FINAL
Health and Safety Plan

Prepared for:
NECC Customer Group

Centredale Manor Restoration Project
Superfund Site: Pre-Design Investigation

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November 6, 2013

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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

This Health and Safety Plan (HSP) has been developed by Woodard & Curran, Inc. (Woodard & Curran) on behalf of the Respondents[1] for the Centredale Manor Restoration Project Superfund Site (the Site). This HSP was prepared in accordance with Appendix B of the Statement of Work (SOW) for the Source Area Soil Pre-Design Investigation (Pre-Design Investigation), which is an attachment to the Settlement Agreement (CERCLA Docket No. 01-2013-0019).

This HSP has been prepared in conjunction with, and references information provided in, other components of the Pre-Design Work Plan (PDWP), Residential Health and Safety Plan (RHSP; provided as Appendix E), and Emergency Response Plan (ERP; provided as Appendix F to this HSP).

The Site is located in North Providence, Rhode Island. It consists of two parcels, 2072 and 2074 Smith Street (Plat 14, Lots 200 and 250, encompassing approximately 9.7 acres), as well as surface water, sediment and floodplain areas of the Woonasquatucket River from Route 44 southerly to the Allendale Dam and further below to the Lyman Mill Dam. Analysis of soils, sediments, wetlands, and flood plain samples at the Site suggest elevated levels of a variety of constituents, including 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD"), polychlorinated biphenyls ("PCBs" or "Aroclors"), polycyclic aromatic hydrocarbons ("PAHs"), including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, metals (including antimony, arsenic, beryllium, chromium, lead, and manganese), and several Volatile Organic Compounds ("VOCs") and Semi-Volatile Organic Compounds ("SVOCs").

The scope of work, which is summarized below and detailed in the PDWP, will be implemented to fulfill the Pre-design investigation in accordance with the requirement of the SOW included in an Administrative Settlement Agreement and Order on Consent (Settlement Agreement) between USEPA and the Respondents. The primary goals of the pre-design investigation are to observe and sample buried material within the investigation area, evaluate the horizontal and vertical extent of buried material, and perform initial waste characterization sampling to evaluate disposal options and costs.

Test pits and/or trenches will be completed over an approximately 1-acre area that is identified as the Pre-Design Investigation Area. Soils/Matrix sampling and analysis will be completed in accordance with the PDWP. Project field staff should be aware that there is a potential that buried waste material and associated contaminated soil may be encountered during test pitting. The scope of work describing the project design is provided in the PDWP. It is assumed that all field work will be performed in modified Level D Personal Protective Equipment (PPE). If Action Levels, as described in Section 9.4, are exceeded and measures to mitigate conditions are not successful, work shall be stopped and the Project Manager shall be notified and a PPE upgrade will be evaluated with consideration of the RHSP, as applicable.

Soil samples will be analyzed for some combination of the following:

Parameter	EPA Method
Dioxins	1613B
PCBs	8082A/3540C(Soxhlet)
VOCs	8260C

[1] The "Respondents" is a defined term in the Settlement Agreement – BASF Corporation; BNS Company; CAN Holdings LLC; Cranston Print Works Company; Duro Testiles LLC; Exxon Mobil Corporation; Lonza, Inc.; Organic Dyestuffs Corporation; Sequa Corporation; Teknor Apex Company; The Original Bradford Soap Works, Inc.; Union Oil Company of California.

SVOCs	8270D
Pesticides	8081B
Metals (Target Analyte List per PDWP)	6010C/7470A
Full TCLP (all the above except dioxin/PCBs)	1311

Continuous ambient air monitoring will occur daily during test pitting and/or trenching activities in the work zone and the Site perimeter. Additionally, integrated samples of air and dust will be collected primarily to assess if monitoring and control protocols established for the protection of the surrounding residential population and site workers are appropriate during Site investigation activities. Laboratory analysis for dust and VOCs is primarily discussed in the construction air monitoring section of the RHSP provided as Appendix E.

This HSP was completed by:	Daniel Clinton	Date:	10/7/2013
Project Manager:	Peter Nangeroni	Date:	10/7/2013

2. HSP APPLICABILITY

This HSP is designed to identify project hazards and applicable safe practices and equipment to perform primary work tasks work safely. Applicability extends to all Woodard & Curran employees, contractors, subcontractors, and visitors. Each contractor at the site must follow this HSP as minimum health and safety requirements and is responsible for the health and safety of their employees during work tasks. Each contractor must develop a Contractor HSP for their tasks meeting these minimum requirements and submit it to Woodard & Curran prior to start of work.

This HSP was completed by a competent person with respect to health and safety approved by the project manager. All project team members subject this HSP must review its contents and sign the acknowledgment form. Completion of this HSP also serves as a certified personal protective equipment (PPE) hazard assessment.

Job Safety Analyses (JSAs) for the primary work tasks identified for this project are attached to this HSP as Appendix A. The sections below identify the hazards and safe practices to be applied; these are also incorporated into the JSAs for reference.

3. PROJECT CONTACT INFORMATION

Company / Entity	Role	Name	Primary Contact Number
Woodard & Curran	Project Manager	Peter Nangeroni	781-752-6715
Woodard & Curran	Project Safety Officer	Kyle Apigian	857-523-0241
Woodard & Curran	Site Safety Officer	Daniel Clinton	508-769-5274
Woodard & Curran	Staff	Crista Trapp	857-523-0196
Woodard & Curran	Staff	Nicole D'Angelo	401-578-1257
Tantara Corporation	Excavation Contractor	Chris Pereria	508-752-5599
Local Fire Department	Emergency Response		911
Local Police			911
Poison Control	Poison Emergency	U.S Poison Control Centers	800-222-1222
Dig Safe NOTE: Advanced notice to Dig Safe is required before any digging activity.	Utility Clearance	National Dig Safe Call Center	811
USEPA	Federal Project Coordinator	Anna Krasko	617-918-1232
RIDEM	State Project Coordinator	Louis R. Maccarone	401-222-2797

4. HEALTH & SAFETY RESPONSIBILITY

The following sections summarize the roles and responsibilities associated with implementing the requirements of this HSP.

4.1 WOODARD & CURRAN PROJECT MANAGER

The Project Manager (PM) represents Woodard & Curran and has authority to direct all Woodard & Curran and Contractor work operations, is directly responsible for the technical progress of project task elements, the development of the overall Health and Safety program for the Site, and bears ultimate responsibility for the proper implementation of this HSP. The PM for this project is Peter Nangeroni. The PM, in consultation with the Woodard & Curran Project Safety Officer (PSO; see below for description of this role) is responsible for approving modifications/addenda to this HSP. The PM also has final authority to suspend Woodard & Curran employees and Contractors from field activities/site access for violation of provisions of this HSP. Disciplinary action associated with the requirements of this HSP with regard to Contractors will be made in consultation with the Site Safety Officer (SSO; see below for description of this role) and PSO, as required.

4.2 WOODARD & CURRAN PROJECT SAFETY OFFICER

The PSO represents Woodard & Curran with respect to the management, oversight, and coordination of daily jobsite safety and operations. The PSO for this project is Kyle Apigian. In this role, the PSO will work closely with the PM to provide coordination of scheduling, technical issues, quality assurance, and construction administration issues that may arise with the Contractor(s) during the implementation of the work. The PSO will be responsible for validating and verifying that the SSO enforces the implementation of the HSP, as applicable. In addition, the PSO responsibilities shall include the following:

- Identification and proper delegation of SSO personnel;
- Overseeing and monitoring the performance of the SSO;
- Coordinating development of HSP Addenda for new project tasks;
- Ensuring provision of a copy of each Contractor's HSP to the SSO;
- Verifying the availability, through the SSO, of emergency response personnel and medical support facilities;
- Maintaining overall responsibility for response and corrective actions in the event of an emergency, an accident, or identification of a potentially unsafe condition; and
- Recommendation to the PM regarding suspension of employee or Contractor personnel from field activities/site access for violation of provisions of this HSP. Disciplinary action with regard to Contractors will be made in consultation with the PM and PSO, as required.

4.3 SITE SAFETY OFFICER

The SSO for this project will be Dan Clinton for all Site work. As described above, it is the PSO's responsibility to identify and delegate SSO responsibilities, as needed. The SSO is to be directly involved in the day-to-day successful implementation of the safe work requirements for the Site. The SSO applies these policies and procedures into action and promotes safety directly among Site workers. The SSO works for and under the direction of the PSO, and is subject to the requirements of this HSP. The SSO is responsible for the monitoring of Site worker compliance with this HSP, as appropriate. The SSO will assess the compliance of Contractor operations with applicable health and safety requirements. If deficiencies are observed and the Contractor does not correct them, the SSO will notify the PSO and PM as appropriate for resolution. All deficiencies and corrective actions will be recorded in the field logbook.

The SSO will make recommendations for modifications to the HSP should any Site health and safety conditions change. These changes will be made by the PSO in consultation with the PM. The SSO reserves the right to stop work if a Contractor's practices are deemed dangerous to human health, public welfare, safety, or the environment.

The SSO has the responsibility of safeguarding, educating, and training those workers who have been placed under their direction. Specific safety and health responsibilities include the following:

- Enforce established safety and health requirements to Site workers;
- Coordination of Contractor control and orientation;
- Coordination of Site control and security;
- Provide safety leadership by example;
- Coordination of emergency response personnel and medical support resources;
- Periodic inspection of general work conditions and implemented hazard controls;
- Field and evaluate employee safety observations or complaints;
- Conduct or arrange for formal hazard assessments, as necessary;
- Plan production so that all work will be done in compliance with established safety regulations;
- In the event of an injury, ensure proper medical attention is provided and injury is reported;
- Initiation of corrective actions in the event of an emergency, an accident, or identification of a potentially unsafe condition;
- For any safety incident including a near miss, property damage, or personal injury, investigate all incidents immediately and correct any obvious causes immediately;
- Coordination of spill response measures;
- Reporting all incidences to the PM and PSO;
- Address safety and working conditions with employees daily;
- Instruct new and existing Site workers who are performing new or unusual tasks on the required safe work practices necessary to complete the task; and
- Communicate with the PSO and other jobsite contractors to ensure hazards are controlled for all exposed parties.

4.4 CONTRACTORS

A Contractor is an individual, firm, or corporation that has entered into a contractual agreement with Woodard & Curran or any other party performing Site work to complete all or some portion of the applicable work. The Contractor assumes all duties and responsibilities and has the rights and authority assigned to the Contractor. Contractors are generally required to develop and operate under their own HSP as described herein and the Woodard & Curran HSP. Contractor HSPs shall be provided for review by the PM and PSO.

Contractors must be qualified to perform the scope of work, and should have a good track record in performing such services. Contractors and their personnel must understand and comply with the requirements established in their HSP and Woodard & Curran's HSP. A Site-specific orientation will be conducted by the PSO or SSO during the Site Safety Briefing prior to the onset of work. This orientation shall be documented and copies provided to the Contractor for their records.

