary.
11. Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained breathing apparatus will be inspected at least once a month, and before and after each use.
12. The employee will be familiar with all sections of the established respirator program and site safety plan.

B. OPERATIONS

1. All personnel going on-site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
2. Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
3. Personnel on-site must use the buddy system when wearing respiratory protective equipment. As a minimum, a third person, suitably equipped as a safety back-up, is required during extremely hazardous entries.
4. Visual contact must be maintained with entry and safety personnel. Entry team members should remain close together to assist each other during emergencies.
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8. Wind indicators visible to all personnel must be strategically located throughout the site.
9. The work area will be limited to the two-story structure and the concrete slab.
10. Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established.
11. Frequent and regular inspections of site operations will be conducted to ensure compliance with the Site Safety Plan. If any changes in operation occur, the Site Safety Plan must be modified to reflect change.
12. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150 Subpart F.

I. SCOPE OF WORK FOR THE XYZ PAINT COMPANY BUILDING 2 GENERAL CONTRACTOR: CLEANUP USA

A. PURPOSE OF WORK

Cleanup USA is to complete Phase III clean-up, removal, and disposal of stored chemicals; decontamination and removal of interior storage tanks; and decontamination of the existing structure. Phase I and II (Preliminary Investigation and Site Characterization) are completed.

Remediation services are expected to begin in August of this year and are expected to be completed by January of next year.

B. PROPERTY HISTORY

The XYZ Paint and Lacquer Company was established in 1919 and used the buildings that formerly belonged to the Upper Great Lakes Grain and Flour Company. The plant formulated paints and lacquers that were used as metal and wood finishes. The plant consisted of a four-story wooden structure with an adjoining two-story concrete building. Recently a two-story frame building with metal walls was included as part of the site in an agreement with EPA. Three 4,000-gallon chemical storage tanks were placed on an exterior concrete pad to the West of the Building 1. Total site acreage is 4.5 acres.

Two years ago the wooden portions of the plant that contained the paint laboratory, shipping, purchasing, and inventory records were destroyed in a fire. The chemical storage and paint formulation area of Building 1 was not damaged by the fire because they were protected by a two-foot-thick concrete wall and roof. Building 2 was not impacted by the fire due to its distance from Building 1. Following the fire, the entire plant was boarded up and closed. Vandals have broken into the concrete building and overturned drums that were stored there.

This factory is within 1/4 mile of the shoreline of one of the Great Lakes with soils that consist of sandy clay with lenses of coarse to medium sand. To the West of the site is a drainage ditch, an active railway right-of-way, and a steep bluff that is covered with second-growth forest. To the North and South of the site are abandoned factories and several active Superfund clean-up sites.

C. CURRENT PROPERTY STATUS

The results of the Phase I and II investigations at Building 2 indicate that there are no underground storage tanks, no major releases to the soil, and no accidents other than the fire two years ago. Soil borings indicate no ground water contamination that originates from this site.

Three 4,000-gallon storage tanks appear to be not leaking and have a concrete pad and dike enclosing the area. Tanks are approximately half full and show 100% LEL when tested near the vent.

Drums are stored inside Building 2 on the 2nd floor. These drums are severely rusted. There are three 500 gallon open top tanks within Building 2. These tanks contain Paint Lacquer Sludge which has hazardous constituent, lead chromate.. These tanks are half full. The building has no power source or windows. A deteriorated loading dock is present on the east end of the building with the main access through the north door. A semi-solid yellow to amber-colored coating is on the floor that resulted when some drums were overturned. Talc and solid resin chips are scattered over the floor. Seven drums labeled "Nitrocellulose - Flammable Liquid" contain a white fibrous solid that appears to have dried out. An LEL reading between 8 and 15% was obtained in the building area.

A chemical inventory, based on information from the site investigation, includes the following:

Inside Building 2

Nitrocellulose	(47 drums, stored inside, dried out)
Paint lacquer sludge	(3 tanks - 500 gal. each)
Hexamethylene diisocyanate	(200 drums, full)
Talc	(20 fiber drums, solid)
Methyl Ethyl Ketone (MEK)	(50 drums)

Waste profile sheets are available in the general contractors office.

II. SITE-SPECIFIC SAFETY PLAN FOR XYZ PAINT COMPANY REMEDIATION BUILDING 2

A. GENERAL INFORMATION

PROJECT NAME: XYZ Paint Company Building 2
PROJECT NO.: 5290
LOCATION: Mile Long Road, Great Lakes Region
PLAN PREPARED BY: Cleanup USA
DATE: September, 1995
REVIEWED BY: Carol Rice, CIH DATE: September 15, 1995

OBJECTIVES:

Phase I and II site assessments have been completed. Commence Phase III operations at abandoned paint factory Building 2. This work involves the clean-up, removal, and disposal of the remaining chemicals. The existing structure will also be decontaminated as part of this operation. Soil clean-up is unnecessary at this time.

SCOPE OF WORK:

1. Remove, package in approved DOT containers, and transport chemicals for proper disposal to landfill or incinerator.
2. Decontaminate existing structure.
3. Properly dispose of waste materials including wash solution.
4. Perform final survey of property to locate any contaminants.

SUMMARY OF OVERALL HAZARD:Serious Moderate Low Unknown **SPECIFIC HAZARDS PRESENT:**

Poison by inhalation; Sensitization; Flammable Liquids; Usual construction site hazards

WORK LIMITATIONS (Time of day, heat, cold, etc.)

1. Normal daylight hours.
2. Suspend activity if it begins to rain or lightning appears.
3. Winter work required to complete job on time.

