CBS

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PITTSBURGH, PENNSYLVANIA 15222

August 27, 2009

**VIA UPS OVERNIGHT MAIL**

To: DISTRIBUTION

**SUBJECT: Lemon Land Landfill, Operable Unit 2 and 3**
**Health and Safety Plan**

In accordance with the Consent Decree Amendment (CDA) entered by the court on July 24, 2009, please find attached the Lemon Lane Landfill, Operable Unit 2 and 3, Health and Safety Plan.

Please provide us with any comments at your earliest convenience.

Dorothy M. Alke
Vice President, Environmental Projects
BP:09-0034

Attachment

**DISTRIBUTION**

Tom Alcamo, USEPA Region 5
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# *HEALTH AND SAFETY PLAN*

## *LEMON LANE LANDFILL SITE*
## *OPERABLE UNIT 2 AND 3 ACTIVITIES*
## *BLOOMINGTON, INDIANA*

*Prepared for:*

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# CHAPTER 1: INTRODUCTION

The purpose of the Health and Safety Plan (HASP) is to communicate the known and suspected hazards associated with the project and to establish appropriate safety procedures for all companies, agencies, and personnel working at the site.

This HASP has been developed through the cooperation of key employees of CBS Corporation (CBS) and PSARA Technologies, Inc. (PSARA). Prior to the start of work, each contractor will be required either to adopt this HASP for their personnel or to submit a company-specific HASP to the site Health and Safety Coordinator (HSC) for review and comment. Any company-specific HASP, however, must be at least as protective of site personnel as this site-specific HASP.

Should additional contractors or subcontractors become involved in potentially hazardous work at the site, they will be required to adopt the site-specific HASP for their personnel. In this event, the new contractor will be given the opportunity to review this HASP and request any modifications appropriate to the nature of their work. Any request for site-specific HASP modification must be reviewed and approved by the site HSC and CBS's Project Manager as described in the HASP.

The procedures contained herein are based upon the best available information at the time of the plan's preparation. As new information becomes available, the HASP will be revised accordingly to ensure protection of site personnel. To make a revision to the HASP document, the revision must be described in a Memorandum of HASP Modification, approved by the HSC and CBS's Project Manager, and provided to the health and safety coordinator from each contractor on site for review and comment.

# CHAPTER 2: KEY PERSONNEL/IDENTIFICATION OF HEALTH AND SAFETY OFFICER

The following individuals have been identified as key personnel for this project. Their roles and responsibilities are described in this section.

| | |
|---|---|
| **CBS Project Manager:** | **Dorothy M. Alke** |
| **PSARA Project Manager:** | **Michael C. Hessling** |
| **Remediation Contractor Project Manager:** | **To Be Determined** |
| **Site Health & Safety Coordinator:** | **To Be Determined** |

## 2.1 CBS PROJECT MANAGER

The CBS Project Manager will have overall responsibility for all aspects of the project. She will be on site as necessary to ensure that the project is being conducted in accordance with the project work plans. The Project Manager will be responsible for approving (on behalf of CBS) any modifications to the technical approach or any alternates or equivalents that may be suggested by the contractor.

## 2.2 PSARA PROJECT MANAGER

The PSARA Project Manager or his designee will be responsible for overseeing daily project activities and for coordinating the various contractors involved in the project. He will be responsible for documenting and reporting daily progress and resolving issues related to safety, air monitoring, project operations, and verification sampling. He will also be responsible for assisting CBS and/or performing related groundwater/storm water sampling and flow measurements at the site.

## 2.3 CONTRACTOR PROJECT MANAGER

The Contractor Project Manager will be responsible for implementing the construction and remediation activities described in the work plan and for supervising contractor employees. He will be responsible for overseeing all operations related to water capture and treatment, new system construction, effluent line installation, and contaminated soil and sediment removal. In addition, he will be responsible for ensuring that all contract personnel meet applicable regulatory requirements (i.e., training and medical monitoring) and conduct work operations in accordance with the requirements of this HASP.

## 2.4 SITE HEALTH AND SAFETY COORDINATOR

The site HSC, or a designee, will have primary responsibility for the daily implementation of the HASP at the site. This person will be responsible for all health and safety activities, including safety training, air monitoring, site inspections, and decontamination of personnel, equipment, and materials leaving the site. The HSC will also be charged with the responsibility of enforcing the use of personal protective equipment and training site personnel as outlined in Chapters 4 and 5 of this HASP. The HSC will have experience in field operations with air monitoring instruments, personal protective equipment, decontamination procedures, and emergency equipment and procedures. In addition, the HSC will conduct a project chemical inventory and will provide Material Safety Data Sheets (MSDSs) for each chemical identified to CBS's Project Manager. Copies of the MSDSs will also be maintained by the HSC at the site.

In addition, he will be responsible for ensuring that all contractor personnel meet applicable regulatory requirements (i.e., training and medical monitoring) and conduct work operations in accordance with the requirements of this HASP.

# CHAPTER 3: TASK/OPERATION SAFETY AND HEALTH RISK ANALYSIS

This section addresses the identified health and safety hazards associated with the activities covered by this HASP. Specific hazards associated with each task to be performed are outlined in the Health and Safety Requirements Matrix presented in Appendix A.

Additional job hazard analyses will be performed by the site HSC and the Contractor Project Manager on an as-needed basis. These task-specific hazard analyses will address the hazards and safety procedures associated with individual operations or tasks, such as permitting a confined space entry or developing a lifting plan for crane operations.

## 3.1 SITE DESCRIPTION

The Lemon Lane Landfill is located on the northwest side of the City of Bloomington in Monroe County, Indiana, at 801 North Lemon Lane. The landfill location is shown on the site location map in Figure 1.

The original landfill area covered approximately 10 acres. The City of Bloomington owns a majority of the landfill property. Lemon Lane Road and a residential area along Lemon Lane bound the east side of the landfill. The CSX Railroad tracks border the southern edge of the landfill. Directly south of the railroad tracks is Valhalla Cemetery.

The Illinois Central Spring (ICS) discharges groundwater impacted by the site. This spring is located approximately 2000 feet southeast of the landfill.

## 3.2 SITE HISTORY

The Lemon Lane Landfill began operation as a refuse dump in 1933. The City of Bloomington operated the site from 1950 to 1964 as a municipal waste landfill. It was also used as a repository for industrial debris and waste. Electrical capacitors containing PCBs from the Westinghouse Bloomington plant were deposited there from 1958 to 1964 by contracted local waste haulers.

Landfill operations were typical of the period with the absence of controls and design features common to modern facilities. Dumping was not controlled with regard to waste content, and there was not record keeping. Scavenging and burning were common daily practices. Local residents routinely scavenged capacitors on or from the site. Items such as capacitors would typically be placed at the edge of the landfill where scavenging operations would occur.

Investigations at the site began as early as 1976. Extensive site sampling began in the early 1980s. The site was placed on the NPL in 1983. Initial site cleanup activities began in 1983. A Consent Decree (CD) defining remediation requirements was signed in 1985. This CD required interim

measures at the site and detailed final remedial and closure activities, including long-term monitoring.

A number of interim remedial measures were implemented at Lemon Lane Landfill beginning in 1983 and include:

- In June 1983, an 8-ft-high fence was installed by the U.S. Environmental Protection Agency (USEPA) around the entire perimeter of the landfill.

- In 1985, the EPA installed a fence around ICS. This spring is approximately 2000 feet southeast of the landfill, and the spring waters and sediments were found to contain PCBs. It was suspected that the spring was the resurgence of groundwater impacted by the site.

- In May 1987, the site was cleared of all trees and vegetation, and exposed capacitors were removed. An interim cap was placed on the site with the upper cap component being a 36-mil Hypalon geomembrane cover. This was installed to minimize rainwater infiltration into the landfill, prevent the erosion of soils from the site, and minimize any potential air emissions. This work was done by Viacom under supervision of the other CD parties.

- In 1995, additional fencing was placed around the ICS area and Swallow Hole by Viacom.

- In 1996, Viacom modified drainage from the interim cap. A berm was installed on top of the cap to direct more of the runoff to Sargent's Pond, and the cap was extended to the southwest of the landfill to prevent ponded water from infiltrating at the edge of the landfill.

In 2000, the site was separated into operable units. A revised remedy for Operable Unit 1, the source control remedy, was agreed to and implemented.

The source control remedy for the landfill was designed to accomplish the following:

- Remove materials in areas defined with greater than 100 ppm PCBs to an offsite TSCA landfill so that the residual PCB average in the landfill would be less than 50 ppm.

- Reduce the final footprint area to be capped to approximately 6 acres from the original footprint of approximately 10 acres.

- Cap all remaining waste with a RCRA Subtitle C cover.

- Manage surface runoff and potential runon into lined storm water ditches and route this clean water into Sargent's Pond. This was to minimize groundwater recharge near the site, potentially reducing PCB loading to the springs.

Site work began in April 2000 with general site preparation. All work was completed by December 2000.

In 1999, the USEPA began construction of a spring treatment facility (STF) to capture the water emanating from the ICS emergence. In 2000, theUSEPA STF went into operation with the capability to treat up to 1,000 gpm. Flows greater than 1,000 gpm were bypassed in an untreated state. In 2001, the USEPA completed construction of storage tanks at the plant. With the tanks, the facility has the capacity to continuously treat 1,000 gpm and store up to four acre-feet of water when flows exceed 1,000 gpm. The water is treated for PCBs and then discharged back to the stream. In August 2009, CBS took over sole operation of the STF.

## 3.3 SCOPE OF WORK

The USEPA has determined that PCBs are the contaminant of concern for this site and that additional remedial efforts are required for operable unit 2, site groundwater, and Operable Unit 3, stream sediments. The additional remedial efforts include the following:

- Continue to capture, store, and treat releases from Illinois Central Spring using the existing ICSSTF.