The Contractor shall comply with all applicable laws and regulations and shall take all necessary precautions for the safety of persons or property, or the protection of persons or property from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall provide competent persons as needed whose duties and responsibilities shall be maintaining and supervising of safety precautions over their specific scope of work. Contractors must maintain documentation of employee training and participation in a medical surveillance program, as applicable, consistent with the requirements of their HSP. Copies of these documents must also be provided to the PSO for project files upon request. Contractor personnel must participate in daily safety briefings coordinated by the SSO.

4.5 JOBSITE EMPLOYEES

The following items have been identified as the minimum responsibilities necessary during the course of work activities conducted at the Site:

- Work safely to ensure individual and colleague safety;
- Participate in all safety and health training programs and orientations, as required;
- Understand and comply with all safety directives issued at the jobsite;
- Arrive at work, mentally and physically prepared to perform work in a safe manner;
- Immediately correct any noticed unsafe condition, obtain assistance as needed;
- Use all required personal protective equipment for work tasks;
- Maintain and use all tools in a safe condition under individual control;
- Read, understand, and follow all safety signs, posters, instructions, and materials to indicate warnings or instructions for safe work performance;
- Inform the SSO or PSO of any concerns about safety of work activities, including hazardous conditions, near misses, property damage, and injuries at the jobsite; and
- Practice good housekeeping measures at the jobsite.

4.6 VISITORS

Visitors are subject to the requirements of this HSP. All visitors must attend a Site Safety Briefing upon their first visit to the Site and daily tailgate briefing when visiting the Site over multiple days. Visitors may include Client representatives, government officials or representatives, utility workers, or any other individual either directly or

indirectly related to the objectives of this work or tasks related to this work, but not authorized as a jobsite employee. Visitors will be accompanied at all times by an authorized jobsite employee unless agreed to by the SSO. An authorized jobsite employee has received a Site orientation, and possesses the knowledge and training to safely escort a visitor around the activities being conducted at the jobsite.

If visitors intend to enter a designated work zone, they must have the personal protective equipment and training required by this HSP according to their task and level of exposure for that work zone. Applicable documentation of visitor orientation will be maintained by the SSO. In the event that a visitor does not adhere to the provisions of the HSP, he/she will not be allowed to enter the site. All nonconformance incidents will be recorded in the site logbook.

5. SITE CONTROL MEASURES

The following section defines measures and procedures for maintaining site control. Site control is an essential component in the implementation of the Site health and safety program. Site control measures are also applicable to the Resident Health and Safety Plan, which is provided as an Appendix to this HSP.

5.1 WORK ZONES

Access to the work areas will be controlled by SSO. Only authorized personnel as indicated by this HSP in Section 4 have access to the Site for the purposes of performing work tasks.

Site work zones will be established by the PSO or SSO prior to the beginning of the project and may be subject to modification on a daily basis based on work activities. The locations of work zones will be communicated as part of the daily safety briefings. A figure depicting a typical work zone layout is provided as Figure 1. The evacuation route, if deemed a safe route by the SSO during an emergency, is depicted on Figure 2. Decontamination areas (if necessary) for heavy equipment, small equipment, and personnel will be established based on the location of the work activity and the potential to spread contamination.

***Exclusion Zone*:** The Exclusion Zone (sometimes also referred to as the "hot zone" or "dirty zone") at the subject Site will be designated daily by the SSO and will generally consist of an area within 15 feet of the work area (but may vary widely depending on equipment operation radius needs, wind, weather, topography, chemicals, contamination, size and scope of project task, etc.). Proper decontamination procedures for impacted equipment or personnel must be followed when exiting the Exclusion Zone. **Please note:** Only authorized personnel who meet the training and medical surveillance requirements may enter this zone.

Contamination Reduction Zone: The CRZ (sometimes also referred to as the "warm zone" or "decontamination" or "decon" zone) will be identified daily by the SSO. The access or "*contamination reduction corridor*" or *CRC* (often also referred to as the "decon area") for the exclusion zone will established daily if decontamination will be necessary. The CRC will be located upwind of the exclusion zone, which will be determined daily and communicated at daily safety briefings by the SSO. Site workers must enter and leave the exclusion zone using this corridor if contact with contaminated media has been made such that contaminated media may be spread from the Exclusion Zone. Workers will sign in and out of the Site using a form similar to that provided in Appendix B. Logbooks will be kept at the Site office or SSO project vehicle for signing in and out (an example Site Sign-In/Sign-Out Log Sheet is provided as an Appendix to this HSP). Section 12 of this HSP contains information about decontamination supplies and procedures.

***Support Zone*:** The support zone (sometimes also referred to as the "cold zone" or "clean zone") functions as the clean area and is the outermost zone beyond the Contamination Reduction Zone. This is where support and administrative personnel remain. The support zone is also where the project vehicle, phone, meeting area, and Site command post are located, if applicable. Normal work uniforms are appropriate clothing for this zone. The support zone will be located upwind of the high hazard areas (the exclusion zone) as appropriate.

5.2 SITE COMMUNICATIONS PLAN

Successful communications between field teams and contact with personnel in the support zone is essential. Health and Safety meetings ("tailgate" meetings) will take place on a daily basis to review primary Site hazards, responsibilities, and procedures.

The following communications systems should be available during activities at the Site.

- Cell phones.

- If cell phones signal is poor, hand held radios are encouraged for use between the work crews, the SSO.
- Hand Signals.
- Site evacuation will be communicated by three blasts of an air horn per the Emergency Response Plan provided as Appendix F.

Signal	Definition
Hands clutching throat	Respiratory hazard is present/cannot breath
Hands on top of head	Need assistance
Thumbs up	OK/I am alright/I understand
Thumbs down	No/negative
Arms waving upright	Send backup support
Grip partner's wrist	Exit area immediately
Visual, voice or radio communications must be maintained at all times.	

6. MAP AND DIRECTIONS TO NEAREST MEDICAL FACILITY

Name and Location Nearest Medical Center Below, Directions to Nearest Medical Center are attached to this HSP. A copy of this map and directions will be kept in all project vehicles.

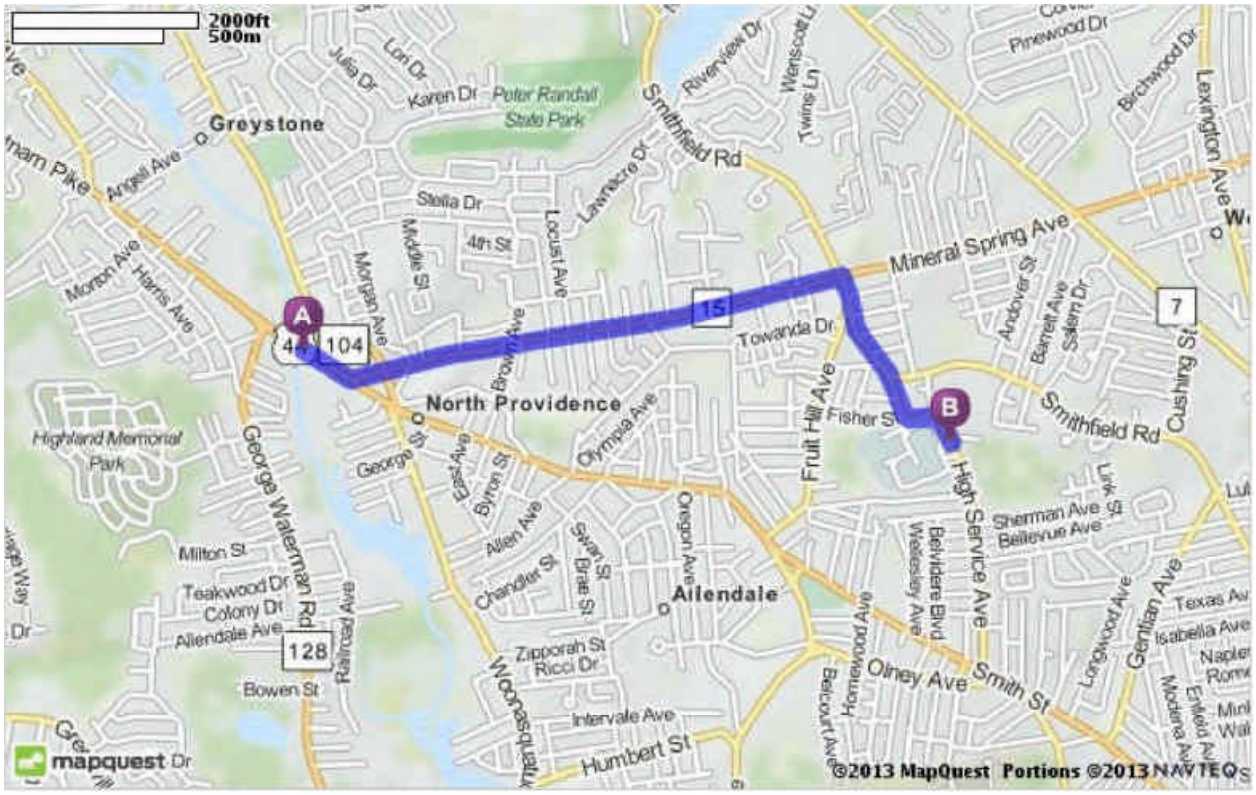
Name: Fatima Hospital

Address: 200 High Service Avenue, North Providence, RI

Directions:

1. **Start out going southeast on Smith St / US-44 S toward Waterman Ave / RI-104 N.**
2. **Turn slight left onto Mineral Spring Ave / RI-15 E.**
3. **Turn right onto Smithfield Rd.**
4. **Turn slight right onto High Service Ave.**
5. **200 HIGH SERVICE AVE is on the right.**

Map to Nearest Medical Facility



7. PROJECT HAZARD ASSESSMENT

7.1 GENERAL HAZARDS/CONSIDERATIONS

The Pre-Design Investigation will be taking place in an area where drums containing unknown chemicals or waste material are suspected to be located. Based on historical data, certain COCs such as dioxins and PCBs are expected to be encountered; however, there is the possibility that unknown contaminants may be encountered, that Site COCs may be encountered at high concentrations, or that material may exhibit hazardous characteristics (e.g. acid or alkaline). All personnel should proceed with caution if drums are encountered, and be aware that stopping work or re-evaluating PPE needs is a possibility. See the Drum Contingency Plan presented in the PDWP for additional information.