SITE DESCRIPTION:

The site is 4.5 acres located within 1/4 mile of Great Lake shoreline. Soil is sandy clay with lenses of coarse to medium sand. Three borings were performed. None of the borings showed soil contamination. The site consists of a previously remediated two-story concrete structure with an adjoining concrete pad that has three 4000-gallon storage tanks on it (Building 1).

A two-story steel frame building (Building 2) is now to be remediated. Over 1000 55-gallon drums and three open-top 500 gallon tanks are inside this two-story structure. No water or electricity is supplied to the site. Several active Superfund sites are located nearby.

B. SITE AND WASTE CHARACTERISTICS

FACILITY DESCRIPTION:

Site was formerly a paint and lacquer factory. A four-story wooden building was destroyed in a fire two years ago, at which time production ceased. Building 1 which housed the paint formulation and chemical has been remediated. The contents of Building 2, a storage facility, have been characterized and remediation as necessary. The remaining two-story concrete structure which housed the paint formulation and chemical storage area was abandoned shortly after the fire. Vandals broke in and overturned drums within Building 2. An old elevator shaft remains in the building, without fall protection bars.

HISTORY: No other history.

STATUS: Inactive

UNUSUAL SITE FEATURES:

Drainage creek and active railway right-of-way west of site. Beach front located 1/4 mile east of site. Abandoned metal plating factory south of site. Superfund site 1/2 mile north involved in lakefront clean-up. Residential area located west of the site on top of the bluff.

BIOLOGICAL INDICATORS:

No staining or distressed vegetation was noted.

DISPERSION PATHWAYS:

Air, ground water, tracked on vehicles.

WIND DIRECTION:

Generally from the east, off the lake.

DRAINAGE:

Sandy soils sloping towards the lakefront.

ANTICIPATED CONTAMINANTS:

Nitrocellulose, Paint lacquer sludges, Methyl ethyl ketone (MEK), Talc, Hexamethylene diisocyanate (HDI)

WASTE TYPE (S):

Liquid Solid Sludge Vapor

CHARACTERISTICS:

Corrosive Ignitable Radioactive Volatile
Toxic Reactive Unknown

PRINCIPAL DISPOSAL METHOD:

Transportation packaging to comply with D.O.T. Performance and Packaging Standards (49 CFR 107).

XYZ Paint and Lacquer Exercise

Disposal in an EPA-approved landfill or incinerator. Check with facility for additional packaging or quantity restrictions.

C. HAZARD EVALUATION

Consideration in developing site safety plans is given to the potential hazard of the known chemicals, evaluating the toxicity, ignitability, reactivity, corrosiveness, physical state, and the quantity of the raw or waste materials that were expected to be generated, stored, or disposed of on-site.

EXPLOSIVE GASES:

Whenever possible, airborne contaminants will be kept below TLV/PEL levels in the breathing zone through supplied ventilation, thereby controlling against an explosion hazard.

PHYSICAL HAZARDS:

Note land features, vehicle movement, fire, explosion, liquid pools, uneven terrain, slippery conditions, electrical, welding, etc. that may create hazards. In order to complete the work on schedule, active remediation will be conducted during November, December, and January - traditionally very cold months in the Great Lakes area.

NOISE:

Equipment operators and all employees working around the forklift will wear hearing protection with a minimum NR rating of 25 dB.

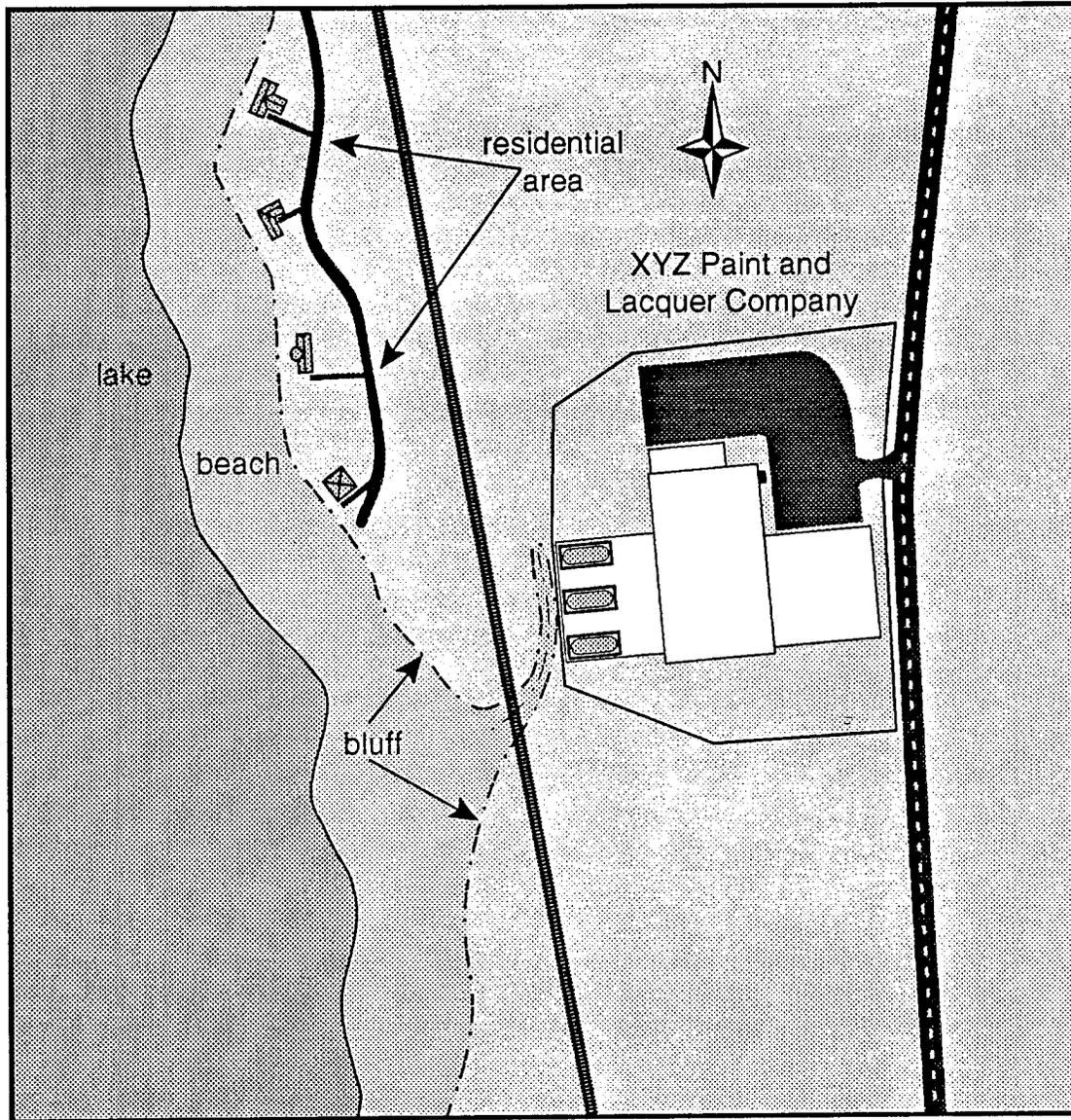
DUSTS: Where vandals have tipped over drums, dry residues are present on the flooring. Cardboard drums of talc are segregated to one corner.