- Design, build, and operate a storm water storage tank treatment system to treat water that bypasses the existing ICSSTF.

- Design and install an effluent line to transport water to the Third Street Culvert from the ICSSTF, storm water storage tank treatment system, and currently collected storm water from the area surrounding the ICS emergence.

- Clean up PCB-contaminated soil and sediment at the ICS emergence, former ICS channel, Swallow Hole area, and Quarry Springs/Rinker Spring area.

- Potentially design, build, and operate a collection system that will capture spring water from the Quarry Spring System and Rinker Spring and pump water to the ICSSTF for treatment.

The levels of PCBs in storm water discharged at ICS can reach up to 1,500 ppb. The levels of PCBs in sediments and flood plain soils vary by location but range up to 130 ppm.

## 3.4 CHEMICAL HAZARDS

Polychlorinated biphenyls have been determined to be the primary constituents of concern on site. Removed waste materials containing PCBs greater than 50 ppm will be disposed of at an approved landfill. Material Safety Data Sheets for PCBs are presented in Appendix B. The MSDSs provide a summary of toxicological data information, chemical properties, and proper handling procedures for the materials.

Activities that involve a potential for exposure to PCBs include, but are not limited to:

- Pre-excavation soil and well sampling;
- Installation of a storage tank treatment system;
- Installation of a collection system;
- Water treatment; and
- Verification sampling.

The greatest potential for exposure to PCBs is associated with sampling, water treatment, and installation of the collection system. The personal protective equipment (PPE) and procedures specified for these specific activities will reflect the level of protection needed.

The potential for public exposure is greatest through the direct contact route. Site activities that do not involve the handling or removal of potentially affected material have minimal potential for chemical exposures. For onsite personnel not associated with the remediation activities, the area will be cordoned off.

Every hazardous chemical that is brought on site by any of the contractors must be reported to the site HSC in accordance with the Occupational Safety and Health Administration's (OSHA's) Hazard Communication Standard, 29 CFR 1910.1200. A description of the site-specific Hazard Communication Program is presented in Chapter 13.

## 3.5 BIOLOGICAL HAZARDS

Biological hazards include plants, animals, bacteria, or viruses that may cause disease in humans. A wide variety of biological hazards are present in and around the site work area. These include, but are not limited to, ticks (Lyme disease and Rocky Mountain Spotted Fever), poison ivy and poison oak, chiggers, rodents, bees, wasps, snakes, and bloodborne pathogens. Workers should avoid contact and adopt appropriate controls. Allergic reactions caused by contact with plants, insect bites, and other biological hazards should be reported to the site HSC.

All first-aid activities involving potential exposure of personnel to blood or blood-tainted (contaminated) body fluids shall be conducted in accordance with the requirements of the

Bloodborne Pathogen Standard, 29 CFR 1910.1030. Personnel involved in first-aid procedures shall don the proper PPE and dispose of blood-contaminated materials as required. Responding personnel will don surgical gloves and other PPE deemed necessary by the site HSC at the time of the incident. An adequate inventory of such PPE will be maintained with the first-aid kit located at the first-aid station near the decontamination area. Contact with blood or blood-tainted body fluids during first-aid procedures should be reported immediately to the HSC.

## 3.6 PHYSICAL AND ENVIRONMENTAL HAZARDS

Physical and environmental hazards may be encountered during work activities. The site HSC will be responsible for maintaining written procedures or Safety Standard Operating Procedures (SSOPs) for many of these activities. Contractors or subcontractors preferring to use their own procedures may do so, where applicable, provided they are at least as protective of site personnel as this site-specific HASP. Prior to using an alternate procedure, however, the contractor will be required to submit the company's written program to the site HSC for approval. Work activities will be performed in accordance with applicable OSHA regulations. Specific emphasis will be placed on the anticipated physical and environmental hazards described in the paragraphs that follow.

### *3.6.1 Slips, Trips, and Falls*

All work paths and work areas must be kept clear of slip and trip hazards. Applicable OSHA standards for walkways, stairways, etc. (29 CFR 1926.500) will apply.

### *3.6.2 Heavy Equipment*

The number of ground personnel working around heavy equipment shall be kept to a minimum. Workers should maintain eye contact with operators. Only experienced equipment operators shall be permitted to operate heavy equipment. All machines will be supplied with a fire extinguisher and a backup horn. The equipment operator shall inspect the equipment each morning prior to use to ensure that all safety equipment and devices (e.g., backup alarms, brakes) are fully operational. Trackhoes, backhoes, dump trucks, and Bobcats may be used during the course of this remediation.

### *3.6.3 Fuel Storage*

A storage area will be established in the support zone for all fuels and other flammable liquids. The area will be clearly marked with "Caution - Flammables" and "No Smoking" signs. The area also will include a secondary containment berm to control spills. Site personnel will strictly adhere to applicable provisions of 29 CFR 1926, Subpart F, Fire Protection and Prevention, when handling, using, and storing flammable and combustible materials. The fuel storage area will be inspected daily by the site HSC for signs of leakage, spillage, containment integrity, and improper storage.

### 3.6.4 Electrical Power

All electrical power must have a ground fault circuit interrupter (GFCI) as part of the circuit. All equipment must be suitable and approved for the class of hazard. Applicable OSHA standards for electrical equipment (29 CFR 1926, Subpart K) shall apply.

### 3.6.5 Equipment Decontamination - Pressure Washer Operations

Personnel participating in equipment decontamination activities shall be properly trained in the operation of the pressure washer prior to beginning decontamination activities. Equipment shall be inspected each day prior to use. All personnel shall don the proper PPE as defined in Chapter 5. The area will be clearly marked, and all employees not directly involved in these activities shall remain outside the work area.

### 3.6.6 Heat Stress

When the temperature exceeds 70°F and personnel are wearing protective clothing, a heat stress monitoring program will be implemented, as appropriate. The site HSC will be responsible for implementing this program and for monitoring site personnel for the signs and symptoms of heat stress.
Adequate water will be made available by the contractor at work stations.

### 3.6.7 Cold Stress

Potential exposure to extreme cold coupled with the presence of moisture may result in cold stress-related disorders. The site HSC will be responsible for monitoring site personnel for the signs and symptoms of cold stress (e.g., skin condition and color, sluggishness). If the signs and symptoms of cold exposure are discovered, the HSC will be responsible for implementing appropriate first-aid procedures. An enclosed, heated environment will be made available at the site during the duration of the project.

### 3.6.8 Flame, Heat, or Spark-producing Operations

Utilization of flame, heat, and/or spark-producing equipment (e.g., cutting or welding torches, abrasive saws) may be necessary during the course of this project. When the use of such equipment is necessary, the employee will obtain a Hot Work Permit from the site HSC, and the operation will be carefully monitored to ensure compliance with the provisions stated in 29 CFR 1926.353 for flame, heat, or spark-producing operations.

### 3.6.9 Noise

Those employees working around heavy equipment or in other noisy areas are subject to possible exposure to noise above the OSHA Permissible Exposure Limit (PEL) of 90 decibels (dBA). All heavy equipment operators will be required to use hearing protection unless sound level measurements clearly demonstrate that protection is not required. Other employees will utilize

hearing protection when working around heavy equipment or in areas where sound level measurements in excess of 85 dBA on a time-weighted average (TWA) are encountered.

### 3.6.10 Lifting

All personnel should know their lifting limits and the proper way(s) to lift an object. Lifting should be limited by factors such as: the route and distance to be traveled, the amount of time required, and the center of gravity necessary to handle the load safely. A worker shall not lift more than 50 lb without assistance from another person or mechanical help.

### 3.6.11 Hand Tools/Power Tools

Proper eye, face, and hearing protection shall be provided and worn while using all power tools. Prior to beginning work operations, the user shall inspect all tools. Defective tools will not be used and will be tagged out. Only tools designed for the application in mind will be used. The proper strength tool will be used as specified for each job. For hand tools, the use of handle extensions and cheater bars is prohibited.

Power tools and machines will be disconnected from their power source before making adjustments or attachment changes. Guards or safety devices will not be removed. All fuel-powered tools will be shut off before refueling. Blade guards must be in place and working properly. Air-powered tools must have safety clips or retainers on all hose connections. Manufacturers' safe operating pressures will not be exceeded for any fittings.

### 3.6.12 Lockout/Tagout

In accordance with 29 CFR 1910.147 and 29 CFR 1926.417, no work shall be performed on or around any utility lines without proper lockout/tagout procedures in place. Utility lines such as electrical, steam, water, or gas must be rendered inoperative to protect personnel from an unexpected energization or startup that could cause injury. All personnel on this site are required to follow the lockout/tagout procedures that appear in PSARA's Standard Operating Procedure SP-015, Lockout/Tagout. A copy of this procedure will be maintained at the site for the duration of the project.

A preliminary inspection shall be conducted by a qualified person prior to beginning work activities in order to ensure that lockout/tagout procedures have been conducted properly and that the hazards have been adequately removed or controlled.

# CHAPTER 4: PERSONNEL TRAINING REQUIREMENTS

## 4.1 HAZWOPER TRAINING

All personnel (including visitors) entering the exclusion zone or decontamination zone must have completed all applicable training requirements for hazardous waste site operations (HAZWOPER) in accordance with OSHA 29 CFR 1910.120.

Copies of the current training certificates for all personnel must be provided to the site HSC before beginning work. In the event that any worker's annual training will expire during the course of the project, he must complete the required refresher training prior to the expiration date.

Personnel required to supervise or manage site investigation/cleanup personnel must have an additional 8 hours of supervisory safety training as required under OSHA 29 CFR 1910.120.