- ☐ Aerial Lift Work (Operator training required)
- ☒ Compressed Gases Storage/Use (calibration gas for PID and Multigas meter)
- ☐ Confined Spaces (CSE Training Required for Permit Entry)
- ☐ Drilling/Exploration
- ☐ Energized equipment or circuits
- ☒ Excavation Work
- ☐ Falling/Overhead Objects
- ☐ Falls from Elevated Work (> than 4 feet)
- ☒ Falls from Same Elevation (< 4 feet)
- ☐ Flammable Liquids Storage/Use
- ☐ Forklifts/Lulls (Operator training required)
- ☐ General construction exposure
- ☐ General manufacturing area exposure
- ☒ Heavy Equipment Use
- ☐ Hot Work – Cutting, welding, or grinding generated sparks or heat sources. (Hot work permit required)
- ☐ Laboratory area exposure
- ☐ Pinch Points
- ☐ Power Equipment/Tool
- ☐ Rotating Equipment
- ☒ Slips and Trips
- ☒ Utilities – Overhead or Underground
- ☒ Vehicular traffic
- ☐ Working in, over, or adjacent to water

7.2 BIOLOGICAL / ENVIRONMENTAL HAZARDS

- ☒ Excessive Cold (<32°F Potential)
- ☐ Excessive Heat (>91°F)
- ☒ Explosive Vapors or Particulate
- ☐ Microbiological (bacterial/viral) such as in wastewater or other research labs
- ☐ Mosquitoes
- ☒ Poisonous Plants (Ivy, Oak, Sumac, Ragweed etc.)
- ☒ Ticks
- ☒ Venomous Insects (Spiders, wasps, bees, etc.)
- ☐ Venomous Snakes
- ☐ Wet Conditions
- ☐ Wild/Dangerous Animals

7.4 CHEMICAL HAZARDS

(Also see Section 7.1)

☐ Acid and Alkaline Substances

☒ Contaminated soil/particulate

☒ Flammable (methanol preservative)

☒ Organic Solvents (methanol preservative)

☐ Oxidizers

☐ Radiological (Consult with H&S Department)

☐ Reactive

☒ See PDWP and HSP introduction for site-specific COCs

☒ Volatiles/Semi volatiles

7.5 ERGONOMIC HAZARDS

☒ Bending/Twisting

☐ Lifting

☐ Pulling/Tugging

☐ Repetitive Motion

7.6 EYE / FACE HAZARDS

☐ Acid and Alkaline Substances

☐ Laser Operations

☒ Liquid Splashes

☒ Particulates

☐ Other:

☐ Sharps/Punctures

☐ Ultraviolet Radiation

☐ Welding Arc

7.7 FOOT HAZARDS

☒ Crushing Impact

☐ Sharps/Puncture

☐ Other:

☐ Conductive Hazards

7.8 HAND HAZARDS

☐ Acid and Alkaline Substances

☒ Excessive Cold (<32°F)

☐ Excessive Heat (Surface >120°F)

☒ Handling Contaminated Media

☐ Other:

☐ High Vibration

☒ Organic Solvents (methanol preservative)

☐ Sharps/Punctures

7.9 HEARING HAZARDS

(Perceived or measured noise > 85 decibels)

☐ Impact Noise

☒ High Ambient Noise (construction equipment)

☒ Other: High ambient noise anticipated only in the exclusion zone in immediate vicinity of heavy equipment operations.

7.10 RESPIRATORY HAZARDS

☐ Acid Gases

☒ Aerosols/Particles (Heavy Metals, Dioxin, SVOCs, and PCBs)

☒ Semi-volatile Organic

☐ Mercury Vapor

☐ Other:

☒ Organic Vapors

☒ Oxygen Deficient (only if entry into excavation required, not likely)

☐ Welding Fumes

8. PPE REQUIREMENTS

8.1 STANDARD WORK UNIFORM

- ☐ Cotton Coveralls
- ☒ Hard Hat
- ☒ Hi-Visibility Vest or Equivalent Apparel
- ☒ Long Pants
- ☐ Rubber Boots
- ☒ Safety Boots (Steel or Composite Toe)
- ☒ Safety Glasses
- ☒ Sleeved Shirts (Short or long as appropriate)

8.2 ADDITIONAL EYE PROTECTION

None ☒

8.3 ADDITIONAL PROTECTIVE CLOTHING

None ☒

8.4 HAND PROTECTION

- ☐ Anti-vibration Gloves
- ☐ Butyl Gloves
- ☐ Cotton Gloves
- ☐ Cut-Resistant Gloves
- ☐ Electrically Rated Rubber Gloves (for electrical workers only)
- ☐ Insulated Gloves or Glove Liners
- ☐ Other:
- ☒ Leather Gloves (when handling tools or equipment)
- ☐ Neoprene Gloves
- ☒ Nitrile Gloves (When handling contaminated media or other chemicals including preservatives)
- ☐ Rubber Gloves

8.5 HEARING PROTECTION

(Required for perceived or measured noise > 85 decibels)

- ☒ Ear Plugs
- ☐ Ear Muffs

8.6 RESPIRATORY PROTECTION

None ☒

8.7 ADDITIONAL PPE

☒ Insect gaiters

☒ Insect Repellant

☒ Other: Disposable Boot Covers

☒ Permethrin Clothing Treatment

☒ Sunscreen

9. MONITORING PROTOCOL

9.1 APPLICABLE ACTIVITY

☐ Confined Space Entry
☒ Excavation
☒ Exclusion Zone Monitoring
☒ Worksite Perimeter Monitoring
☐ Other:

9.2 MONITORING HAZARD

☒ Oxygen
☒ PCBs
☒ Metals
☒ Hydrocarbons
☐ Hydrogen Sulfide (H2S)
☐ Aerosols/Particulate
☐ Asbestos
☐ Carbon Monoxide
☒ Volatile Organics
☒ Dioxins
☒ Other: Exposure would be via dust exposure and volatile organics emission from soil.

9.3 TYPE OF MONITORING DEVICE

☒ Aerosol/Dust Meter
☒ Colorimetric Tubes
☐ Heat monitoring equipment
☐ Mercury Vapor Meter
☒ Multi-gas meter
☒ Noise Meter
☐ Personal Sampling Badges
☐ Personal Sampling Pumps
☒ Photoionization Detector
☒ Other: Meteorological

9.4 PROJECT ACTION LEVELS

Field work will be performed in modified Level D Personal Protective Equipment (PPE). If Action Levels, as described below, are exceeded and measures to mitigate conditions are not successful, work shall be stopped and the PM shall be notified. A PPE upgrade will be evaluated with consideration of the RHSP, as applicable. Project action levels for this HSP, and the RHSP, are provided in Table 1.

10. ADDITIONAL PLANNING CONSIDERATIONS

10.1 WORK ZONE/TRAFFIC CONTROL MEASURES

- ☒ Caution/Warning Tape
- ☐ Low Visibility/Evening Work
- ☒ Fencing
- ☐ Flaggers
- ☐ Police Detail/Escort
- ☐ Signal Lights
- ☐ Other:
- ☐ Traffic Cones
- ☒ Traffic Control Plan (outside work zones only; refer to PDWP)
- ☒ Vehicle Barriers
- ☒ Work Zone Signage

Site work zones have been established per Section 5.1 of this HSP.

10.2 HAZARD COMMUNICATION PROGRAM

Will hazardous chemicals be used or maintained on the jobsite by Woodard & Curran? (This includes solvents, decontamination fluids, sample preservatives, treatment chemicals, fuel oils, diesel fuel etc.)

- ☒ Yes. A site-specific Hazard Communication Program and SDS/MSDS inventory is provided as Appendix C to this HSP.
- ☐ No. No further action needed, employees are protected under the corporate program found in Section 6 of the Corporate Manual.

10.3 SAFE WORK PERMIT / PROTOCOLS

Confined Spaces: Will the work include a permit required entry of a confined space by employees following this HSP?

- ☐ Yes. Entry permit(s) must be attached to this HSP and completed as applicable.
- ☒ No. No further action needed.

Hot Work: Will hot work be performed by employees following this HSP?

- ☐ Yes. Hot work permit(s) must be attached to this HSP and completed as applicable.
- ☒ No. No further action needed.

Lockout/Tagout: Will hazardous energies need to be controlled to conduct work tasks?

- ☐ Yes. Equipment control procedures must be developed and attached to this HSP if not already developed for the work site (e.g., client procedure).
- ☒ No. No further action needed.

Electrical Work: Will electrical work be conducted in an energized state? Note: This is only allowed for Woodard & Curran qualified employees or contractors following this HSP.

☐ Yes. An energized work permit(s) must be attached to this HSP and completed as applicable.

☒ No. No further action needed.

10.4 SPECIAL TRAINING QUALIFICATION REQUIREMENTS

(Please check if any of the following training is required for work on the work site as applicable)

☐ Confined Space Entry

☒ First Aid/CPR

☒ HAZWOPER 40 Hour Training & Annual Refresher

☒ HAZWOPER 8 Hour Supervisory Training (SSO Required)

☐ MSHA 24 Hour New Miner Training& Annual Refresher

☐ OSHA 10 Hour Construction Safety Training

☐ OSHA 10 Hour General Industry Safety Training

☐ OSHA 30 Hour Construction Safety Training

☐ Powered Industrial Truck Operation

☐ TWIC

☐ USDOT/PHMSA Operator Qualification Training

10.5 MEDICAL SURVEILLANCE OR SCREENING REQUIREMENTS

(Please check if any of the following medical clearances are required to conduct aspects of the work as applicable)

☐ Client Required Screenings

☒ HAZWOPER Medical Surveillance

☐ Other:

☐ Medical Clearance for Respirator Use

☐ USDOT Screenings

10.6 DECONTAMINATION PROTOCOL

☒ Required (see Section 12 of this HSP)

☐ Not Required

10.7 JOB SAFETY ANALYSIS

JSAs are provided as Appendix A.

11. GENERAL EMERGENCY INFORMATION

A Site specific Emergency Response Plan which details Site emergency protocol is provided as Appendix F to this HSP. However, the following basic emergency protocols should be followed in the event of an emergency:

1. In the event of a fire or other emergency that is threatening to life and health evacuate the premises as soon as possible to a safe assembly location (also referred to as the command post in the ERP) upwind of the incident location, this may constitute a field vehicle or as otherwise designated by the SSO. The location of safety assembly area will be verbally communicated to the Site workers by the SSO on a daily basis to account for daily wind direction.
2. If fire extinguishers are available, they may only be used for incipient firefighting by trained personnel.
3. In the event of an injury;
    a. Initiate emergency response (911 or local contact number) for any significant or life threatening injury conditions.
    b. As deemed appropriate if the injury is not life threatening the employee may be driven by escort to the nearest medical facility
    c. A first-aid kit should be available for minor injuries,
4. If chemicals are handled on-site, proper spill prevention and containment supplied should be immediately available for use, spill response can only be handled by trained personnel, otherwise evacuate and contact the local fire department or designated responder.
5. All safety incidents must be reported to Woodard & Curran Health & Safety as soon as possible. For injury incidents, a Supervisors Report of Injury (Appendix D) must be completed by the PM or PSO within 24 hours of the incident and submitted to Woodard & Curran Health & Safety. Safety department staff may be reached in the Portland, Maine Office at 207-774-2112.