D. ON-SITE CONTROL

Control boundaries are identified on the attached site map. The map shows the areas of the site to be secured and identifies the perimeters. A safe perimeter has been established and is shown on the map. No unauthorized person should be in this area.

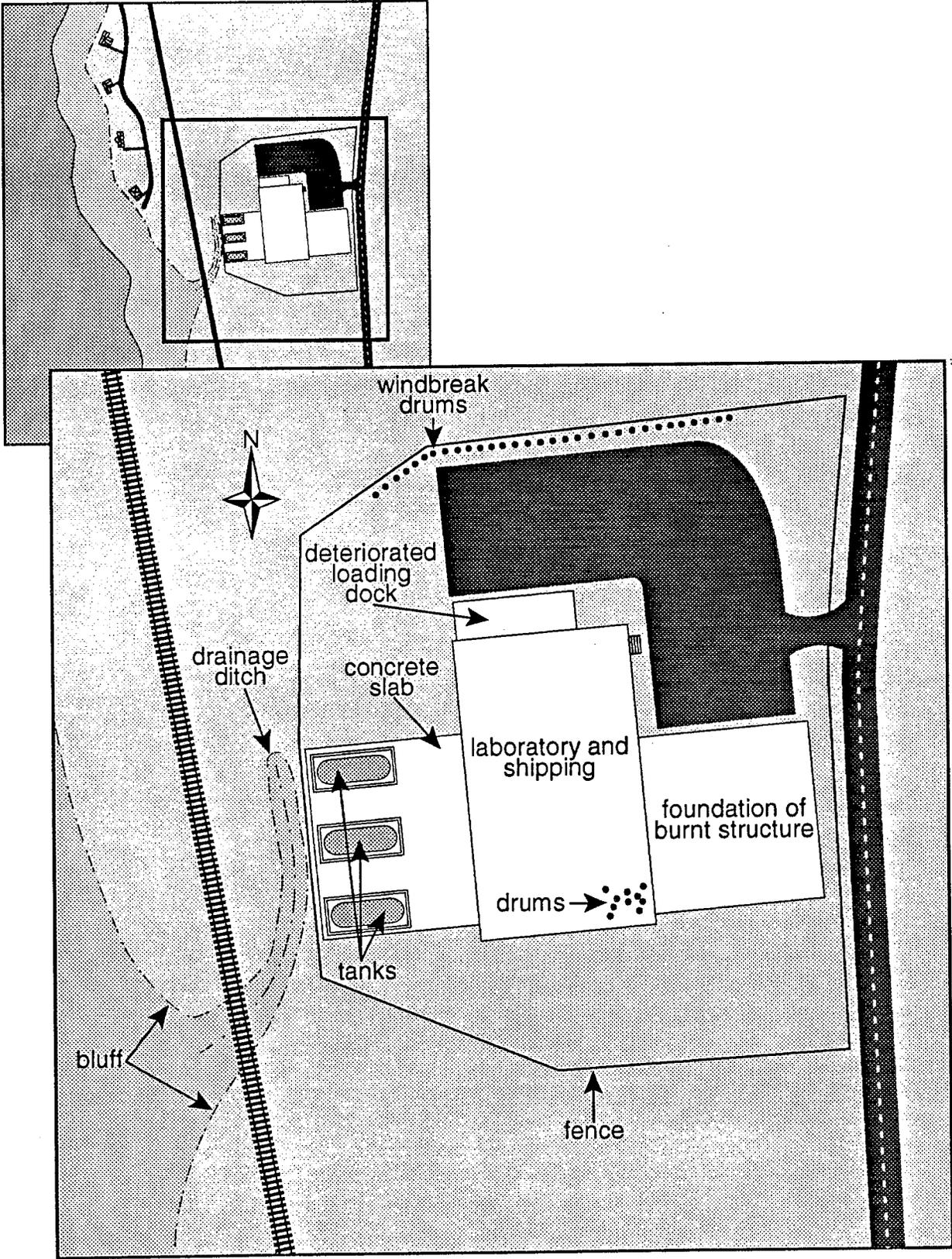
Specific Site Entry Procedures: a site safety briefing will be held and the field engineer will answer any questions, make sure everyone understands the plan, and have everyone sign the Employee Waiver. Decontaminate all equipment prior to departure, wearing an appropriate level of protection for the task. The safety consultant will walk over work locations with the HNu to survey and document background. Document that above-ground clearance has been made, indicated by marked work locations. Advise field crew of telephone locations. Proceed to work locations.