## 4.2 SITE-SPECIFIC TRAINING

The site HSC will design and implement a site-specific training program for all site employees. The program will present all aspects of this HASP and will provide site employees an opportunity to ask questions regarding the HASP. The HSC will instruct employees in proper material handling techniques; proper methods for the use, storage, and disposal of decontamination fluids; preventive maintenance of safety equipment; personal hygiene practices; personal protective equipment; and appropriate responses to emergencies.

The training program will provide site employees instruction on responding effectively to an emergency. The appropriate response to fires, explosions, and the shutdown of operations will be reviewed, as well as the proper response to an unacceptable level of dust resulting from site activities. Emergency procedures, areas of the site that have restricted access, methods used for project decontamination, and general safety will also be covered in the training.

At a minimum, the site-specific orientation training program will cover the following topics:

- Site history;
- Explanation of effects of toxic chemicals identified at the site;
- Requirements for personnel protection (e.g., gloves, hearing protection, respirators);
- Prohibited actions or procedures;
- Safety precautions;
- Emergency procedures;

- Decontamination procedures;
- Work areas;
- Air monitoring program;
- Symptoms and treatment of heat- or cold-related illness;
- Location of site safety equipment, emergency phone numbers, and route to nearest hospital; and
- Confined space and hot work permits.

Prior to working on site, replacement employees must report to the site HSC and will be required to receive the initial training. In addition, each person will be required to sign the Safety Plan Acknowledgment Form, which is included in Appendix C. By signing this form, individuals recognize the hazards present on site and agree to comply with the policies and procedures set forth in this HASP.

## 4.3 DAILY TAILGATE SAFETY MEETINGS

The site HSC or his designee will conduct daily safety meetings for all personnel at the site. During these meetings, the HSC will discuss any safety concerns, changes in site conditions, monitoring results, or other safety-related topics for the site remediation activities. Periodic retraining on important site-specific safety issues may also be addressed. Attendance lists, including signatures and topics discussed for all safety meetings, will be maintained as part of the project safety records.

# CHAPTER 5: PERSONAL PROTECTIVE EQUIPMENT

## 5.1 GENERAL

The following subsections describe the minimum protective equipment to be used by all personnel involved in project operations at this site. The PPE described here has been selected based on the anticipated chemical and physical hazards associated with each work zone and job function.. This plan may be modified if project hazards or air monitoring results identify higher-than-anticipated levels of PCBs, and/or any other metals.

## 5.2 PERSONAL PROTECTION MATRIX

Table 1 provides a list of job functions and work zones and identifies the personal protection required for each scenario. As additional work tasks are identified during the course of the project, the site HSC will be responsible for identifying the appropriate regimen of personal protection and for adding the new scenario to this table.

Table 1. Personal Protection Requirements for Specific Activities
Lemon Lane Landfill Site, Bloomington, Indiana

| Activity | Location | Level of Protection |
|---|---|---|
| Site preparation | Entire site | Level D |
| Site remediation | Entire site | Level D |
| Equipment decontamination | Contamination reduction zone | Modified Level D with splash gear |
| Support zone operations | Support zone | Level D |
| Sampling | Entire site | Modified Level D |
| Surveying | Entire site | Level D |

## 5.3 LEVELS OF PERSONAL PROTECTIVE EQUIPMENT

The following are brief descriptions of the levels of PPE that will be required for site activities.

### *Level "D" Protection*

This is the minimum level of protection for all personnel on site and is generally required for all support zone operations.

- Field work uniform
- Steel-toe/steel-shank work boots
- Safety glasses with side shields
- Hard hat

### *Modified Level "D" Protection*

This is the level of protection that is initially anticipated for soil and groundwater sampling activities inside the exclusion zone.

- Latex, vinyl, or nitrile inner gloves
- Field work uniform
- Steel-toe/steel-shank work boots
- Safety glasses with side shields
- Hard hat

### *Modified Level "D" With Splash Gear*

This dress-out regimen is intended primarily for all "wet" work involving contact with PCBs, and metals-affected decontamination or runoff water, as during equipment decontamination operations.

- Latex, vinyl, or nitrile inner gloves
- Nitrile outer gloves (taped to outer suit)
- Chemical-protective Neoprene overboots (taped to outer suit)
- Steel-toe/steel-shank work boots
- Tyvek coveralls
- Safety glasses with side shields
- Hard hat
- Splash shield

### *Level "C" Protection*

This is the level of protection that will be implemented if personnel exposure exceeds the action levels identified in Chapter 7.

- Full-face air-purifying respirator with high-efficiency particulate air (HEPA) filter and/or organic vapor cartridge
- Polyethylene-coated Tyvek or saranex coveralls with hood
- Latex, vinyl, or nitrile inner gloves
- Nitrile outer gloves (taped to outer suit)
- Chemical-protective Neoprene overboots (taped to outer suit)
- Steel-toe/steel-shank work boots
- Respirator optical kits, where appropriate
- Hard hat

### *Level "B" Protection*

While it is not anticipated that Level "B" protection will be needed at this site, this is the level of protection that will be implemented if personnel exposure exceeds the action levels identified in Chapter 7.

- Self-contained breathing apparatus (SCBA) or airline with a 5-minute egress bottle
- Polyethylene-coated Tyvek or saranex coveralls with hood
- Latex, vinyl, or nitrile inner gloves
- Nitrile outer gloves (taped to outer suit)
- Chemical-protective Neoprene overboots (taped to outer suit)
- Steel-toe/steel-shank work boots
- Hard hat

# CHAPTER 6: MEDICAL SURVEILLANCE REQUIREMENTS

Medical screening provides a method for identifying those employees whose medical history indicates potentially increased health risk when exposed to contaminants present within a working environment. The medical screening directly and indirectly measures the functional activity of organs potentially affected by chemical exposure during work and assesses the employee's ability to utilize protective equipment safely.

All contractor employees engaged in hazardous waste work will be required to participate in their respective company-sponsored medical monitoring programs, have a medical examination by a qualified physician, and be in good health prior to starting site work. An annual physical will serve as an exit examination for full-time and contractor employees. At a minimum, the examination must be in accordance with OSHA Standards 29 CFR 1910.120 and 29 CFR 1910.134.

The medical examination must include a judgment by the examiner of the ability of the person to use negative- or positive-pressure respirators and whether he is medically able to perform his job. An individual determined to have a medical condition that could be aggravated directly or indirectly by exposure to those chemical substances or special conditions within the work environment will not be allowed to participate in any activity that could result in such exposure. Some typical conditions that might require such measures include reduced lung function (which would be a problem for respirator wearers), back conditions (which would limit one's ability to lift heavy objects), and liver conditions (which might be aggravated by exposure to lower levels of contaminants).

A physician must re-examine any employee who suffers a lost-time illness or sustains a lost-time injury during the project before returning to the work site. The physician must certify that the employee is fit to return to work before his employment on site can continue. A written copy of this certification will be maintained at the site and included in the employee's records.

No one other than personnel authorized by the site HSC will be permitted to enter the exclusion areas. Before a site exclusion zone can be entered, a statement signed by a doctor indicating that a medical examination (encompassing the tests described previously) has been successfully completed will be required of everyone except emergency medical personnel. Copies of these physician statements will be maintained by the HSC as part of the project safety records.

# CHAPTER 7: FREQUENCY AND TYPES OF AIR MONITORING/ SAMPLING

This section details the area and personal monitoring to be conducted during site activities to identify the potential for worker exposure and the migration of contaminants during work operations.

Briefly, the air monitoring program will include the collection of personal air samples and the use of real-time monitoring equipment. Methods, frequencies, action levels, and recordkeeping requirements for this site are summarized in Table 2.

Results of the daily air monitoring activities will be recorded and evaluated by the HSC. All data will be maintained with the project records and will be available for review.

Table 2. Site-specific Air Monitoring Requirements
Lemon Lane Landfill Site Bloomington, Indiana

| Instrument | Location/Frequency | Hazard | Action Level | Action |
|---|---|---|---|---|
| Personal sampling pump | Initially, daily from personnel selected by HSC when working in historically contaminated areas; subsequent frequency to be determined by HSC | PCBs | < 10% TLV | Decrease frequency of sampling |
| | | | ≥ 50% TLV | Identify source and upgrade to Level C (Chapter 5) |

## 7.1 PERSONNEL MONITORING

Personnel monitoring will be performed to measure the exposure of the site workers to PCBs to ensure that this exposure does not approach the threshold limit value (TLV) or PEL.

### *7.1.1 Method of Monitoring*

Personal exposures will be evaluated by sampling in accordance with NIOSH Method 5503 for PCBs using personal sampling pumps. This method uses a small, portable air sampling pump that is worn by workers. Samples are submitted for laboratory analysis. To quantify worker exposures, samples are collected in the personal breathing zone of workers for duration of at least 7 hours.

### 7.1.2 Monitoring Locations

The site HSC will designate one crew member in an active work area to wear the sampling device. In general, samples will be collected from those workers and site conditions representing the highest potential for exposure.

### 7.1.3 Frequency of Monitoring

Initially, one worker will be monitored each day in each applicable work area for PCBs, and metals. If sampling results are consistently below 10 percent of the TLV, daily sampling may be reduced as long as sufficient representative samples are collected to provide historical data documenting that workers are not exposed above the TLV. This reduction in sampling frequency will be determined at the discretion of the site HSC.

### 7.1.4 Action Levels and Actions to be Taken

The action level for airborne PCB and metal concentrations in the personal breathing zone will be 50 percent of the TLV. If a personnel sample exceeds the action level, emissions controls will be upgraded. If engineering controls cannot reduce airborne concentrations, all workers in that area shall be required to use Level C protection, including air-purifying respirators, until one of the following conditions is met:

- The site HSC determines the source of the high exposure, and the source is eliminated from the work area.
- At least 2 consecutive days of personnel sampling in the work area show exposure levels substantially below the action level, and the site HSC determines that the source of the elevated exposure is no longer present.