12. DECONTAMINATION PLAN

The Site is located in a residential area of North Providence, Rhode Island. As such, a thorough proper decontamination protocol is imperative to limit exposure to the community and Site personnel. Therefore, contamination reduction zones will be established by the SSO, as needed, to limit the possibility of contamination outside the work area. The area of work will be mobile along pre-determined transects, the decontamination zone will be determined and established by the SSO at the beginning of each work day, if applicable. Typically, the excavation equipment will follow the test pit and trench transects and will not leave the exclusion zone. Excavator decontamination procedures are identified in Section 12.3 below. The general establishment approach of work zones are described in Section 5.1 of this HSP.

A decontamination line for personnel and equipment shall be established if the work to be completed at the Site has the potential for contaminating equipment or clothing. However, it is unlikely that Site workers will be directly exposed to contaminated soil, as it will be typically managed by an excavator machine. The procedures outlined below describe the decontamination protocol if deemed necessary during investigation activities. Typically, this will involve plastic sheeting, disposal bags, and washing supplies.

12.1 DISPOSABLE PPE

Personnel wearing disposable PPE (outer cover boots, gloves, etc.) and disposable clothing will, following gross removal of visible contaminants, place the PPE in a receptacle established at the interior hot line before leaving the CRZ. Disposable PPE will be disposed in accordance with applicable state or federal regulations.

12.2 DECONTAMINATION OF NONDISPOSABLE PPE

To decontaminate non-disposable PPE, visible or suspect contaminated areas of the PPE shall be washed with a detergent (Alconox or Liquinox) and water solution.

Any clothing to be laundered will be bagged in the CRZ and labeled as such. The laundry service must be informed of the potential contaminants. Other reusable protective wear (boots covers) will be cleaned and decontaminated with appropriate solutions, such as those listed above.

12.3 DECONTAMINATION OF EQUIPMENT

Air Monitoring Equipment:

If contamination is likely, monitoring equipment shall be wrapped in plastic wrap or bags to avoid the need for decontamination. Do ***not*** cover the probe or inlet with plastic! If contaminated, leave the plastic wrap or bags in the designated disposal receptacle at the CRZ. If the equipment has to be decontaminated, the manufacturer's recommendation will be followed. See owner's manuals.

Excavating or Heavy Equipment:

It is expected that only the excavator bucket will be in direct contact with contaminated media during test pitting and trenching. When the excavator is moved between transect lines, soil adhered to the excavator bucket will be removed by equipment operator controls into the test pit or trench and the excavator bucket will be wrapped in plastic sheeting while the excavator is moved to a new transect line in order to prevent any excess soil from falling off the bucket during transit. It is also expected that the exclusion zone will shift throughout the workday along a transect as described in the PDWP. Therefore, decontamination is not expected to be necessary during work along each individual transect. If tracks and wheels of equipment that have entered the Exclusion Zone do come into direct contact with contaminated media, they will decontaminated in accordance with SOPs presented in the PDWP. Decontamination materials and fluids will be disposed of in accordance with the appropriate regulations.

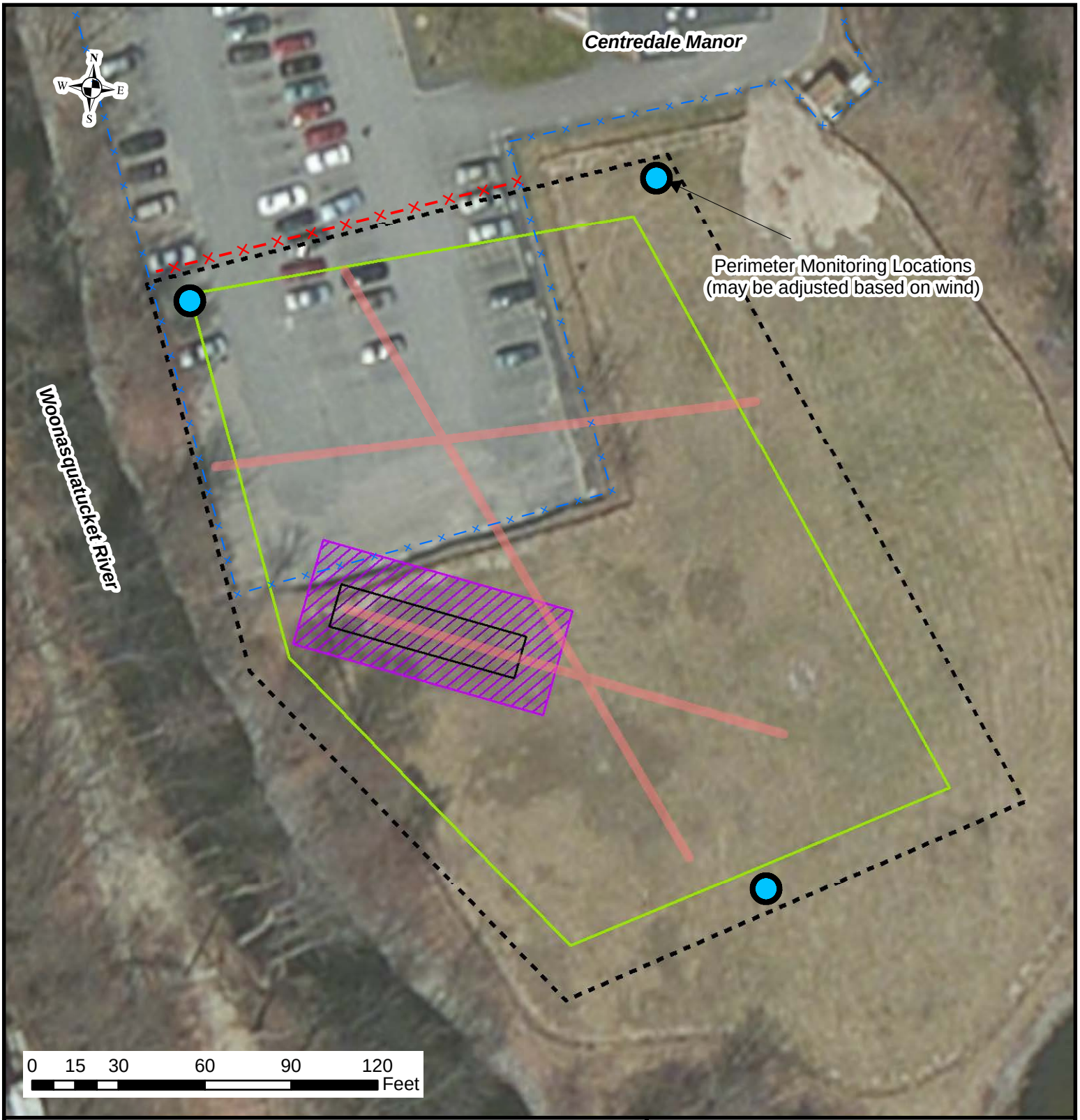
13. HSP ACKNOWLEDGEMENT

I acknowledge that I have reviewed this HSP and understand its requirements.		
Employee Name	**Company / Entity**	**Date Acknowledged**

Figures

Figure 1: Typical Work Zone Layout

Figure 2: Evacuation Route



- Existing Fence Line
- Temporary Fence (6' Chain Link)
- Proposed Test Pit/Trench Transects
- Exclusion Zone (1)
- Contamination Reduction Zone (1)
- Limit of Work
- Investigation Area

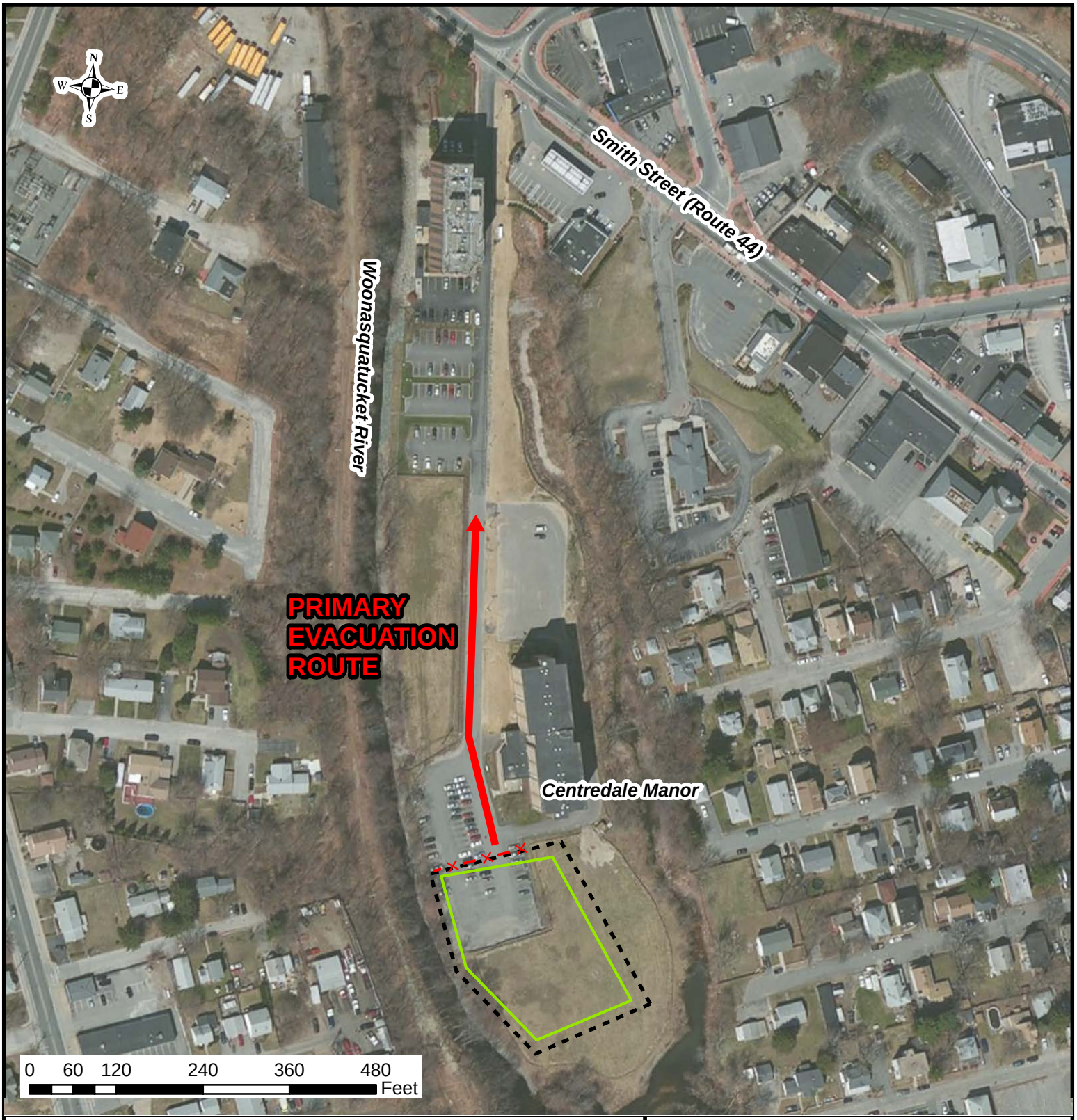
(1) Example only. It is expected that the limits of the Exclusion Zone and Contamination Reduction Zone will change as the work progresses.