XYZ Paint and Lacquer Exercise



Overhead Site Map of the XYZ Paint and Lacquer Company

XYZ Paint and Lacquer Exercise



Detail Site Map of the XYZ Paint and Lacquer Company

E. REQUIRED PERSONAL PROTECTIVE EQUIPMENT

The following protective clothing materials are required for the specific task with the anticipated substances. No changes to the specified levels of protection shall be made without the approval of the Site Safety Consultant.

EXAMPLE:

JOB TASK: Forklift Helper

CHEMICAL TYPE: Hexumethylene Diisocyanate and Methyl Ethyl Keytone
(See the MSDSs at the end of this section.)

F. DECONTAMINATION PROCEDURES

Personal Hygiene: No smoking, drinking, chewing, or eating while working on the job site.

Wash hands and face at breaks; before eating, applying cosmetics, or lip balm; and prior to leaving site.

Retain wash water in drum. Soil samples, if shown to possess contaminants upon laboratory analysis, will be returned to the site. All contaminated cuttings or soil should be placed on plastic sheeting or into the appropriate open-headed 55-gallon drums for subsequent disposal. PPE that is disposable should be placed in covered drums on site.

Levels A, B, and C PPE are available.

EMERGENCY DECONTAMINATION PROCEDURES:

Remove all clothing in order:

1. Sound alarm.
2. Outer boots, garment, and outer gloves;
3. Inner gloves, and goggles;
4. Respirator;
5. Irrigate affected areas.
6. Seek medical attention immediately.

G. EMERGENCY PROCEDURES

The following standard emergency procedures will be used by on-site personnel. The Safety Consultant shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury in the Exclusion Zone:

Upon an injury in the Exclusion Zone, if possible prior to movement, contact an ambulance and then the designated medical facility. Notify designated emergency contacts as soon as possible. No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

Fire/Explosion:

The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personnel Protective Equipment Failure:

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Zone and complete decontamination. The Safety Consultant will be notified immediately to determine follow-up actions. Reentry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure:

If any other equipment on site fails to operate properly, the Site Safety Consultant shall be notified to determine the effects of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the assigned tasks, all personnel shall leave the Zone until the situation is evaluated and appropriate actions taken.

Heat and Cold:

Because the job will be conducted across several seasons both heat and cold stress hazards may occur.

Heat and Cold

Temperature extremes put extra physical stress on the body. Long periods of exposure to heat may cause illness, particularly if an employee is not accustomed to working in hot areas. Also, heat builds up inside protective clothing, so there is a risk of heat stress even if outside temperatures are moderate. Cold stress is less common but may occur if work is required outdoors or in unheated buildings in winter months.

Signs and Symptoms of Heat Stress

Heat Cramps

Symptoms: painful muscle spasms

Cause: profuse sweating and drinking large amounts of water

Treatment: Provide liquids with electrolytes (sodium, potassium) like diluted Gatorade™.

Heat Exhaustion

Symptoms: weakness; fatigue; dizziness; pale, cool, moist skin; heavy sweating; headache; nausea; and fainting

Cause: reduced blood volume resulting from dehydration from profuse sweating and insufficient replacement of water and salts.

Treatment: If worker is conscious, rest in cool place. Replace water and electrolytes lost in sweat. If worker is unconscious, get medical help immediately. DO NOT give liquids if person is unconscious.

Heat Stroke

Symptoms: very dry, hot skin with red mottled or bluish appearance; confusion; convulsions; unconsciousness; rapidly rising temperature

Cause: body becomes overheated because the worker does not sweat. Can be fatal.

Treatment: Call for medical help immediately. Move person to cool place. Remove PPE. Use wet towels or water and fan to cool while waiting for help.

Heat stroke is a life-threatening emergency. Medical attention is required.

Cold may also be a hazard. If the body is overexposed to cold, the following problems could occur:

Frostbite

Symptoms: numbness of hands, feet, or face

Cause: prolonged exposure to cold environments

Treatment: Frostbitten tissue should be gently warmed and not exposed to further cold.

Hypothermia

Symptoms: lowered body temperature, shivering, or drowsiness. If body temperature is reduced to 80°F (or below), unconsciousness is often followed by death.

Cause: wet, cold, exhaustion; body's response to minimize heat loss becomes ineffective when body temperature goes below 86°F.

Treatment: Warm the body. Get medical assistance.

Specific training is required to deal with these emergencies. The potential for these stresses at your facility should be recognized in advance, and appropriate

H. EMERGENCY CONTACTS

In the event of an emergency, the following will be notified:

Name E. J. Farquardt
Telephone No. 942-8623

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Name (please print)

Signature

//
Date

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11. Frequent and regular inspections of site operations will be conducted to ensure compliance with the Site Safety Plan. If any changes in operation occur, the Site Safety Plan must be modified to reflect change.
12. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150 Subpart F.

I. SCOPE OF WORK FOR THE LONGGONE LANDFILL

A. PURPOSE OF WORK

A peculiar taste in the residential wells adjacent to the landfill and complaints of a strange odor during some Little League baseball games has led the county to hire Pogo Monitoring. Pogo Monitoring is to complete a preliminary investigation, Phase I, for potential emissions. Monitoring will include the installation of monitoring wells on the East and West sides of the site, and air monitoring will be conducted on and off-site.