### 7.1.5 Quality Control Samples

Quality control samples for personnel monitoring will consist of trip blanks. One blank sample per 10 actual samples will be submitted to the laboratory for analysis along with the samples; for batches smaller than 10 samples, one trip blank will be submitted every third sampling event. Blank samples will be numbered, logged, and labeled in the same manner as actual personnel samples, and no information will be provided to the laboratory that distinguishes them as blanks.

## 7.2 REAL-TIME AIR MONITORING

### 7.2.1 Purpose

Visual inspections in conjunction with real-time monitoring will be performed to quantify dust levels and to ensure that excavation and materials handling operations do not result in excessive dust or vapor emissions from the site.

### 7.2.2 Action Levels and Actions to be Taken

Visible airborne dust will be used as the site action level. If dust is visible, dust suppression methods will be implemented by the remediation contractor. If visible dust is present at the site boundary, work will be stopped until engineering controls or alternate methods are initiated to reduce the levels of visible airborne dust.

In addition, PID levels greater than 10 ppm above background and $O_2$/LEL meter readings registering 5 percent of the LEL at the work face or in materials handling areas will be used as site action levels for organic vapors. Under these conditions, work will be stopped until the contaminant(s) of concern have been identified and the risks associated with the identified contaminants have been determined. Appropriate engineering controls and PPE will be utilized, as needed.

# CHAPTER 8: SITE CONTROL MEASURES

## 8.1 WORK ZONES

The objectives for establishing work zones at this site are to delineate clearly the hazardous area perimeter, prevent migration of hazardous materials into clean areas, and prevent access or exposure to hazardous areas by unauthorized persons. Locations of key work zone boundaries will be identified along with the anticipated locations for personnel and equipment decontamination facilities and field offices at the site. Fuel and flammable liquids storage, site access, parking, and sanitary facilities will be established upon mobilization.

In the event that modifications to this work zone plan become necessary during either mobilization or site operations, a revised drawing(s) will be prepared, approved, and distributed as a modification to this HASP as described in Chapter 1.

### *8.1.1 Exclusion Zone*

The exclusion zone boundaries will be clearly identified with caution tape or safety fence, and signs will be posted.

Personnel will don personal protective clothing before entering the exclusion zone as described in Chapter 5 of this HASP. All personnel entering the exclusion zone will be required to meet the training and medical monitoring requirements defined in Chapters 4 and 6 of this HASP.

### *8.1.2 Contamination Reduction Zone*

The contamination reduction zone/decontamination zone is the area where all personnel and equipment decontamination will take place. This area will be clearly identified, and access will be restricted. Separate facilities are anticipated for personnel and equipment decontamination, as discussed in Chapter 9 of this HASP.

In addition to decontamination facilities, each contamination reduction zone will include the personnel access corridor and an emergency station. The access corridor provides a single point of entry for personnel entering and exiting the exclusion zone and facilitates accurate tracking of personnel in that zone. This corridor includes a storage area for PPE and an area in which to dress out prior to entering the exclusion zone. The emergency station in the personnel decontamination area will be accessible from both the exclusion zone and the support zone and will include, at a minimum, an emergency eyewash station, a fire extinguisher, and a first-aid kit. Emergency equipment is further discussed in Chapter 10.

### 8.1.3 Support Zone

The support zone includes all areas for support operations, including office facilities, equipment storage, a break area, sanitary facilities, emergency vehicle access, fuel and flammable liquids storage, and designated parking.

### 8.1.4 Project Control Zone

The project control zone identifies the entire area that is under secured project control and is restricted from access by the general public. This zone is delineated for the purpose of clarifying the boundary for the prevention of accidental entry into the project work areas by the general public. Signs will be posted to deter the general public from entering the project control zone without authorization.

## 8.2 SITE SECURITY

The site will be secured by the existing fences on site. At the Quarry Springs area (no fencing), off hour security may be needed during removal activities. The decision to use off hour security will be based on conditions at the time of work implementation.

## 8.3 VISITORS

All visitors to the project site will be required to report immediately to the HSC, who will provide a sign-in sheet for the visitor(s) to sign. Visitors' vehicles should be parked in designated locations to avoid interfering with project operations.

In general, visitor access to the site will be limited to designated support zone areas. In the event that it becomes necessary for a site visitor to proceed beyond the support zone, he/she must be escorted at all times by the CBS Project Manager, the site HSC, or their designee. Visitors intending to enter the restricted areas must first participate in a site orientation training session as described in Chapter 4. No access into exclusion zones will be permitted during site operations without providing documentation of HAZWOPER training and medical monitoring to the HSC prior to entry. The site HSC will be responsible for authorizing entry into restricted areas and for determining which areas are appropriate for site visitors based upon his/her current knowledge of hazards and ongoing site operations.

## 8.4 GENERAL FIELD SAFETY AND STANDARD OPERATING PROCEDURES

The following is a list of policies and procedures to be implemented during work operations at this site:

- The "buddy system" will be used by all field personnel in the exclusion zone. Visual, voice, or radio communication must be maintained at all times.

- Eating, drinking, and smoking are permitted only in designated areas in the support zone. No smoking will be permitted except in the designated area.

- Hands and face must be thoroughly washed immediately upon leaving the contamination reduction zone and prior to eating, drinking, or smoking to eliminate bacteriological concerns.

In general, everything that enters the exclusion zone that comes into contact with contaminated material must either be properly decontaminated or discarded upon exit from the exclusion zone. All personnel must enter and exit the exclusion zone through the decontamination zone. Any material that is generated by decontamination procedures will be stored in a designated area in the exclusion zone until disposal arrangements are made. All wash/rinse water generated during decontamination activities will be collected and transferred to the temporary water treatment system that will be located on site.

## 9.1 PERSONNEL DECONTAMINATION

During the site remediation activities, there will not be a need for personnel decontamination facilities. If something is found contrary to this, provisions will be made to set a facility up.

At a minimum, the personnel decontamination facilities would include the following stations:

**Station 1:** Equipment drop
**Station 2:** Outer boot and outer glove wash and rinse, as needed
**Station 3:** Outer boot and outer glove removal
**Station 4:** Outer garment removal
**Station 5:** Inner glove removal
**Station 6:** Field wash

Personnel decontamination operations would be conducted atop plastic sheeting with bermed sides to contain liquids and other materials that may be generated in the process.

## 9.2 EQUIPMENT DECONTAMINATION

Prior to demobilization, equipment will be decontaminated and inspected by the site HSC or his designee before it is moved into the support zone. These inspections will be recorded by the HSC in the daily site logbook.

Any vehicle working in an exclusion zone will be decontaminated before leaving the site. The vehicle will be cleaned by sweeping excess soil and debris off the wheels. A high-pressure sprayer will then be used to wash the wheels, if necessary. Each piece of equipment will be inspected after cleaning for any soil remaining on the tires or elsewhere. All vehicles will be cleaned to the satisfaction of the site HSC or his designated assistant prior to entering the support zone or leaving the site.

# CHAPTER 10: EMERGENCY RESPONSE/CONTINGENCY PLAN

The following response procedures have been developed in an effort to prepare project site personnel to respond effectively in the event of an emergency.

Several types of emergencies are outlined in the following subsections. These are not intended to cover all potential situations, and the corresponding response procedures should not be followed blindly. Every accident is a unique event that must be dealt with by trained personnel working in a calm, controlled manner. In the event of an accident/unusual event, the prime consideration is to provide the appropriate initial response to assist those in jeopardy without placing additional personnel at an unnecessary risk.

## 10.1 GENERAL RESPONSE CONSIDERATIONS

Emergencies must be dealt with in a manner that minimizes the health and safety risks to site personnel and the public. The following procedures will be implemented in the event of an emergency:

- First aid or other appropriate initial action will be administered by those closest to the accident/event. This assistance will be coordinated by the ranking individual on site and will be conducted in a manner such that those rendering assistance are not placed in a situation of unacceptable risk. The primary concern is to avoid placing a greater number of workers in jeopardy.

- Employees must report all accidents and unusual events immediately to the site HSC and the PSARA Project Manager.

- The site HSC is responsible for initiating the emergency response in an efficient, rapid, and safe manner. The HSC will decide if offsite assistance and/or medical treatment are required and will be responsible for alerting offsite authorities and arranging for their assistance.

- The site HSC will provide the PSARA Project Manager with an Accident/Incident Report that includes the following:

  -A description of the emergency (including date, time, duration, and cause).
  -Date, time, and name of all persons/agencies notified and their response.
  -A description of corrective actions implemented or other resolution of the incident.

- Horseplay will not be tolerated during work activities. All personnel shall be expected to act in a mature manner to prevent potential accidents/incidents from occurring during work activities.

To respond to emergencies, at least one person at the site will be certified in first aid and cardio-pulmonary resuscitation (CPR) by the American Red Cross or other approved agency. These individuals will be available to provide emergency first aid in the event of an injury.

## 10.2 RESPONSIBILITIES

The site HSC or a designated substitute will have the responsibility for directing response activities in the event of an emergency. The HSC will:

- Assess the situation.
- Determine required response measures.
- Notify appropriate authorities.
- Determine and direct onsite personnel during the emergency.
- At the direction of the CBS Project Manager, contact and coordinate with government agencies.

In the event that outside emergency response agencies are mobilized, the site HSC will coordinate response activities with those of public agencies.

## 10.3 EMERGENCY CONTACTS

Figure 2 presents a list of response agencies, organizations, and personnel, who may, depending on the nature of the situation, need to be contacted in the event of a site emergency. All primary response agencies will be notified prior to commencement of work as to the nature of activities at the site.

In addition, all of these phone numbers will be verified from the project site during the initial site set-up phase of the project.