Centredale Manor Restoration Project
Superfund Site
North Providence, Rhode Island

FIGURE 1: Work Zone Layout

WOODARD &CURRAN

SCALE: As Shown	Work Zones.mxd
DATE: 10/7/2013	JOB NO.: 226845
DRAWN BY: KOA	



Legend

- Temporary Fence (6' Chain Link)
- Limit of Work
- Investigation Area

Centredale Manor Restoration Project
Superfund Site
North Providence, Rhode Island

FIGURE 2: Evacuation Route

WOODARD &CURRAN

SCALE: As Shown	Evac Route.mxd
DATE: 10/7/2013	JOB NO.: 226845
DRAWN BY: KOA	

Tables

Table 1: Project Action Levels Summary

Table 1: Project Action Levels Summary

Centredale Manor Restoration Project Superfund Site

North Providence, Rhode Island

Intergrated (8-hr) Sample for VOC COPCs	Molecular Weight	PALs		Actions
		ACGIH TLV		
Support Zone Permimeter - Summa canister		ug/m^3	ppbv	
1,1,1-Trichloroethane	133.41	1910000	350045	Results will be used to evaluate if VOCs related to the Site do not exceed PALs. VOCs present in laboratory results will be evaluated and VOC action levels will be adjusted, if necessary.
1,1,2-Trichloroethane	133.41	55000	10080	
1,2,4-Trichlorobenzene	181.45	37000	4986	
1,2-Dichlorobenzene	147.01	150000	24947	
1,2-Dichloroethane	98.96	40000	9883	
Benzene	78.11	1600	501	
Chlorobenzene	112.56	46000	9992	
cis-1,2-Dichloroethene	96.95	793000	199988	
Ethylbenzene	106.17	87000	20035	
m-Xylene/p-Xylene	106.16	434000	99956	
o-Xylene	106.16	434000	99956	
Styrene	104.15	85000	19954	
Tetrachloroethene	165.83	170000	25065	
Toluene	92.14	75000	19902	
trans-1,2-Dichloroethene	96.94	793000	200009	
Trichloroethene	131.39	54000	10049	
Vinyl Chloride	62.49	2600	1017	
TVOC Field Screening Limits				
Exclusion Zone - PID		≥5ppm over one minute		Implement Colorimetric Screening for Benzene Fraction
Exclusion Zone - colorimetric tube		>1.0 ppm Benzene fraction		Stop Work and apply controls until <5ppm and <1.0 Benzene Fraction
Exclusion Zone - PID		> 10 ppm Breathing zone and <1.0 ppm benzene		Stop work and apply controls until <5ppm
Integrated Sample for Total Dust				
Support Zone Perimeter - Filter sample		> 0.150 ug/m^3 Total Dust		Evaluate excavation methods and apply dust controls
Particulate Field Screening Limits				
Exclusion Zone - Aerosol dust meter (hand-held)		1.9 mg/m^3		
Exclusion Zone - visual		Visual Dust		Stop Work and apply dust controls
Site Perimeter - fixed portable stations		0.150 ug/m^3 15 minute TWA		
Odor Field Monitoring				
Exclusion Zone and Support Zone - olfactory		Olfactory - Strong Odor - Nuisance		Apply odor controls
Exclusion Zone - multi-gas meter		> 10ppm H_2S		Stop work and apply odor controls
Atmospheric Field Monitoring				
Exclusion Zone - multi-gas meter		<19.5% or >23.5% Oxygen >10% LEL >10ppm H_2S >35ppm Carbon monoxide		Stop Work and apply atmospheric controls
Noise Field Monitoring				
Exclusion Zone Perimeter - noise meter		>85 decibels		Record noise reading in support zone in proximity to the nearest residence; if >85 decibels in support zone, apply engineering controls

Notes:

VOC - Volatile Organic Compound

TVOC - Total Volatile Organic Compound

COPC - Compound of Potential Concern. Compounds were selcted based upon the VOCs identified in the Record of Decision (September 2012)

PAL - Project Action Levels

ACGIH - American Conference of Governmental Industrial Hygienists

ug/m^3 - micrograms per cubic meter

mg/kg - milligrams per kilogram

ppbv - parts per billion by volume

ppm - parts per million

EPA NAAQ - Environmental Protection Agency National Ambient Air Quality Standards

H_2S - Hydrogen Sulfide

LEL - Lower Explosive Limit

% - Percent

Integrated sample will be laboratory analyzed via TO-15 (VOCs) or NIOSH 0500 (Total Dust) per in accordance with the QAPP

*Based on highest lead concentration in soil with a 5x safety factor, beryllium was also considered, but due to lower maximum concentrations was not a factor to apply derivation using the Marlowe Equation:

$$\frac{\textbf{(1E+6)(Exposure Limit mg/m3)}}{\textbf{(Concentration mg/kg)(Safety Factor)}}$$

30 ug/m3 is the OSHA lead action level per 29 CFR 1910.1025

3160 mg/kg obtained from the RI Report (Batelle) Table 4-3

$$\frac{(1E+6)(0.03mg/m3)}{(3160\ mg/kg)(5)} = \textbf{1.9 mg/m3}$$

The Marlowe Equation was obtained from an initial exposure modeling calculation based on the SAFETY NOW program written by Christopher Marlowe, CIH and published by the American Industrial Hygiene Association.

**0.150 mg/m3 is the USEPA National Ambient Air Quality Standard for PM_{10}

APPENDIX A: JOB SAFETY ANALYSES

JOB SAFETY ANALYSIS

TEST PITTING AND TRENCHING

Scope of Work: Working around excavating equipment and open excavation or trenches.

General Precautions: Be aware of any site specific conditions. Remain outside of the swing radius of the excavator, and a safe distance of 10 feet away from the open excavation to prevent falls in the case that the side walls cave in. Do not enter a trench or excavation unless absolutely necessary and proper safety control measures such as shoring, air monitoring, and access/egress is established as applicable.

STEPS	HAZARDS	CONTROLS
Pre-work planning		• The site owner/manager should be notified of work activities and locations. • As available, review site-specific drawings with the manager/owner and the excavation contractor to prevent disruption of utilities or other damage during excavation. • Mark out the intended excavation area(s) with white paint or other accepted means. • Call dig-safe using 811 or the regional dig safe number to notify local utilities of the pending work for utility clearance. Typically a notification of at least 72 hours prior to work is required. • As applicable, ensure proper authorities are notified of any excavation work in public rights of way. Coordinate street opening permits.
Approach the site	Slip/trip/fall from uneven terrain or obstructions	• All personnel should be constantly watching for trip hazards such as uneven terrain, holes, ditches, stretched wires or ropes, or any other materials or pieces of equipment in their path. • Significant below-grade hazards (e.g., holes or trenches) should be marked with flagging, fencing or other means to identify the obstacle. • Wear footwear appropriate for the terrain and work to be performed. • Muddy, snowy, and icy conditions will warrant a more cautious work attitude. Adjust work speed to fit the weather

			conditions. • Keep areas well lit. Schedule to be on site during daylight hours if outside.
		Traffic	• Wear appropriate PPE including high visibility clothing, such as a reflective vest. • Utilize truck flashers/strobes, cones, signs, flags or other traffic control devices as needed to divert traffic around working activities. • Set up a barricade surrounding the work area. Ensure pedestrian traffic has a safe route of travel or is excluded from the work area.
		Insects/ticks	• Inspect work areas upon arriving at the site to identify hazard(s). • Use insect repellant as necessary, with DEET (on skin or clothing) or permethrin (on clothing). Products containing permethrin can be used to treat boots, clothing and camping gear which can remain protective through several washings. Repellents containing 20% or more DEET (N, N-diethyl-m-toluamide) can be applied to the skin, and they can protect up to several hours. Always follow product instructions. • Conduct periodic body checks for ticks and bites to help prevent transmission of tick borne illnesses. • Wear appropriate PPE including leather gloves, and Tyvek suits or long sleeves, long pants and socks.
		Poisonous plants	• Wear long pants, long sleeves, and shoes that cover the whole foot. • If direct contact with poison ivy, oak, or sumac is encountered, utilize scrub wash products or irrigate the contact area with water for 15 minutes to minimize allergic rash effect/remove the urushiol. If available, utilize commercially available

			products such as scrub washes and contact wipes to remove urushiol and reduce rash potential.
		Wildlife/animals	• Inspect work areas upon arrival at the site to identify hazard(s). • Stay alert and a safe distance away from biological hazards. • Wear appropriate PPE including leather gloves, long sleeves and pants, and snake chaps if there is a probability of encountering.
		Heat stress	• Employees should be aware of the effects of heat stress, provided with adequate cool liquids such as water and beverages containing electrolytes, and instructed to observe each other for signs of heat stress during hot weather. • Take frequent breaks in cooling areas during hot weather.
		Cold stress	• Hypothermia is a condition in which core temperature drops below the required temperature for normal metabolism and body functions which is defined as 35.0 °C (95.0 °F). Appropriate clothing helps to prevent hypothermia. Synthetic and wool fabrics are superior to cotton as they provide better insulation when wet and dry. Some synthetic fabrics, such as polypropylene and polyester, are used in clothing designed to wick perspiration away from the body, such as liner socks and moisture-wicking undergarments. • Drink warm fluids and take frequent breaks in warming areas during cold weather.
	Carrying equipment/supplies	Back strain	• Use proper body mechanics when bending down. Bend at the knees and lift with your legs, keeping the back straight as possible and avoiding twisting postures. • Carry items at your center of gravity, waist to chest level.

	Working around the excavator or open excavation	Struck-by hazards	• Be aware of the swing radius of the excavator. As a general rule, maintain a safe distance of at least 25 feet outside the swing radius. • Remain in the line of sight of the operator at all times while the machine is in operation. Ensure the operators are aware of your presence. • Notify that you will be in the area and your purpose for being on the site. Introduce yourself to the workers. • Try to walk on the operator's cab side of the machine to avoid being in their blind spot. • Make eye contact with the operators and use hand gestures to make them aware of your direction of travel. • Do not be distracted walking around the site. If you need to make a phone call, remove yourself from the work area. • Construction vehicles should be equipped with back up alarms. • Wear high visibility clothing.
		Noise	• Hearing protection is required for work areas and tasks that have noise levels greater than 90 dBA. • Additionally, employees would be required to participate in a Hearing Conservation Program if the 8 hour TWA (time weighted average) is greater than or equal to 85 dBA.
		Overhead hazards	• Ensure that operators are working a safe distance of 15 feet away from overhead obstructions or utilities. • A hard hat should be worn when working around potential overhead hazards.
		Falls into open excavation	• Stay a safe distance from test pit or trench to avoid areas of sidewall cave-in.