B. Property History

Longgone Landfill was owned and operated by Longgone Dumpers from 1950 to 1980. During this period, the landfill received wastes from the local industries. From 1971 to 1980, Longgone had a contract with the city to haul city trash. The landfill also accepted commercial trash during this period; however, no records were kept. In general, it appears that dumping was done without regard to type of waste. The current status of the site is officially inactive, partially covered, and poorly secured.

C. Current Property Status

The landfill is adjacent to a marsh and has a high water table. Portions of the filled area may flood seasonally. The overflow from the flooded landfill will follow the swale to the marsh.

Hazards which are known to be present in the ground water include toluene, benzene, perchloroethylene, and arsenic. Drums containing sulfuric acid and PCB-contaminated oil are known to be on site.

Also adjacent to the landfill are two wells, the Jones' well and the Smiths' well, and a baseball playing field. Across the street from the landfill is an elementary school and other commercial and residential properties. The attached map shows the locations of the apparent disposal site and its proximity to the neighboring businesses and residents of Bontassie.

Additional information of interest is that in 1989 toxic fumes from a fire in the landfill reportedly killed birds in the area. The suspected cause of the fire was a group of campers.

II. Site-Specific Safety Plan for Longgone Landfill

A. General Information

Project Name: Longgone Landfill
Project #: 5406
Location: Maxwell Drive, Bontassie, FL
Date: 8/04/92

Objectives

Perform a preliminary site investigation by:
boring and sampling soil.
installation of monitoring wells.
sampling ground water.
sampling water from local drinking wells.
monitoring air on and off site.

Summary of Overall Hazard:

Serious _ Moderate _ Low _ Unknown

Specific Hazards Present:

Possible free liquids and poison by inhalation.

Work Limitations:

1. Normal; Daylight Hours
2. Air monitoring and drilling will cease during rain.
3. Well monitoring will cease only in case of lightning.

Site Description:

The Longgone Landfill is directly South of Bontassie, Florida. The Landfill is bordered on the West by a marsh, the East by State Highway 53, and the North and South by residences. The residences to the immediate North and South of the landfill have drinking wells on the property. There have been complaints that the drinking water from the well to the North of the site has tasted and smelled peculiar. There have also been complaints of a strange smell during Little League baseball games. The fence that once surrounded the landfill is overgrown with Kudzu and has almost completely decomposed. In 1989 smoke from a fire in the landfill reportedly killed birds in the area. It is unknown whether the fire was caused by spontaneous reactions within the site or careless campers. There are several foot paths through the site that emanate from the Little League baseball field.

The Longgone Landfill operated from 1950 to 1980. No disposal records were kept, but it is rumored that sulfuric acid and perchloroethylene were dumped in the landfill for the majority of the time that it was operating. The site has an annual rainfall of 56 inches. During the spring rains, portions of the marsh and the landfill are below water.

B. Site and Waste Characteristics

FACILITY DESCRIPTION:

The major feature of the site is its proximity to Bontassie, playgrounds, and local drinking wells. The secondary feature of the site is that the fence enclosing it is dilapidated and the site is subsequently being used as a shortcut between the BMX track and the Little League baseball field.

PRINCIPAL DISPOSAL METHOD:

Buried drums.

UNUSUAL FEATURES:

Down-gradient to Pogo Marsh and Pogo Lake.

STATUS: Inactive

HISTORY: Fire and public complaints of odor.

BIOLOGICAL INDICATORS: Patchy defoliation. Site is fenced, but the fence is in an advanced state of decay. The access road to the site is being used as a footpath.

PATHWAYS FOR DISPERSION OF HAZARDOUS MATERIALS:

Ground water, air, transported on site equipment.

WIND DIRECTION: Primarily from the Southwest.

DRAINAGE: No system ever recorded.

CONTAMINANTS EXPECTED:

Sulfuric acid, PCB-contaminated oil, Toluene, Benzene, Arsenic, or Perchloroethylene.

WASTE TYPE(S):

Liquid X Solid ___ Sludge ___ Gas ___

CHARACTERISTIC(S):

Corrosive X Ignitable X Radioactive ___ Volatile X

Toxic X Reactive ___ Unknown ___ Other ___

C. Hazard Evaluation

EXPLOSIVE GASES:

Types: Suspected volatile organics: Perchloroethylene
LEL Action Level: 10% LEL on combustible gas meter
Required Action: Stop work, retreat and vent.
Re-evaluate for flammability.
Resume work when LEL is less than 10%.
Monitor continuously.

Airborne contaminants will be kept below TVL/PEL levels in the breathing zone, thereby also controlling against an explosion hazard.

Physical hazards include the normal slip, trip, and fall hazards present at any site.