## 10.4 EMERGENCY RESPONSE EQUIPMENT

During the site preparation phase of the project, the project contractors will mobilize the appropriate emergency response equipment and facilities. At a minimum, prior to the start of remediation operations, the following equipment will be provided and tested to verify that it is in working order:

- First-aid station (i.e., stretcher, first-aid kit, and decontamination equipment); contents of the first-aid kit will meet OSHA 1910.151 requirements.

## Figure 2.
## EMERGENCY PHONE LIST

The following is a list of agencies, organizations, and personnel, who may, depending on the nature of the situation, need to be contacted in the event of a site emergency. All primary response agencies will be notified prior to commencement of work as to the nature of activities at the site.

### Primary Response Agencies

| | |
|---|---|
| Monroe Co. Sheriff Department | 911 or (812) 349-2780 |
| Bloomington Police Department | 911 or (812) 339-4477 |
| Bloomington Fire Department | 911 or (812) 332-9763 |
| Bloomington Hospital | (812) 353-3443 |
| Indiana State Police | (800) 457-8283 |
| National Poison Control Center | (800) 382-9097 |

### Notifications

| | |
|---|---|
| USEPA Region V (24-hour hotline) | (312) 353-2318 |
| USEPA (24-hour hotline) | (800) 424-8802 |
| TSCA Hotline | (800) 424-9065 |
| Indiana Department of Environmental Management | (888) 233-7745 |
| Indiana Department of Environmental Management (24-hour hotline) | (888) 233-7745 |
| Monroe County Health Department | (812) 349-2543 |

### Site Numbers

| | |
|---|---|
| PSARA Field Office | TBD |

### Emergency Contacts

| | | | |
|---|---|---|---|
| CBS Project Managers | Dorothy Alke | Office | 412-642-2562 |
| PSARA Project Managers | Mike Hessling | Cellular | 513-604-8878 |
| Contractor Project Manager | TBD | Cellular | TBD |

- Portable eyewash station.
- Chemical fire extinguishers at each work location, the decontamination area, and on all heavy equipment; type ABC, 20 lb.
- List of persons and phone numbers for emergency notification.
- Working telephone.

Other equipment used for the routine implementation of the worker health and safety protection and monitoring programs (i.e., air monitoring equipment, confined space entry equipment) will be available as needed to support any emergency response activity.

## 10.5 ACCIDENTS AND INJURIES

The vast majority of worker injuries on hazardous waste sites are not chemical in nature. The injuries tend to be sprains, rashes, and lacerations, which must be treated promptly. Follow-up care is extremely important to ensure that a minor injury or illness does not become aggravated by site conditions or continued work in chemical protective clothing. All site personnel are instructed to report any and all injuries and illnesses to the site HSC.

If a person working in an exclusion zone is physically injured, Red Cross first-aid procedures should be followed. Depending on the severity of the injury, emergency medical response may be sought. If the employee can be moved, he will be taken to the edge of the work area (on a stretcher, if needed), where contaminated clothing will be removed, emergency first aid administered, and transportation to a local emergency medical facility awaited. Directions and a map to the nearest hospital are presented in Figure 3. This figure will be posted at each site telephone and will be placed in each site vehicle.

If it is necessary for outside emergency medical personnel to enter the exclusion zone to treat or move an injured worker, the site HSC will brief these personnel on the nature of the hazards present and will determine what protective equipment they must wear. Extra PPE will be available for emergencies.

If the injury to the worker is chemical in nature (e.g., overexposure), first-aid procedures will be implemented as described in the MSDSs for the chemical(s) involved. Material Safety Data Sheets for all hazardous substances that are present or will be used on the site will be compiled in the field and made available to all employees at the site HSC's office trailer. Material Safety Data Sheets for known hazardous substances at the site are presented in Appendix B.

Figure 3. Route to Hospital

**Bloomington Hospital**

**Promptcare West** (Programs & Service Available at this location: Occupational Health & Urgent Care)

3443 West 3rd Street.
Bloomington, Indiana

**Hospital General: (812) 353-3443**

**Directions To Hospital (note the project work will be done in several different areas. Most work is at the location of the STF, this is the map provided)**

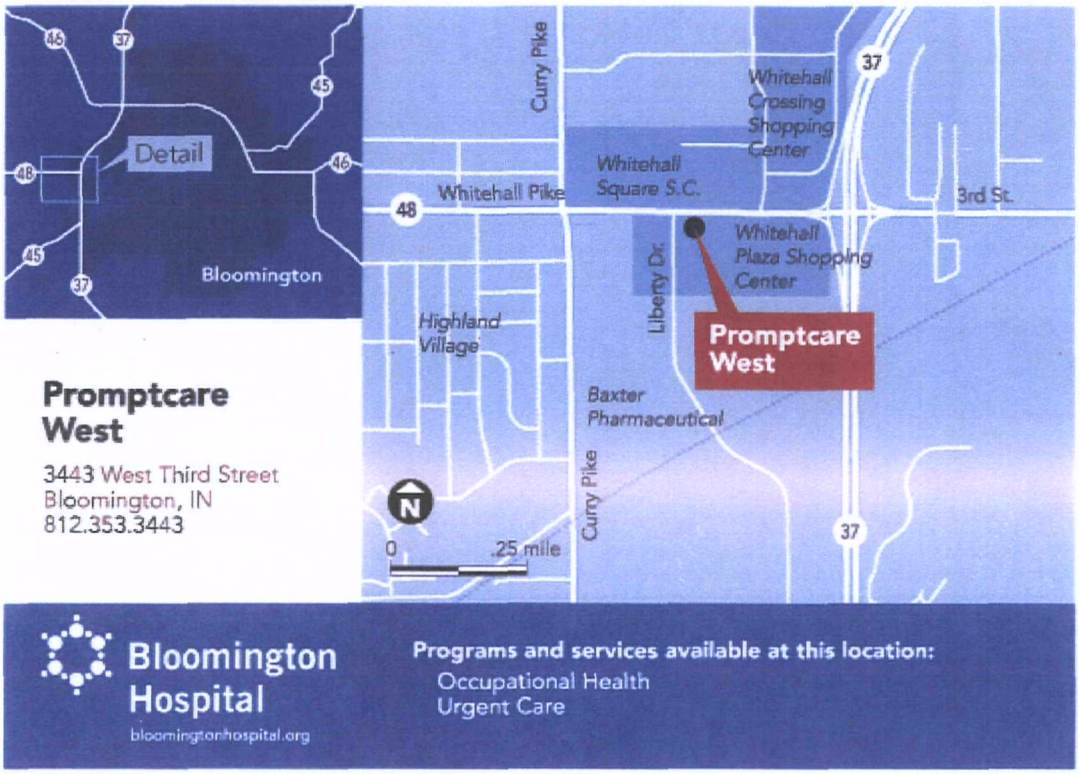
From the STF Area

1. Take the ICS STF access road to 3 rd street
2. Head west on 3rd steet
3. After crossing SR 37 Turn LEFT into the Whitehall Plaza Shopping center
4. 3443 W 3RD ST

See map attached below


Figure 3 (continued). Route to Hospital

Map with landmarks for visual reference.




**Driving directions from IN-37:**

1. Take the Third Street (IN-48) exit and turn west, away from downtown Bloomington.
2. Turn left into the first entrance of the Whitehall Plaza Shopping Center.
3. Promptcare West will be on the right, just beyond Hardee's and Old National Bank at 3443 West Third Street.

Personnel will conduct first-aid procedures and dispose of all blood-contaminated materials in accordance with the requirements of the bloodborne pathogens standard, 29 CFR 1910.1030. All personnel shall be required to don safety glasses and latex gloves (at a minimum) when conducting first-aid procedures and cleanup operations where blood or blood-tainted body fluids are involved. They shall also be required to wash hands, face, and neck thoroughly following cleanup activities. Potential exposures should be reported to the site HSC immediately.

## 10.6 FIRES

Although a fire is unlikely, the HSC will maintain effective communication to summon assistance in the event of a fire. If a fire breaks out, the site HSC will be notified immediately. The HSC will evaluate the extent of the fire and make a decision whether to call the local fire department or have site personnel attempt to operate fire fighting equipment. Site personnel will only become involved in the fire fighting actions when the fire is clearly within the capability of the fire extinguishers on site. All personnel shall be trained in the use, capabilities, and limitations of the available fire extinguishers.

## 10.7 SITE EVACUATION PLAN

Procedures for evacuation have been established for this project even though the materials being handled and the procedures being used make an actual evacuation extremely unlikely. The gathering point in the event of an emergency will be located at a site designated by the HSC.

Two types of evacuation procedures are in place for this project: emergency evacuation procedures and non-emergency evacuation procedures. An emergency evacuation is warranted only if the nature of the situation is so extreme that implementation of a more controlled and orderly non-emergency procedure could endanger the health or safety of site personnel.

In the event that an employee identifies a situation on the site that he believes warrants an evacuation, he should immediately notify the site HSC, the Contractor Project Manager, or his immediate supervisor. Generally, the HSC or Contractor Project Manager will be responsible for evaluating the situation and initiating an evacuation. Under extreme or obvious evacuation circumstances, however, any site worker can initiate an evacuation.

The primary means of initiating an evacuation will be an audible signal. A combination of air horns, truck horns, and site radios will be utilized to ensure that all site personnel are notified of the intent to evacuate the site. The audible signals will be as follows:

| | |
|---|---|
| Single long blast (repeated as necessary): | Emergency evacuation signal |
| Double brief blasts: | Non-emergency evacuation signal |

In an emergency evacuation scenario, all site personnel will be directed to discontinue what they're doing immediately, notify their buddy and any other nearby workers, and quickly leave

the site via the most accessible route. Personnel should then proceed to the designated emergency evacuation gathering point. Emergency evacuation scenarios typically include toxic gas releases or major fires that have the potential to release toxic vapors or cut off escape routes. No such scenarios are anticipated on this project.