	Conduct air monitoring as needed, or any excavation or trench greater than 4 feet deep.	Exposure to site contaminants, dusts from excavation work.	• Wear protective eyewear. • Follow the site-specific air monitoring protocol and action levels for the work and exposures at hand.
	Collecting samples from the excavation	Skin irritation from preservatives in sample jars	• Wear nitrile gloves when handling the sample jars.
		Exposure to site contaminants	• Refer to the HSP. Level D PPE required.
		Struck-by hazards	• Coordinate with the operator of the excavator so that they can collect the sample. Employees should not enter inside the open excavation. • Be aware of the swing radius of the excavator. As a general rule, maintain a safe distance of at least 25 feet outside the swing radius. • Remain in the line of sight of the operator at all times while the machine is in operation. Ensure the operators are aware of your presence. • Try to remain on the operator's cab side of the machine to avoid being in their blind spot. • Make eye contact with the operators and use hand gestures to make them aware of your direction of travel. • Wear Level D PPE, including a hard hat and high visibility clothing.
		Slips/trips, falls into open excavation	• Coordinate with the operator of the excavator so that they can collect the sample. Employees should not enter inside the open excavation. • Stay a safe distance of 25 feet away in case the side wall of the excavation caves in.
	Required Training: • HAZWOPER (40-hour) for data collection activities with hazardous	**Required Personal Protective Equipment (PPE):** **Level D** – Impact and compression resistant safety boots or safety boots, hard hats, high visibility clothing, and safety glasses. Nitrile gloves or tyvek suits may also be required based on site	

	material exposures. If hazards are removed or controlled, the need for 40 hour training may be evaluated based on the hazard that exists. Any non-hazwoper personnel must be escorted by a hazwoper employee in characterized safe areas. • Annual 8-hour refresher HAZWOPER training. • 10-hour Construction Safety Certification preferred. • Knowledge of excavation hazards and protection requirements. • Knowledge and use of task specific PPE.	specific conditions.
Other Information:	Woodard & Curran personnel seldom serve as the excavation competent person, this is generally deferred to the excavation contractor, if acting as a competent person appropriate training and Woodard & Curran designation as an excavation competent person is required. Protective measures such as shoring may only be applied by competent persons or a professional engineer design.	
JSA Author:	Dan Clinton, Woodard & Curran	
Created:	9/19/13	

JOB SAFETY ANALYSIS

SOIL SAMPLING

Scope of Work: Performed to evaluate soil contamination.

General Precautions: There is the potential of exposure to contaminated materials and various physical (i.e. slips, trips, and falls) and chemical (i.e., Site contaminants) hazards during sampling activities. Personal protective equipment including steel-toe safety boots with boot covers if walking around soil piles, disposable gloves must be worn on workers during sampling activities. Pay attention to your surroundings and your location at the site with respect to hazards.

TASK	HAZARDS	CONTROLS
1. Preliminary procedures • Notify relevant parties of the time and place of drilling activities. • Review the Health & Safety Plan and work description.	Lack of proper planning can cause safety incidents and injury	• Conduct preliminary procedures as noted and as otherwise required. • Note and correct any exceptions identified during this preliminary process to avoid incidents, note and correct exceptions in this JSA as necessary.
2. Access Sample Locations	Slips Trips and Falls	• Remove obstacles • Avoid wet surfaces • Wear sturdy boots with good traction • Communicate to others moving around the work area
3. Collecting soil samples • Utilize hand tools as necessary • Filling sample containers	Manual Sampling	• Wear nitrile gloves while handling sampling equipment and media. • Use the proper tool for the job. • Limit exposure of Site contaminants.
	Back Strain from bending	• Use proper body mechanics when bending down. Bend at knees and lift with your legs, keeping the back straight as possible and avoiding twisting postures. • Carry items at your center of gravity, waist to chest level.
	Splash hazards associated with exposure to preservatives in sampling jars (i.e. nitric acid, methanol. hydrochloric acid, etc.)	• Wear safety glasses and nitrile gloves to protect from exposure.

	Required Training: -40 Hour HAZWOPER training per 29 CFR 1910.120 - Knowledge and use of task specific PPE	**Required Personal Protective Equipment (PPE):** **Level D PPE:** Steel-toed boots, gloves, safety glasses, all site specific PPE required as applicable.
Other Information:	***Anticipated worker tools:*** sample jars	
JSA Author: **Created:** **JSA Number:**	Daniel Clinton, Woodard & Curran. September 13, 2013	

JOB SAFETY ANALYSIS

WORKING AROUND HEAVY EQUIPMENT

Scope of Work: Working around heavy equipment such as cranes, forklifts, used for construction or for excavation.

General Precautions: Be aware of any site specific conditions. Remain outside of the swing radius of the excavator.

TASK	HAZARDS	CONTROLS
Working around heavy equipment	Being struck by moving equipment	• Remain a minimum of 25 feet outside the swing/operational radius of such heavy equipment. • Require a communication process between the operator and ground employees if activity requires placement within the equipment work and swing area, however this should be minimized. • Ensure the operators are aware of your presence. • Notify that you will be in the area and your purpose for being on the site. Introduce yourself to the workers. • Try to walk on the operator's cab side of the machine to avoid being in their blind spot. • Make eye contact with the operators and use hand gestures to make them aware of your direction of travel. • Do not be distracted walking around the site. If you need to make a phone call, remove yourself from the work area. • Wear high visibility clothing.
	Being caught in rotating machinery	• Keep a safe distance of 25 feet outside the swing/operational radius. Unessential personnel should be cleared of the work area.

		Overhead hazards (utility lines, piping, cables)	• Equipment operators should watch for overhead electrical distribution and transmission lines and maintain a safe working clearance of at least 10 feet from energized electrical lines.
		Noise	• Employees are required to wear hearing protection for work areas and tasks that have noise levels greater than 90 dBA. • Additionally, employees would be required to participate in a Hearing Conservation Program if the 8 hour TWA (time weighted average) is greater than or equal to 85 dBA.
		Flying objects (metal drill cuttings, hydraulic fluid)	• Safety glasses, goggles, or a face shield, and a hard hat should be worn anytime work operations could cause flying foreign objects. • Keep a safe distance of 25 feet away outside the swing/operational radius. Unessential personnel should be cleared of the work area.
		Foot hazard from dropped equipment	• Steel toed boots should be worn to protect against crushed toes when working around heavy equipment or falling objects.
		Same level slip/trip/falls from uneven ground, wet surfaces, and obstructions.	• Ensure path to destination is clear. • Be aware of proximity to uneven surfaces/obstructions when walking. • Communicate to others around of moving around the work area. • Wear protective footwear
	Required Training: Review of this JSA Required 10 Hour Construction Safety Recommended	**Required Personal Protective Equipment (PPE):** Hearing protection, eye protection	

Other Information:

JSA Author: Dan Clinton, Woodard & Curran
Created: 9/30/13
JSA Number: Revision 1

APPENDIX B: SIGN IN/SIGN OUT SHEET

Centredale Manor Superfund Site Pre-Design Investigation
Daily Sign In / Sign Out Log

Date	Name	Company	Time In	Time Out

APPENDIX C: HAZARD COMMUNICATION PROGRAM AND SDS/MSDS INVENTORY

Woodard & Curran is committed to the prevention of hazardous material and chemical incidents that could result in injury and/or illness to any employee. We will spare no effort in providing a safe and healthful work environment for employees and all levels of supervision will be accountable for the safety of those employees under their direction.

The Occupational Safety and Health Administration's (OSHA) Hazard Communication standard (29 CFR 1910.1200 for O&M activities and 1926.59 for construction scope tasks) is based on the simple concept that employees have both a need and a "right to know" the identities and hazards of any chemicals they work with during the course of their employment. Employees also need to know what protective measures are available to prevent chemical exposures and how to avoid adverse health effects.

This written Hazard Communication program is applicable to Woodard & Curran employees, visitors, and contractors for the **Centredale Manor Restoration Project Superfund Site** (the Site). This program has been drafted in accordance to the Woodard & Curran Hazard Communication Program, Section 6 of the Corporate Health and Safety Policies Manual.

The Woodard & Curran SSO referenced in the project HASP maintains overall responsibility for the required elements of this program as listed below:

1. Chemical Inventory

The SSO will maintain an up-to-date inventory of chemicals with the chemical name, storage quantity, and storage location. The SSO has compiled a list of all the chemicals and products used at the Site by Woodard & Curran. This list is kept in the front of the Safety Data Sheet (SDS) binder located in the Woodard & Curran field trailer or vehicle.

Each chemical entry on the inventory list has a corresponding SDS available for providing specific hazard information and personal protective measures. This list will be updated as needed to remove chemicals that are no longer in use at the Site and to add new products.

2. Container Labeling

The SSO will verify that all product containers kept onsite will clearly list the minimum contents on the label:

- Product Name
- Hazard warnings (corrosive, flammable, skin irritant, etc.); and
- Manufacturer's name and address.

It is the policy of Woodard & Curran that no container will be released for use unless it has a complete label. Site employees will ensure that secondary containers, such as spray bottles, have complete labels. Either (1) a copy of the original manufacturer's label will be made and placed on the secondary container, or (2) the minimal information bulleted above will be placed on the container in permanent ink or using an NFPA or HMIS label template.

3. Safety Data Sheets

The SDS inventory binder for all hazardous chemicals to which employees of this company may be exposed will be kept in is located under separate cover in the Woodard & Curran contractor trailer. Employees are encouraged to look-up SDS's for the chemicals they use. SDS's will be available to all employees during all shifts. If an SDS is missing, or if a new product arrives without an SDS, immediately inform the SSO so they can call the supplier or manufacturer.

4. Employee Information and Training

Prior to starting work, each new employee will attend a health and safety orientation and will receive information and training on the following:

- An overview of the requirements contained in OSHA's HAZCOM standard: 29 CFR 1910.1200 / 1926.59.
- Chemicals present at the Site.
- Location and availability of our written hazard program.
- Physical hazards and health effects of the Sites hazardous chemicals.
- Methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area.
- How to reduce or prevent exposure to these hazardous chemicals by using engineering controls, work practices and personal protective equipment.
- Steps Woodard & Curran has taken to reduce or prevent exposure to these chemicals.
- Emergency procedures to follow if an employee is exposed to Site chemicals.
- How to read labels and review SDS's to obtain appropriate hazard information.

The SSO or designee is responsible for conducting job specific hazard training on chemicals used by their employees. After attending training, each employee will sign a form to verify that he or she attended the training, received our written materials, and understands Woodard & Curran's policies on hazard communication at the Site.

Notes on training:

- Training shall be provided at the time of initial assignment to tasks where occupational exposure to a hazardous chemical may take place.
- Training shall be repeated whenever a new chemical or a new hazard is introduced in the work area.
- An oral or written test should be established to verify that the employee understood the training. Training documentation is an optional item OSHA recommends for employer use in tracking employee training.