Entry Objectives:

The Objectives of the initial entry to the contaminated area are to:

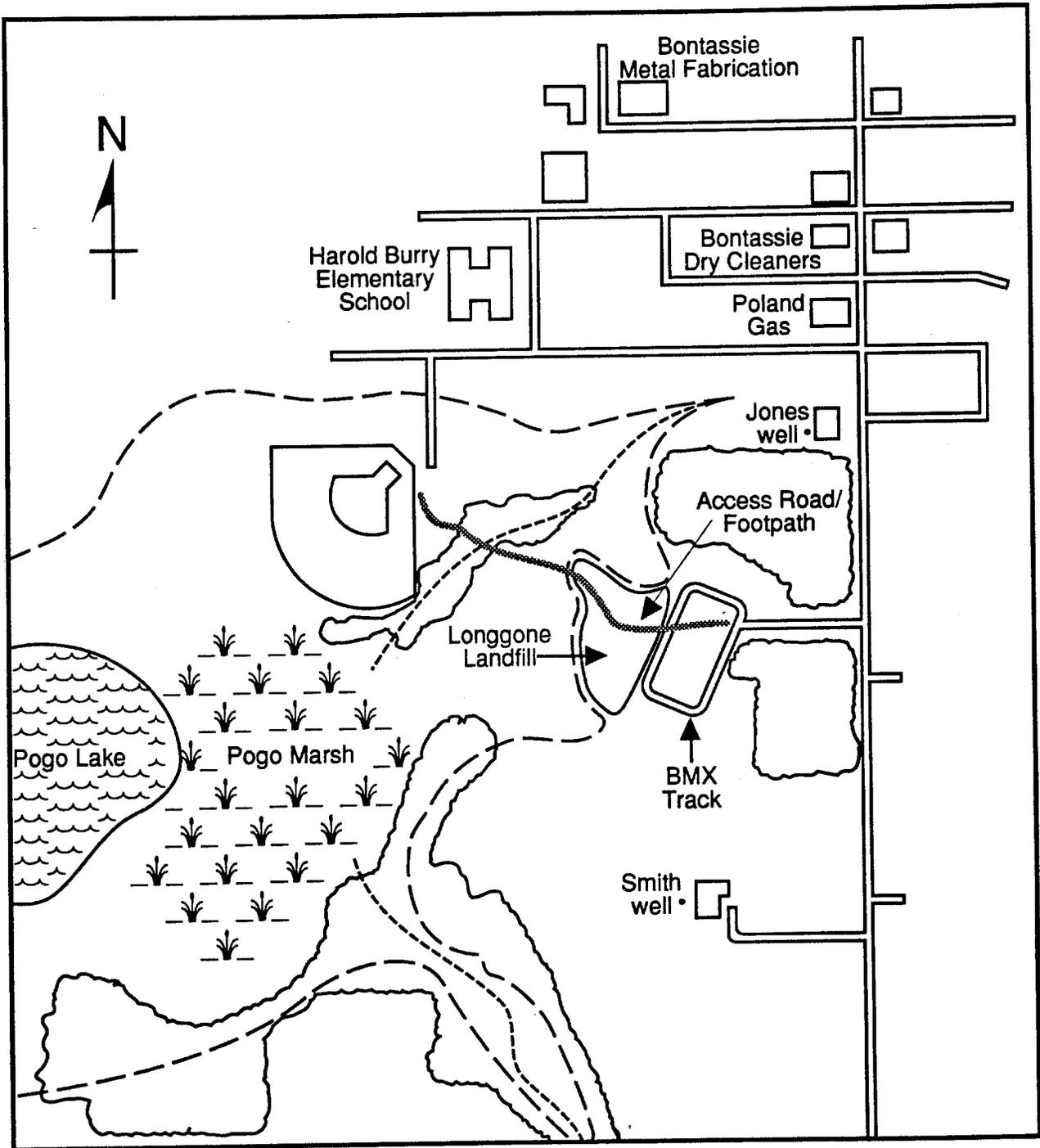
- perform a preliminary site investigation.
- perform soil boring and sampling: monitor well installation and sampling.
- ground water sampling.

Viskosill Environmental has been chosen as the contractor to carry out these objectives. Viskosill Environmental can expect to encounter the typical weather conditions that will prevail during the proposed dates of investigation (August through November). The prevailing wind direction during this time is from the Southwest.