In a non-emergency evacuation scenario, personnel should discontinue their work, making sure all equipment is turned off and secure, and proceed with their buddy to the designated vehicle parking area for further instructions. Non-emergency evacuation scenarios may include imminent severe thunderstorms, tornado warnings, or airborne concentrations of contaminants that have reached evacuation action levels.

The site HSC or designated representative will be responsible for coordinating evacuation procedures and for conducting a head count at the gathering point. Missing personnel should be reported immediately to the site HSC, PSARA Project Manager, or outside response agency's representative.

# CHAPTER 11: CONFINED SPACE ENTRY PROCEDURES

No person on this site is permitted to enter a confined space, as defined by the site HSC, until a confined space entry permit has been completed. This permit verifies that the confined space is safe for entry and that it has been tested for oxygen level, flammable vapors, and toxic gases. Monitoring of the confined space and completion of the permit are the responsibility of the HSC. All persons on this site are required to comply with the requirements of 29 CFR 1910.146, which is intended to control and protect workers from confined space hazards, and to regulate worker entry into confined spaces.

# CHAPTER 12: SPILL CONTAINMENT PROGRAM

Potential spills can occur from improper fuel handling, leakage or breakage of product lines, transfer of pumps, and many other scenarios. The following procedures have been established to minimize the potential for accidental spills and to maximize site preparedness in the event that a spill does occur. In addition to these measures, the site HSC will conduct daily inspections of the site to evaluate the effectiveness of these measures and to identify and address any previously unanticipated spill scenarios.

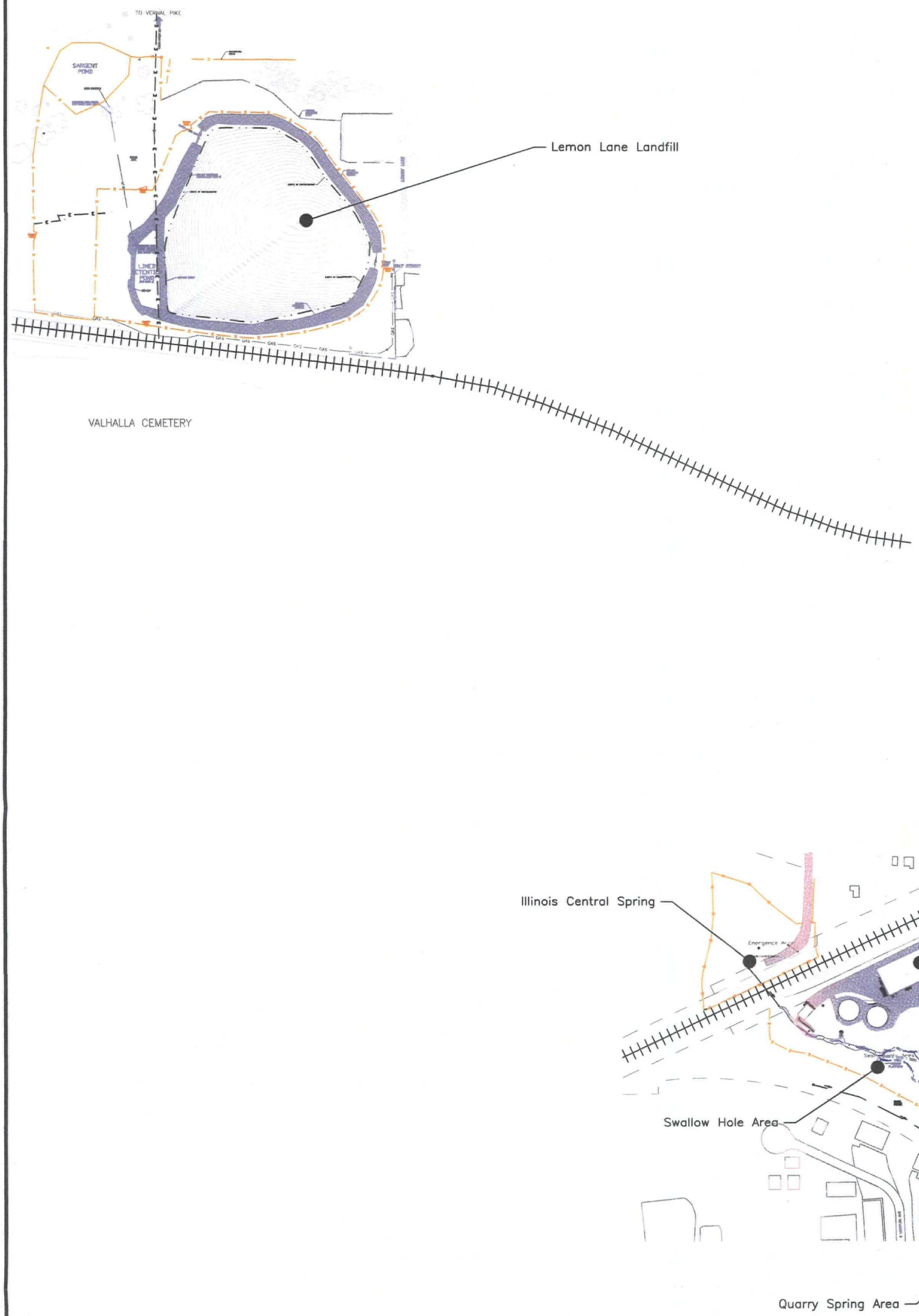
All fuels, oils, and other flammable or combustible liquids will be stored in one designated spot on the site. This location will be equipped with secondary containment adequate to contain a release of 110 percent of the largest container plus additional freeboard to contain accumulated rainwater. The area will be barricaded in a manner that allows effective refueling but prevents accidents from vehicular traffic. Signs will be posted identifying the area and prohibiting smoking.

To minimize spillage during the loading process, soil or concrete will be loaded directly onto trucks as they are generated. Any spillage, whether from trucks or any type of container, will be cleaned up regularly and at least at the end of each workday. During rainy conditions, any needed spill cleanup will be accomplished immediately to avoid impacting storm water. After loading, each truck will have a minimum of 6 inches of freeboard on all sides. Tires on loaded trucks will be washed prior to the truck leaving the site.

Wastewater will be contained in holding tanks that are located on site. Pumps and hoses will be drained and handled in a manner that minimizes leakage or spillage.

# CHAPTER 13: HAZARD COMMUNICATION

The site will maintain a written Hazard Communication Program as required by OSHA's Hazard Communication Standard, 29 CFR 1910.1200. All companies operating on the property will be briefed on the Hazard Communication Program and will be given a written copy for review. Any hazardous material that is present on site must be addressed in the site-specific Hazard Communication Program, which will be available at the office trailer. A chemical inventory will be kept to track all chemicals that are brought on site. The written Hazard Communication Program will address all hazards associated with the chemicals in use. The hazards associated with these materials will be conveyed by the site HSC to personnel involved in their use prior to beginning work activities.




PSARA TECHNOLOGIES, INC.

— E — E — OVERHEAD ELECTRIC
— GAS — GAS — GAS LINE
RAILROAD TRACKS
— x — x — x — CHAIN LINK FENCE

**VIACOM, Inc.**

**Figure 1.**
**General Site Area**
**Lemon Lane Landfill**
**Bloomington, Indiana**

| *Drawn By:* | *Date:* | *Scale:* |
|---|---|---|
| RLR | 8/19/09 | 1"=300' |

# APPENDIX A

## Health and Safety Requirements Matrix

**Health and Safety Requirements Matrix**
**Lemon Lane Landfill Site**

| Activity (Tasks)* | Hazard Identification | Air and Personnel Monitoring Requirements | Personal Protective Equipment | Training Requirements | Medical Monitoring | Administrative & Engineering Controls | Decontamination & Disposal Procedures |
|---|---|---|---|---|---|---|---|
| 1.0 General project pre-mobilization, mobilization, and demobilization, minimum requirements for site entry | General industry safety standards | | Level D | 40-hour & 8-hour trained in accordance with 29 CFR 1910.120<br><br>Briefed on site-specific HASP<br><br>Briefed on SSOP Manual for task-specific operations | | | |
| | Cold stress | Employee monitoring for signs of cold stress | | Briefed on recognition of cold stress | | Work/rest periods in warm, indoor environment | |
| | Heat stress | Employee monitoring for signs of heat stress | | Briefed on recognition of heat stress | | Work/rest periods appropriate for temperature | |

continued

**Health and Safety Requirements Matrix (continued)**
**Lemon Lane Landfill Site**

| Activity (Tasks)* | Hazard Identification | Air and Personnel Monitoring Requirements | Personal Protective Equipment | Training Requirements | Medical Monitoring | Administrative & Engineering Controls | Decontamination & Disposal Procedures |
|---|---|---|---|---|---|---|---|
| 2.0 Installation of a near discharge line | PCBs | Personnel monitoring for PCBs | Modified Level D | Hazard communication training in accordance with HASP about contaminant | Medical monitoring in accordance with 29 CFR 1910.120 | Exclusion area at back of sampling | Wear proper PPE<br><br>Contaminated and non-contaminated soil will be moved directly onto trucks for transport and offsite disposal |
| 3 0 Sampling and removal of contaminated sediments and soils | PCBs | Personnel monitoring for PCBs | Modified Level D | Hazard communication training in accordance with HASP about contaminant | Medical monitoring in accordance with 29 CFR 1910 120 | Exclusion area at back of sampling | Wear proper PPE<br><br>Contaminated and non-contaminated soil will be moved directly onto trucks for transport and offsite disposal |
| 4.0 Installation of new storm water treatment | PCBs | Personnel monitoring for PCBs | Modified Level D | Hazard communication training in accordance with HASP about contaminant | Medical monitoring in accordance with 29 CFR 1910.120 | | Wear proper PPE |

*The requirements listed in Section 1.0 of this matrix apply to all other activities (i e , Sections 2 through 5).