5. Hazardous Non-Routine Tasks

Occasionally, a Woodard & Curran employee may be asked to perform a task that is not part of their normal job. Before taking on a new task, the affected employee will be given information by their supervisor about any hazardous chemicals that might be used during the activity.

- This information will include:
- Specific chemical hazards;
- Protective measures employees can take; and
- Measures Woodard & Curran has taken to reduce the hazards, which might include ventilation, personal protective equipment, use of the buddy system, and emergency procedures.

6. Informing Contractors

It is the responsibility of SSO or designee to provide contractors with the following information:

- Hazardous chemicals to which they may be exposed while working at the Site and the procedure for obtaining SDS's; and
- Precautions contracted employees may take to reduce the possibility of exposure by using appropriate protective measures; and
- An explanation of Site's established labeling system.

It is also SSO or designee's responsibility to identify and obtain SDS's for chemicals the contractor brings on to the Site.

7. Visitors

All visitors are required to sign in per the HASP with the SSO or as otherwise dictated by the Respondents. It is the responsibility of the SSO to see that visitors have any necessary PPE and the following information as applicable:

- Hazardous chemicals to which he/she may be exposed
- Measures the visitor may take to lessen the possibility of exposure including the proper use of the PPE.
- Site specific policies and procedures to be followed to reduce the risks
- First aid/emergency procedures

Site Hazard Communication Training **Attendance/Certification Sheet**

(Supplements Pure Safety web-based training)

Date:	Location:
Time: to	Duration:

List the chemicals covered during this training:

_____

_____

_____

☐ What hazardous chemicals are present in your workplace, and where are they located;

☐ The physical and/or health hazards of chemicals in your workplace;

☐ What can you do at your workplace to protect yourself from these hazards:

- Engineering controls
- Work practice controls
- PPE

☐ Location of your written Hazard Communication Program, SDSs, and Chemical Inventory List;

☐ How to detect the presence or release of a hazardous chemical

- Known identity of hazardous chemical (from labels, shipping papers, SDSs, etc.)
- Human senses
- Monitoring devices (fixed alarms, PIDs, 4-gas meters, industrial hygiene sampling)

	Printed Name	Signature	Job Title	Facility Name
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

The above listed employees have demonstrated satisfactory performance and comprehension of the course name above.

_____ _____

Instructor Name Instructor Signature

CONTRACTOR NOTIFICATION OF HAZARDOUS MATERIALS USE

Where applicable, I have been notified about the specific hazards and safety information about the hazardous materials. I will bring the following hazardous materials onto the job site to complete the work that I am being contracted to conduct:

HAZARDOUS MATERIAL	STORAGE LOCATION	QUANTITY

Note: If the inventory list is longer than this sheet allows, please provide the list in an attachment to this form.

I understand that the Construction Manager reserves the right to deny permission to bring hazardous materials onto the job site.
I agree to maintain this list of hazardous materials and copies of SDSs at the job site and make them accessible to the Construction Manager.
I agree to have legible labels on each container of hazardous materials that include the container contents, appropriate hazard warnings, and my company name.
I agree to remove the unused hazardous materials from the job site upon completion of the work that I am being contracted to conduct.

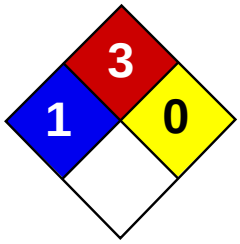
Contractor Foreman Name_____

Signature _____

Job Title _____

Company _____

Date _____



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Methyl alcohol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methyl alcohol

Catalog Codes: SLM3064, SLM3952

CAS#: 67-56-1

RTECS: PC1400000

TSCA: TSCA 8(b) inventory: Methyl alcohol

CI#: Not applicable.

Synonym: Wood alcohol, Methanol; Methylol; Wood Spirit; Carbinol

Chemical Name: Methanol

Chemical Formula: CH3OH

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methyl alcohol	67-56-1	100

Toxicological Data on Ingredients: Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to eyes. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 464°C (867.2°F)

Flash Points: CLOSED CUP: 12°C (53.6°F). OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 6% UPPER: 36.5%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open flames and sparks, of heat.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME

Special Remarks on Explosion Hazards:
Forms an explosive mixture with air due to its low flash point. Explosive when mixed with Choroform + sodium methoxide and diethyl zinc. It boils violently and explodes.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Alcohol like. Pungent when crude.

Taste: Not available.

Molecular Weight: 32.04 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 64.5°C (148.1°F)

Melting Point: -97.8°C (-144°F)

Critical Temperature: 240°C (464°F)

Specific Gravity: 0.7915 (Water = 1)

Vapor Pressure: 12.3 kPa (@ 20°C)

Vapor Density: 1.11 (Air = 1)

Volatility: Not available.

Odor Threshold: 100 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.8

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ingnition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizers. Violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuirc chlorite, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide + chloroform. Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminum, potassium magnesium, zinc), and dichlormethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous. May attack some plastics, rubber, and coatings.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 5628 mg/kg [Rat]. Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 64000 4 hours [Rat].

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. Causes damage to the following organs: eyes. May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

Passes through the placental barrier. May affect genetic material. May cause birth defects and adverse reproductive effects(paternal and maternal effects and fetotoxicity) based on animal studies.

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 29400 mg/l 96 hours [Fathead Minnow].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:
Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in pollulted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Methyl alcohol UNNA: 1230 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Methyl alcohol Illinois toxic substances disclosure to employee act: Methyl alcohol Illinois chemical safety act: Methyl alcohol New York release reporting list: Methyl alcohol Rhode Island RTK hazardous substances: Methyl alcohol Pennsylvania RTK: Methyl alcohol Minnesota: Methyl alcohol Massachusetts RTK: Methyl alcohol Massachusetts spill list: Methyl alcohol New Jersey: Methyl alcohol New Jersey spill list: Methyl alcohol Louisiana spill reporting: Methyl alcohol California Directors List of Hazardous Substances (8CCR 339): Methyl alcohol Tennesse Hazardous Right to Know : Methyl alcohol TSCA 8(b) inventory: Methyl alcohol SARA 313 toxic chemical notification and release reporting: Methyl alcohol CERCLA: Hazardous substances.: Methyl alcohol: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). Class D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R39- Danger of very serious irreversible effects. R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. S7- Keep container tightly closed. S16- Keep away from sources of ignition - No smoking. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -Material safety data sheet emitted by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. LOLI, HSDB, RTECS, HAZARDTEXT, REPROTOX databases

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

MATERIAL SAFETY DATA SHEET

LONG DURATION FOAM AC-900 SERIES

SECTION I: GENERAL INFORMATION

- Manufacturer's Name: RUSMAR INCORPORATED
- Manufacturer's Address: 216 Garfield Avenue • West Chester, PA 19380
- Manufacturer's Phone No.: 610-436-4314
- Chemical Family: Aqueous anionic surfactant, polymer latex mixture
- Trade Name: RUSMAR AC-900

SECTION II: HAZARDOUS INGREDIENTS

- Paints, Preservatives, and Solvents - None
- Alloys and Metallic Coatings - None
- Hazardous Mixtures and Other Materials - None

SECTION III: PHYSICAL DATA

- Boiling Point: 100° C
- Vapor Pressure: 25mm Hg at 25° C
- Vapor Density (Air = 1): N/A
- Water Solubility: Complete
- Appearance/Odor: Opaque, gray, viscous liquid
- Specific Gravity: 1.01 to 1.06
- % Volatile, By Volume: None
- Evaporation Rate: N/A

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

- Flash Point (Method): Nonflammable
- Flammable Limits: N/A
- Extinguishing Media: N/A
- Special Fire Fighting Procedures: None
- Unusual Fire and/or Explosion Hazards: None

SECTION V: HEALTH HAZARD DATA

- Threshold Limit Value: Not Determined
- Effects of Overexposure: This material is not expected to present an inhalation or ingestion hazard. It may cause an eye or skin irritation upon direct contact.
- Emergency and First Aid Procedures: Wash thoroughly with clean water

RUSMAR INCORPORATED • 216 Garfield Avenue • West Chester, PA 19380
Toll Free: 1.800.SEE.FOAM • P: 610.436.4314 • F: 610.436.8436 • www.rusmarinc.com

MATERIAL SAFETY DATA SHEET

LONG DURATION FOAM AC-900 SERIES

SECTION VI: REACTIVITY DATA

- Stability: Material is stable. This material will likely coagulate if frozen.
- Incompatibility: Addition of other materials may cause coagulation
- Hazardous Decomposition Products: Low levels of sulfur oxides on combustion and dense, black smoke
- Polymerization will not occur

SECTION VII: SPILL OR LEAK PROCEDURES

- Steps to be taken in case material is released or spilled: If spilled indoors on a hard surface, the spill area may be slippery and should be thoroughly washed with water. Contain spill and absorb material with dirt of other appropriate absorbent.
- Waste Disposal Method: This material has only a modest BOD and can be deposited in sewers. However, it should be flushed with copious amounts of water. The material can be disposed of in approved landfill; dried waste may be incinerated.

SECTION VIII: SPECIAL PROTECTION INFORMATION

- Respiratory Protection: None required for normal operations
- Ventilation: No special requirements
- Protective Gloves: Not required, but recommended
- Eye Protection: Not required, but recommended
- Other Protective Equipment: None

SECTION IX: SPECIAL PRECAUTIONS

- Storing/Handling Precautions: Avoid excessive heat. Material will freeze, thawing will NOT return product to usable form.
- Other Precautions: None

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Toll Free: 1.800.SEE.FOAM • P: 610.436.4314 • F: 610.436.8436 • www.rusmarinc.com

APPENDIX D: SUPERVISORS REPORT OF INCIDENT

Woodard & Curran
SUPERVISOR'S REPORT OF INCIDENT

A. INCIDENT DATA

1. INCIDENT DATE:			**2. FACILITY:**		
3. DAY OF THE WEEK:	**3a. SHIFT START TIME:**		**4. TIME INCIDENT OCCURRED:**	**5. DATE/TIME REPORTED:**	
6. Employee Name:			**7. TITLE:**	**8. AGE:**	
9. START DATE:	**10. Job Service:**		**11. Incident Reported to:**		
12. BODY PART:		**14. NATURE OF INJURY:**		**15. MEDICAL ATTENTION:**	
☐ HANDS	☐ HEAD	☐ AMPUTATION	☐ FOREIGH BODY/EYE	☐ NEAR MISS	☐ DR. OFFICE
☐ EYES	☐ LEGS	☐ BURN	☐ FRACTURE/DISLOCATION	☐ FIRST AID	☐ HOSPITAL (ER)
☐ TRUNK	☐ FEET	☐ CONCUSSION	☐ CONTUSION/BRUISE	☐ NONE	☐ HOSPITALIZED
☐ INTERNAL	☐ ARMS	☐ HERNIA	☐ INFECTION OF WOULND	☐ EMPLOYEE REFUSED MEDICAL TREATMENT	
☐ BACK	☐ OTHER:	☐ CUT/PUNCTURE	☐ INHALATION/INGESTION	**Note: If you are refusing treatment, please sign below. ▼**	
13. CHECK ONE		☐ SPRAIN/STRAIN	☐ OTHER		
☐ LEFT	☐ RIGHT	☐ CUMULATIVE TRAUME DISORDER			
16. DOCTOR/HOSPITAL (If applicable, list name, address and phone number.):					
17. WHERE DID IT HAPPEN?					
18. EYEWITNESSES:			**19. JOB ASSIGNMENT AT TIME OF INCIDENT:**		