D. ON-SITE CONTROL

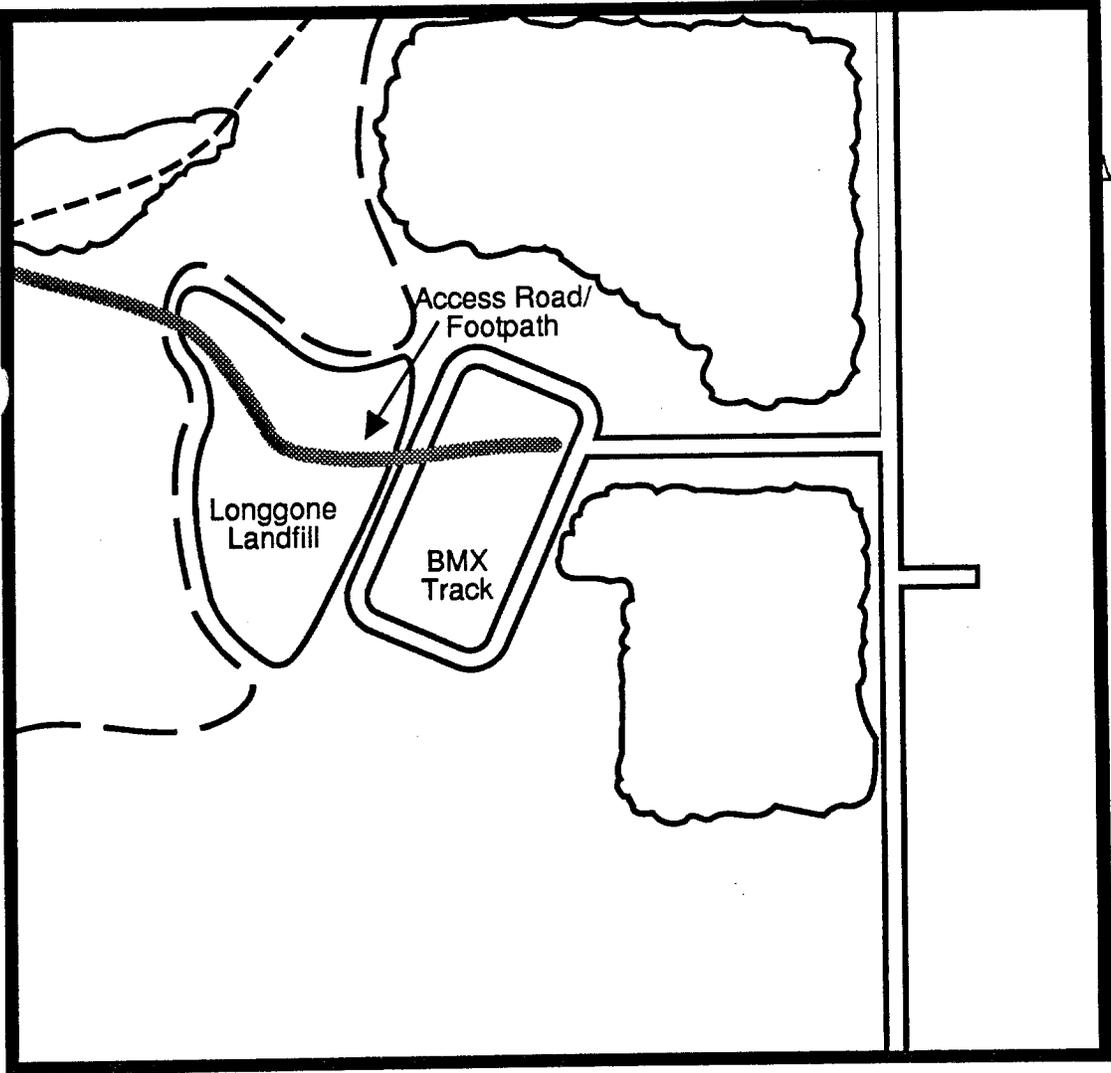
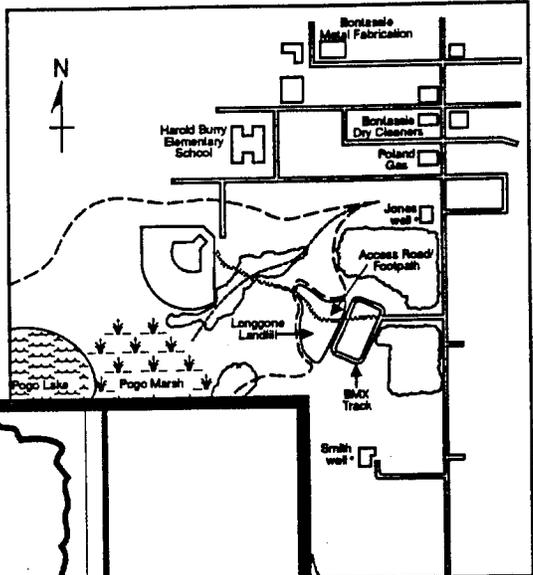
Control boundaries are identified on the attached site map. The map shows the areas of the site to be secured and identifies the perimeters. Safe perimeter has been established and is shown on the map. No unauthorized person should be in this area.

Specific Site Entry Procedures: a site safety briefing will be held and the field engineer will answer any questions, make sure everyone understands the plan, and have everyone sign the Employee Waiver. Decontaminate all equipment prior to arrival and departure, wearing an appropriate level of protection for the task. The safety consultant will walk over work locations with the HNu to survey and document background. Document that above-ground clearance has been made, indicated by marked work locations. Advise field crew of telephone locations. Proceed to work locations.



Site Map of the Longgone Landfill

Longgone Landfill Exercise



Detail of Site Map for the Longgone Landfill

E. REQUIRED PERSONAL PROTECTIVE EQUIPMENT

The following protective clothing materials are required for the specific task with the anticipated substances. No changes to the specified levels of protection shall be made without the approval of the Site Safety Consultant.

JOB TASK: Technician.

POTENTIAL EXPOSURES:

Sulfuric Acid, Perchloroethylene, Toluene, Benzene, Arsenic, PCB-Contaminated Oil.

F. DECONTAMINATION PROCEDURES

Personal Hygiene: No smoking, drinking, chewing, or eating while working on the job site.

Wash hands and face at breaks; before eating, applying cosmetics, or lip balm; and prior to leaving site.

Retain wash water in drum. Soil samples, if shown to possess contaminants upon laboratory analysis, will be returned to the site. All contaminated cuttings or soil should be placed on plastic sheeting or into the appropriate open-headed 55-gallon drums for subsequent disposal. PPE that is disposable should be placed in covered drums on-site.

G. EMERGENCY PROCEDURES

The following standard emergency procedures will be used by on-site personnel. The Safety Consultant shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury in the Exclusion Zone:

Upon an injury in the Exclusion Zone, if possible prior to movement, contact an ambulance and then the designated medical facility. Notify designated emergency contacts as soon as possible. No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

Fire/Explosion:

The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personnel Protective Equipment Failure:

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Zone and complete decontamination. The Safety Consultant will be notified immediately to determine follow-up actions. Reentry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure:

If any other equipment on site fails to operate properly, the Site Safety Consultant shall be notified to determine the effects of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the assigned tasks, all personnel shall leave the Zone until the situation is evaluated and appropriate actions taken.

H. EMERGENCY CONTACTS

In the event of an emergency, the following will be notified:

Name E. J. Farquardt
Telephone No. 942-8623

EMERGENCY TELEPHONE NUMBERS ARE TO BE VERIFIED PRIOR TO ANY SITE ACTIVITIES.