# APPENDIX B

## Material Safety Data Sheets

# Monsanto

Material Safety Data

## POLYCHLORINATED BIPHENYLS (PCBs)

**Emergency Phone No.**
**(Call Collect)**
**314-694-1000**

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: POLYCHLORINATED BIPHENYLS (PCBs)
Aroclor® Series 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, 1268
Therminol® FR Series

MSDS Number: M00018515 Date: 12/95

| | |
|---|---|
| Chemical Family: | Chlorinated Hydrocarbons |
| Chemical Name: | Polychlorinated biphenyls |
| Synonyms: | PCBs, Chlorodiphenyls, Chlorinated biphenyls |

Trade Names/Common Names:

PYRANOL® and INERTEEN® are trade names for commonly used dielectric fluids that may have contained varying amounts of PCBs as well as other components including chlorinated benzenes.

ASKAREL is the generic name for a broad class of fire resistant synthetic chlorinated hydrocarbons and mixtures used as dielectric fluids that commonly contained about 30 - 70% PCBs. Some ASKAREL fluids contained 99% or greater PCBs and some contained no PCBs.

PYDRAUL® is the trade name for hydraulic fluids that, prior to 1972, may have contained varying amounts of PCBs and other components including phosphate esters.

The product names/trade names are representative of several commonly used Monsanto products (or products formulated with Monsanto products). Other trademarked PCB products were marketed by Monsanto and other manufacturers. PCBs were also manufactured and sold by several European and Japanese companies. Contact the manufacturer of the trademarked product, if not in this listing, to determine if the formulation contained PCBs.

In 1972, Monsanto restricted sales of PCBs to applications involving only closed electrical systems. (transformers and capacitors). In 1977, all manufacturing and sales were voluntarily terminated. In 1979, EPA restricted the manufacture, processing, use, and distribution of PCBs to specifically exempted and authorized activities.

MONSANTO COMPANY, 800 N. LINDBERGH BLVD., ST. LOUIS, MO 63167

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT
Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska, or Virgin Islands. For calls originating elsewhere: 202-483-7616 (collect calls accepted)

For additional nonemergency information, call: 314-694-3344.

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemically, commercial PCBs are defined as a series of technical mixtures, consisting of many isomers and compounds that vary from mobile, oily liquids to white crystalline solids and hard noncrystalline resins. Technical products vary in composition, in the degree of chlorination, and possibly according to batch.

The mixtures generally used contain an average of 3 atoms of chlorine per molecule (42% chlorine) to 5 atoms of chlorine per module (54% chlorine). They were used as components of dielectric fluids in transformers and capacitors. Prior to 1972, PCB applications included heat transfer media, hydraulic, and other industrial fluids, plasticizers, carbonless copy paper, paints, inks, and adhesives.

| Component | CAS No |
|---|---|
| chlorinated biphenyl | 1336-36-3 |
| Aroclor 1016 | 12674-11-2 |
| Aroclor 1221 | 11104-28-2 |
| Aroclor 1232 | 11141-16-5 |
| Aroclor 1242 | 53469-21-9 |
| Aroclor 1248 | 12672-29-6 |
| Aroclor 1254 | 11097-69-1 |
| Aroclor 1260 | 11096-82-5 |
| Aroclor 1262 | 37324-23-5 |
| Aroclor 1268 | 11100-14-4 |

There are also CAS Numbers for individual PCB congeners and for mixtures of Aroclor® products.

PCBs are identified as hazardous chemicals under criteria of the OSHA Hazard Communication Standard (29 CFR Part 1910.1200). PCBs have been listed in the International Agency for Research on Cancer (IARC) Monographs (1987)-Group 2A and in the National Toxicology Program (NTP) Annual Report on Carcinogens (Seventh).

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

Appearance and Odor: PCB mixtures range in form and color from clear to amber liquids to white crystalline solids. They have a mild, distinctive odor and are not volatile at room temperature. Refer to Section 9 for details.

WARNING!
CAUSES EYE IRRITATION
MAY CAUSE SKIN IRRITATION

PROCESSING AT ELEVATED TEMPERATURES MAY RELEASE VAPORS OR FUMES WHICH MAY CAUSE RESPIRATORY TRACT IRRITATION

### POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: Skin contact and inhalation of heated vapors

Eye Contact: Causes moderate irritation based on worker experience.

Skin Contact: Prolonged or repeated contact may result in redness, dry skin and defatting based on human experience. A potential exists for developing chloracne. PCBs can be absorbed through intact skin.

Inhalation: Due to the low volatility of PCBs, exposure to this material in ambient conditions is not expected to produce adverse health effects. However, at elevated processing temperatures, PCBs may produce a vapor that may cause respiratory tract irritation if inhaled based on human experience.

Ingestion: No more than slightly toxic based on acute animal toxicity studies. Coughing, choking and shortness of breath may occur if liquid material is accidentally drawn into the lungs during swallowing or vomiting.

Other: Numerous epidemiological studies of humans, both occupationally exposed and nonworker environmentally exposed populations, have not demonstrated any causal relationship between PCB exposure and chronic human illnesses such as cancer or neurological or cardiovascular effects. PCBs at high dosage can cause skin symptoms; however, these subside upon removal of the exposure source.

Refer to Section 11 for toxicological information.

## 4. FIRST AID MEASURES

IF IN EYES. immediately flush with plenty of water for at least 15 minutes. If easy to do, remove any contact lenses. Get medical attention. Remove material from skin and clothing.

IF ON SKIN. immediately flush the area with plenty of water. Wash skin gently with soap as soon as it is available. Get medical attention if irritation persists.

IF INHALED, remove person to fresh air. If breathing is difficult, get medical attention.

IF SWALLOWED, do NOT induce vomiting. Rinse mouth with water. Get medical attention. Contact a Poison Control Center. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTE TO PHYSICIANS: Hot PCBs may cause thermal burn. If electrical equipment arcs between conductors, PCBs or other chlorinated hydrocarbon dielectric fluids may decompose to produce hydrochloric acid (HCl), a respiratory irritant. If large amounts are swallowed, gastric lavage may be considered.

## 5. FIRE FIGHTING MEASURES

Flash Point: 284 degrees F (140 degrees C) or higher depending on the chlorination level of the Aroclor product

Fire Point: 349 degrees F (176 degrees C) or higher depending on the chlorination level of the Aroclor product

NOTE: Refer to Section 9 for individual flash points and fire points.

Extinguishing Media: Extinguish fire using agent suitable for surrounding fire. Use dry chemical, foam, carbon dioxide or water spray. Water may be ineffective. Use water spray to keep fire-exposed containers or transformer cool.

PCBs are fire-resistant compounds. They may decompose to form CO, CO2, HCl, phenolics, aldehydes, and other toxic combustion products under severe conditions such as exposure to flame or hot surfaces.

Dielectric fluids having PCBs and chlorinated benzenes as components have been reported to produce polychlorinated dibenzo-p-dioxins (PCDDs) and furans (PCDFs) during fire situations involving electrical equipment. At temperatures in the range of 600-650 degrees C in the presence of excess oxygen, PCBs may form polychlorinated dibenzofurans (PCDFs). Laboratory studies under similar conditions have demonstrated that PCBs do not produce polychlorinated dibenzo-p-dioxins (PCDDs).

Federal regulations require all PCB transformers to be registered with fire response personnel.

If a PCB transformer is involved in a fire-related incident, the owner of the transformer may be required to report the incident. Consult and follow appropriate federal, state and local regulations.

Fire Fighting Equipment: Fire fighters and others exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

## 6. ACCIDENTAL RELEASE MEASURES

Cleanup and disposal of liquid PCBs and other PCB items are strictly regulated by the federal government. The regulations are found at 40 CFR Part 761. Consult these regulations as well as applicable state and local regulations prior to any cleanup or disposal of PCBs, PCB items, or PCB contaminated items.

If PCBs leak or are spilled, the following steps should be taken immediately:

All nonessential personnel should leave the leak or spill area.

The area should be adequately ventilated to prevent the accumulation of vapors.

The spill/leak should be contained. Loss to sewer systems, navigable waterways, and streams should be prevented. Spills/leaks should be removed promptly by means of absorptive material, such as sawdust, vermiculite, dry sand, clay, dirt or other similar materials, or trapped and removed by pumping or other suitable means (traps, drip-pans, trays, etc.).

Personnel entering the spill or leak area should be furnished with appropriate personal protective equipment and clothing as needed. Refer to Section 8 for personal protection equipment and clothing.

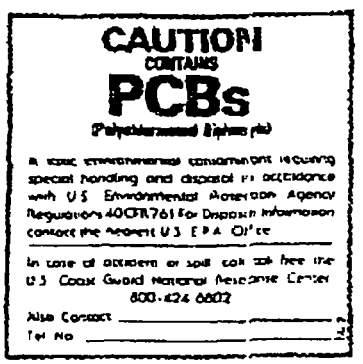
Personnel trained in emergency procedures and protected against attendant hazards should shut off sources of PCBs, clean up spills, control and repair leaks, and fight fires in PCB areas.

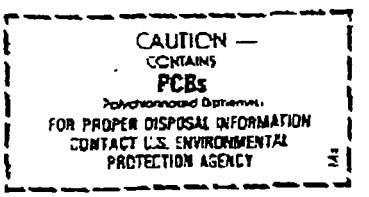
Refer to Section 13 for disposal information and Sections 14 and 15 for information regarding reportable quantity, and Section 7 for marking information.

## 7. HANDLING AND STORAGE

Care should be taken to prevent entry into the environment through spills, leakage, use vaporization, or disposal of liquid or containers. Avoid prolonged breathing of vapors or mists. Avoid contact with eyes or prolonged contact with skin. If skin contact occurs, remove by washing with soap and water. Following eye contact, flush with water. In case of spillage onto clothing, the clothing should be removed as soon as practical, skin washed, and clothing laundered. Comply with all federal, state, and local regulations.

Federal regulations under the Toxic Substances Control Act require PCBs, PCB items, storage areas, transformer vaults, and transport vehicles to be marked (check regulations, 40 CFR 761, for details).




Storage: The storage of PCB items or equipment (those containing 50 ppm or greater PCBs) and PCB waste is strictly regulated by 40 CFR Part 761. The storage time is limited, the storage area must meet physical requirements, and the area must be labeled.

**Avoid contact with eyes.**
**Wash thoroughly after handling.**
**Avoid breathing processing fumes or vapors.**
**Process using adequate ventilation.**

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Wear chemical splash goggles and have eye baths available where there is significant potential for eye contact.

Skin Protection: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine the appropriate type glove for a given application. Wear chemical goggles, face shield, and chemical resistant clothing such as a rubber apron when splashing is likely. Wash immediately if skin is contacted. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

ATTENTION! Repeated or prolonged skin contact may cause chloracne in some people.

Respiratory Protection: Avoid breathing vapor, mist, or dust. Use NIOSH/MSHA approved equipment when airborne exposure limits are exceeded. Full facepiece equipment is recommended when airborne exposure limits are exceeded and, if used, replaces the need for face shield and/or chemical splash goggles. Consult respirator manufacturer to determine the type of equipment for a given application. The respirator use limitations specified by NIOSH/MSHA or the manufacturer must be observed. High airborne concentrations may require use of self-contained breathing apparatus or supplied air respirator. Respiratory protection programs must be in compliance with 29 CFR Part 1910.134.

ATTENTION! Repeated or prolonged inhalation may cause chloracne in some people.

Ventilation: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of vapor or mist, such as open process equipment.

Airborne Exposure Limits:

Product: Chlorodiphenyl (42% chlorine)

OSHA PEL: 1 mg/m$^3$ 8-hour time-weighted average - Skin*
ACGIH TLV: 1 mg/m$^3$ 8-hour time-weighted average - Skin*

Product: Chlorodiphenyl (54% chlorine)

OSHA PEL: 0.5 mg/m$^3$ 8-hour time-weighted average - Skin*
ACGIH TLV: 0.5 mg/m$^3$ 8-hour time-weighted average - Skin*

*For Skin notation see Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Government Industrial Hygienists, 1995-1996.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| PROPERTIES OF SELECTED AROCLORS[1] | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROPERTY | 1016 | 1221 | 1232 | 1242 | 1248 | 1254 | 1260 |
| Color (APHA) | 40 | 100 | 100 | 100 | 100 | 100 | 150 |
| Physical state | mobile oil | mobile oil | mobile oil | mobile oil | mobile oil | viscous liquid | sticky resin |
| Stability | inert | inert | inert | inert | inert | inert | inert |
| Density (lb/gal 25°C) | 11.40 | 9.85 | 10.55 | 11.50 | 12.04 | 12.82 | 13.50 |
| Specific gravity x/15.5°C | 1.36-1.37 x-25° | 1.18-1.19 x-25° | 1.27-1.28 x-25° | 1.30-1.39 x-25° | 1.40-1.41 x-65° | 1.49-1.50 x-65° | 1.55-1.56 x-90° |
| Distillation range (°C) | 323-356 | 275-320 | 290-325 | 325-366 | 340-375 | 365-390 | 385-420 |
| Acidity mg KOH/g, maximum | .010 | .014 | .014 | 015 | .010 | .010 | .014 |
| Fire point (°C) | none to boiling point | 176 | 238 | none to boiling point | none to boiling point | none to boiling point | none to boiling point |
| Flash point (°C) | 170 | 141-150 | 152-154 | 176-180 | 193-196 | none | none |
| Vapor pressure (mm Hg @ 100°F) | NA | NA | 0.005 | 0.001 | 0.00037 | 0.00006 | NA |
| Viscosity (Saybolt Univ. Sec. @ 100°F) (centistokes) | 71-81<br>13-16 | 38-41<br>3.6-4.6 | 44-51<br>5.5-7.7 | 82-92<br>16-19 | 185-240<br>42-52 | 1800-2500<br>390-540 | —<br>— |

[1]NA—*Not Available*

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

## 10. STABILITY AND REACTIVITY

Stability: PCBs are very stable, fire-resistant compounds.
Materials to Avoid: None
Hazardous Decomposition
Products: PCBs may decompose to form CO, $CO_2$, HCl, phenolics, aldehydes, and other toxic combustion products under severe conditions such as exposure to flame or hot surface.
Hazardous Polymerization: Does not occur.

## 11. TOXICOLOGICAL INFORMATION

Data from laboratory studies conducted by Monsanto and from the available scientific literature are summarized below.
Single exposure (acute) studies indicate:
Oral - Slightly Toxic (Rat LD50 - 8.65 g/kg for 42% chlorinated; 11.9 g/kg for 54% chlorinated)

The liquid products and their vapors are moderately irritating to eye tissues. Animal experiments of varying duration and at different air concentrations show that for similar exposure conditions, the 54% chlorinated material produces more liver injury than the 42% chlorinated material.

There are literature reports that PCBs can impair reproductive functions in monkeys. The National Cancer Institute (NCI) performed a study in 1977 using Aroclor 1254 with both sexes of rats. NCI stated that the PCB, Aroclor 1254, was not carcinogenic under the conditions of their bioassay. There is sufficient evidence in the scientific literature to conclude that Aroclor 1260 can cause liver cancer when fed to rodents at high doses. Similar experiments with less chlorinated PCB products have produced negative or equivocal results.

The consistent finding in animal studies is that PCBs produce liver injury following prolonged and repeated exposure by any route, if the exposure is of sufficient degree and duration. Liver injury is produced first, and by exposures that are less than those reported to cause cancer in rodents. Therefore, exposure by all routes should be kept sufficiently low to prevent liver injury.

Numerous epidemiological studies of humans, both occupationally exposed and nonworker environmentally exposed population, have not demonstrated any causal relationship between PCB exposure and chronic human illnesses such as cancer or neurological or cardiovascular effects. PCBs at high dosage can cause skin symptoms; however, these subside upon removal of the exposure source.

PCBs have been listed in the International Agency for Research on Cancer (IARC) Monographs (1987)-Group 2A and in the National Toxicology Program (NTP) Seventh Annual Report on Carcinogens.

## 12. ECOLOGICAL INFORMATION

Care should be taken to prevent entry of PCBs into the environment through spills, leakage, use, vaporization or disposal of liquid or solids. PCBs can accumulate in the environment and can adversely affect some animals and aquatic life. In general, PCBs have low solubility in water, are strongly bound to soils and sediments, and are slowly degraded by natural processes in the environment.

## 13. DISPOSAL CONSIDERATIONS

The disposal of PCB items or equipment (those containing 50 ppm or greater PCBs) and PCB wastes is strictly regulated by 40 CFR Part 761. For example, all wastes and residues containing PCBs (wiping cloths, absorbent material, used disposable protective gloves and clothing, etc.) should be collected, placed in proper containers, marked and disposed of in the manner prescribed by EPA regulations (40 CFR Part 761) and applicable state and local regulations.

## 14. TRANSPORT INFORMATION

The data provided in this section are for information only. Please apply the appropriate regulations to properly classify a shipment for transportation.

| | | |
|---|---|---|
| DOT Classification: | IF WEIGHT OF PCBs TO BE SHIPPED IS OVER ONE POUND, THE FOLLOWING CLASSIFICATION AND LABEL APPLY. | |
| DOT Label: | LIQUID: | Environmentally Hazardous Substance, liquid, n.o.s. (Contains PCB), 9, UN 3082, III |
| | SOLID: | Environmentally Hazardous Substance, solid, n.o.s. (Contains PCB), 9, UN 3077, III |
| DOT Label: | Class: 9 | |
| DOT Reportable Quantity: | One Pound | |
| IMO Classification: | Polychlorinated Biphenyls, IMO Class 9, UN 2315, II<br>IMO Page 9034, EMS 6.1-02 | |
| IATA/ICAO Classification: | Polychlorinated Biphenyls, 9, UN2315, II | |

## 15. REGULATORY INFORMATION

For regulatory purposes, under the Toxic Substances Control Act, the term "PCBs" refers to a chemical substance limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contain such a substance (40 CFR Part 761).

TSCA Inventory: not listed.

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): Immediate, Delayed.
SARA Section 313 Toxic Chemical(s): Listed-1993 (De Minimis concentration 0.1%.)

Reportable Quantity (RQ) under DOT (49 CFR) and CERCLA Regulations: 1 lb. (polychlorinated biphenyls) PCBs.

Release of more than 1 (one) pound of PCBs to the environment requires notification to the National Response Center (800-424-8802 or 202-426-2675).

Various state and local regulations may require immediate reporting of PCB spills and may also define spill cleanup levels. Consult your attorney or appropriate regulatory officials for information relating to spill reporting and spill cleanup.

## 16. OTHER INFORMATION

Reason for revision: Conversion to the 16 section format. Supersedes MSDS dated 10/88.

Therminol®, Aroclor® and Pydraul® are registered trademarks of Monsanto Company
Pyranol® is a registered trademark of General Electric Company
Inerteen® is a registered trademark of Westinghouse Electric Corporation

FOR ADDITIONAL NONEMERGENCY INFORMATION, CONTACT:

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Robert G. Kaley, II
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800 North Lindbergh Boulevard
St. Louis, MO 63167
(314) 694-3344

# APPENDIX C

## Site Safety Plan Acknowledgment Form

## *SITE SAFETY PLAN ACKNOWLEDGMENT FORM*

I have been informed and understand and will abide by the procedures set forth in the Health and Safety Plan and Amendments for the Lemon Lane Landfill Site, Bloomington, Indiana.

| Printed Name | Signature | Representing | Date |
|---|---|---|---|
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