Ambulance	Metro Meat Wagon	942-8641
Hospital Emergency Room	Sisters of Mercy	944-3284
Poison Control Center	Bontassie Poison Control Center	944-3568
Police	Bontassie Metro Police	944-9871
Fire Department	Metro Fire Station #3	943-5174
Airport	Bontassie Memorial Field	948-5168
Explosives Unit	Metro Police	944-9871
Safety Consultant	C.H.A.S.E.	642-4273

I. EMPLOYEE WAIVER

I have received the health and safety plan for the work site. I have read this plan, had the opportunity to ask questions. I understand the information in this plan and had 3 days on-site training. I have participated in education and training programs in compliance with Federal OSHA 29 CFR 1910.120(e) 40 hours initial instruction and 8 hours of refresher training and am currently participating in the medical surveillance program as outlined in the Health and Safety Manual.

Name (please print)	Signature	Date
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III. MEDICAL SURVEILLANCE PROGRAM

Personnel Included in Program

1. All new employees prior to beginning work at the Longgone Landfill site will complete a pre-employment physical, which shall at a minimum include: a chest x-ray, pulmonary function test, blood lead test, and urinalysis. In addition to the pre-employment physical, the potential employee shall complete a detailed occupational and medical history questionnaire. The examining physician shall determine any limitations for respiratory and other personal protective equipment and certify these results to the employer. A copy of this respiratory fitness letter shall be placed in the employee's personnel file.
2. Employees who, in an emergency situation, have been exposed above the OSHA-PEL to any or all of the hazardous substances listed below will have additional exams.
 - 2a) An emergency is an unplanned or unexpected release of any of the toxic substances listed in the facility description to which a worker may be exposed, without regard to respiratory protection.

IV. ON-SITE ORGANIZATION AND COORDINATION

The following personnel roles are needed on the site. A person may be designated to perform more than one function.

PROJECT MANAGER:

Primarily responsible for the fulfillment of the terms of the contract. Oversees operations and ensures that all legal and safety requirements are met. Keeps the project on schedule and within budgetary guidelines. Hires and directs all contractor personnel. Provides daily progress reports to the client on the achievement of phase goals.

SITE SUPERVISOR:

Functions as on-site coordinator. Oversees all operations for the Project Manager. Reports in a regular and comprehensive manner to the project manager. Implements the site perimeter and maintains site security. Supervises laborers, technicians, and equipment operators. Ensures all health and safety procedures are followed, especially those concerning personal protective equipment, decontamination, and mechanical operations.

FIELD TEAM LEADER:

Supervises field laborers and equipment operators at the direction of the on-site supervisor. Carries out the instructions of the Site Supervisor.

LABORER:

Performs tasks as assigned by the Field Team Leader and Site Supervisor. Includes taking samples and assisting equipment operators.

EQUIPMENT OPERATORS:

Operate and maintain drilling equipment as directed by the Field Team Leader and Site Supervisor.

SITE SAFETY OFFICER:

Maintains proper medical surveillance including preentry and exit physical examinations. Provides hazard communication information. Trains employees on safe work practices. Monitors worker and area exposures. Provides guidance on the selection of personal protective equipment including respirators. Recommends proper decontamination procedures. Recommends the perimeters of work zones. Advises the Project Manager on all health and safety matters for both the on-site workers and the public. Responsible for implementation of compliance with all federal and state health and safety regulations.

TECHNICIAN:

Undertakes duties as assigned to monitor activities of Laborers and Equipment Operators, collect and analyze samples, facilitate completion of work requirements.

V STANDARD OPERATING PROCEDURES

A. PERSONAL PRECAUTIONS

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that involves hand-to-mouth transfer of material is prohibited in any area designated contaminated.
2. Hands and face must be thoroughly washed upon leaving the work area.
3. 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.
4. No facial hair which interferes with a satisfactory fit of the mask-to-face-seal is allowed on personnel required to wear respirators.
5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit, or place equipment on drums, containers, or the ground.
6. Medicine and alcohol can worsen the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake is prohibited.
7. All personnel must adhere to the information contained in the Site Safety Plan.
8. Contact lenses cannot be worn when respirator protection is required or when the hazard of a splash exists.
9. Personnel will be made aware of symptoms for toxic chemicals on site and for heat and cold stress.
10. Respirators shall be cleaned and disinfected after each day's use or more often if necessary.
11. Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained breathing apparatus will be inspected at least once a month, and before and after each use.
12. The employee will be familiar with all sections of the established respirator program and site safety plan.

B. OPERATIONS

1. All personnel going on-site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
2. Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
3. Personnel on-site must use the buddy system when wearing respiratory protective equipment. As a minimum, a third person, suitably equipped as a safety back-up, is required during extremely hazardous entries.
4. Visual contact must be maintained with entry and safety personnel. Entry team members should remain close together to assist each other during emergencies.
5. During continual operations, on-site workers will act as safety back-up to each other. Off-site personnel will provide emergency assistance.
6. Personnel must practice unfamiliar operations prior to undertaking the procedure of the Longgone Landfill Site Safety Plan. Entrance and exit locations must be designated and emergency escape routes delineated. Warning signals for site excavation must be established.
7. Communications using radios, hand signals, or other means must be maintained between initial entry members at all times. Emergency communications should be prearranged in case of radio failure, necessity for evacuation of site, or other reasons.
8. Wind indicators visible to all personnel must be strategically located throughout the site.
9. The work area will be limited to the area contained by the decaying wooden fence.
10. Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established.
11. Frequent and regular inspections of site operations will be conducted to ensure compliance with the Site Safety Plan. If any changes in operation occur, the Site Safety Plan must be modified to reflect change.
12. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150 Subpart F.