B. DESCRIPTION OF INCIDENT

1. GIVE FULL DETAILS. DESCRIBE CONDITIONS PRECEDING THE INCIDENT, WORK IN PROGRESS; ACTIONS OF INJURED AND FELLOW WORKERS, ETC., SO THAT A CLEAR PICTURE OF THE INCIDENT IS GIVEN. USE ANOTHER SHEET OF PAPER IF NECESSARY. PICTURES OR DIAGRAMS ARE DESIRABLE
2. WAS EMPLOYEE WEARING PPE? If yes, please list:
3. DESCRIBE ANY MEDICAL TREATMENT OR FIRST AID RECEIVED:
4. WERE ANY MEDICATIONS PRESCRIBED BY A PHYSICIAN? If yes, please list:

C. INCIDENT TYPE

1. FALL FROM ELEVATION:	3. STRUCK BY:	5. CAUGHT IN, UNDER, OR BETWEEN:	7. EXPOSURE TO:
☐ Manway Opening	☐ Falling Object	☐ Running or Mashing Objects	☐ Chemicals
☐ Ladder or Scaffold	☐ Flying Object	☐ Point of Operation (machine or equipment)	☐ Noise
☐ Machine or Stationary Equipment	☐ Swinging Object	☐ Other than Point of Operation	☐ Dust
☐ Piled Materials	☐ Motor Vehicle	☐ Moving and Stationary Objects	☐ Heat
☐ Stairs	☐ Altercation	☐ Two Moving Objects	☐ Cold
☐ Heavy Equipment	☐ Tipping, Sliding, or Rolling Object	☐ All Other Moving Parts	☐ Radiation
☐ Other	☐ All Other Moving Objects		☐ Electric Current
2. FALL FROM SAME LEVEL:	4. STRUCK AGAINST:	6. STRAIN OR OVER EXERTION:	8. MISCELLANEOUS
☐ Slip	☐ Moving Object	☐ Lifting (back)	☐ Inhalation
☐ Trip	☐ Stationary Object	☐ Lifting (other than back)	☐ Ingestion
	☐ Sharp Object	☐ Pulling or Pushing	☐ Absorption
		☐ Reaching, Twisting, Overextending	☐ Insect/Animal Bites
		☐ Cumulative Trauma	☐ Near Miss
		☐ Repetitive Motion	☐ Other

D. CAUSES

Find and deal with the real cause of the problem (hidden cause) rather than simply dealing with the symptoms (immediate cause). Tip: to help determine the hidden cause, ask "WHY" did the immediate cause take place in the first place? Refer to Appendix C for guidance.

1. IMMEDIATE:

2. HIDDEN:

E. CORRECTIVE AND PREVENTATIVE ACTIONS

What are you doing to prevent similar occurrences? List all that apply.

1. ACTION ITEM	2. RESPONSIBLE PARTY	3. DATE COMPLETED
a.	a.	a.
b.	b.	b.
c.	c.	c.
d.	d.	d.

4. TEAM LEADER/SUPERVISOR NAME:	SIGNATURE:	DATE:

F. REVIEW COMMENTS – COMPLETED BY CORPORATE HEALTH & SAFETY MANAGER

1. INCIDENT CLASSIFICATION	2. HAS A SIMILAR INCIDENT OCCURRED AT THIS FACILITY BEFORE?	
☐ NEAR MISS ☐ FIRST AID ☐ RECORDABLE (No lost days) ☐ RESTRICTED ACTIVITY ☐ LOST WORKDAY CASE ☐ FATILITY	☐ YES ☐ NO WHEN:	
	3. DAYS AWAY FROM WORK:	4. DAYS RESTRICED ACTIVITY:

5. REMARKS:

6. NAME:	SIGNATURE:	DATE:

APPENDIX E: RESIDENT HEALTH AND SAFETY PLAN

FINAL
Resident Health and Safety Plan

Centredale Manor Restoration Project Superfund Site: Pre-Design Investigation

980 Washington Street, Suite 325
Dedham, MA 02026
800-446-5518

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

226845
NECC Customer Group
November 6, 2013

TABLE OF CONTENTS

APPENDICES

1. INTRODUCTION

This Resident Health and Safety Plan (RHSP) has been developed by Woodard & Curran, Inc. (Woodard & Curran) on behalf of the Respondents[1] for the Centredale Manor Restoration Project Superfund Site (the Site) located in North Providence, Rhode Island. This RHSP was prepared in accordance with Appendix B of the Statement of Work (SOW) for the Source Area Soil Pre-Design Investigation, which is an attachment to the Settlement Agreement (CERCLA Docket No. 01-2013-0019).

This RHSP has been prepared in conjunction with, and may reference information provided in the Pre-Design Work Plan (PDWP; Woodard & Curran, 2013a), Health and Safety Plan (HSP; Woodard & Curran, 2013b), and Quality Assurance Project Plan (QAPP).

This RHSP includes an Air Monitoring and Sampling Plan that describes the monitoring protocol which will be utilized in the excavation/construction area to identify and quantify airborne contaminants in order to prevent the exposure of surrounding residents to unsafe conditions in the air from ground disturbance activities. . Real time monitoring, visual and sensory observations, and integrated sampling for laboratory analysis will be applied for the air monitoring approach. The specifics concerning the air monitoring protocol are summarized in Section 4 below.

1.1 PURPOSE AND OBJECTIVE

The overall objective of the RHSP is to provide USEPA, the Rhode Island Department of Environmental Management (RIDEM) and the public with a written plan demonstrating the approach that will be used to protect, with respect to health and safety, the surrounding residential population during test pitting and/or trenching activities as described in the PDWP.

This plan is organized into the following sections:

Section 2: Site Access and Site Security
Section 3: Site Work Zones
Section 4: Air Monitoring and Sampling
Section 5: References

[1] The "Respondents" is a defined term in the Settlement Agreement – BASF Corporation; BNS Company; CAN Holdings LLC; Cranston Print Works Company; Duro Textiles LLC; Exxon Mobil Corporation; Lonza, Inc.; Organic Dyestuffs Corporation; Sequa Corporation; Teknor Apex Company; The Original Bradford Soap Works, Inc.; Union Oil Company of California.

2. SITE ACCESS AND SECURITY

Access to the Pre-Design Work Area ("Work Area") will be restricted by a temporary security fence that will extend along the northern extent of the Work Area. The remaining boundaries of the Work Area are bounded by the Woonasquatucket River or associated wetlands. Therefore, it is unlikely that the Work Area will be accessed by residents or trespassers via the water access points. Access to the Site will be limited to project team members actively involved in Site work and other authorized personnel as indicated in Section 4 of the HSP. The entrance to the Work Area will be through one of two gates on the northern fence line which will remain closed during Work Area activities and off work hours to restrict access to the Site by unauthorized personnel.

Visitors to the Site must register with the Site Safety Officer (SSO) and be escorted at all times. A sign indicating that the SSO is to be contacted for Site access, with cell phone contact information, will be posted at the locked gate entrance. Visitors will comply with the requirements of the HASP and all relevant work procedures and plans or will be instructed to leave the Site by the SSO. Subcontractors to Woodard & Curran will be required to work under this RHSP, Site HSP, as well as their own HSP.

If unauthorized personnel are observed on or attempting to enter the Site (e.g., climbing the fence), they will be asked to provide their name, address and purpose for being on the Site, instructed that access to the Site is limited to authorized personnel only, and requested to leave the Site. The Respondents, Woodard & Curran's Project Manager, USEPA Project Coordinator, and RIDEM Project Coordinator will be notified of the incident. If the unauthorized personnel refuse to leave the Site or if evidence indicates unauthorized entry has occurred, on-Site personnel will contact the above individuals, as well as the North Providence Police Department.
Security at the Site will be maintained during both working hours and non-working hours by the fence surrounding the Work Area. During working hours at the time of field activities, the SSO will be primarily responsible for controlling site security, including the establishment and maintenance of the work zones. All Site personnel will be instructed to monitor residential activity in the vicinity of the work zone fence lines in effort to preserve Site security. Field communication will take place through direct verbal means or the use of cellular telephones.

Heavy equipment (e.g., excavator or backhoe) will be stored within the fenced area during times when project personnel are not present. Contaminated soil stockpiles will be covered with polyethylene sheeting at the end of each work day if soil is not returned to the excavated test pit or trench. Fencing or some other physical barrier will be installed around any excavations left open after work hours. Signs will be posted at select areas of the Site to warn of site dangers and the prohibition against unauthorized entry. Modifications to Site security measures may be made as deemed necessary by Woodard & Curran and the Respondents to ensure the safety of personnel, surrounding residential population, and equipment including but not limited to:

- "Authorized" personnel log,
- Cones, stakes, and flagging,
- "Keep Out" signs,
- Barrier tape,
- Orange "snow" fencing,
- Wood or metal fencing,
- Gates,
- A combination of above options.

3. WORK ZONES

Work Zones will be established per the Site HSP and include the Exclusion Zone, Contamination Reduction Zone, and Support Zone. Only authorized personnel who meet the training and medical surveillance requirements may enter the work zone while ground disturbance activities are occurring. Residential access to the work zones will be restricted and managed per Section 2 of the RHSP. Access to the work areas will be controlled by the SSO. Only authorized personnel identified in Section 4**Error! Reference source not found.** of the HSP have access to the Site for the purposes of performing work tasks.

Site work zones will be established by the SSO prior to the beginning of the project and may be subject to modification based on work activities and weather conditions. The locations of work zones will be communicated as part of the daily safety briefings. A typical work zone layout is provided as Figure 1 in the HSP. Decontamination (if necessary) of heavy equipment, field instrumentation, and personnel will be completed per Section 12 of the HSP. Decontamination areas will be established within a contamination reduction zone (CRZ) that will be established based on the location of the daily work activity.

Site work zones, as identified in the Site HSP include:

***Exclusion Zone*:** The Exclusion Zone (sometimes also referred to as the "hot zone" or "dirty zone") at the subject Site will be designated by the SSO and will generally consist of an area within 15 feet of the work area (but may vary widely depending on equipment operation radius needs, wind, weather, topography, buildings, chemicals, contamination, size and scope of project task, etc.). Proper decontamination procedures must be followed when exiting the Exclusion Zone.

Contamination Reduction Zone: The CRZ (sometimes also referred to as the "warm zone" or "decontamination" or "decon" zone) will be identified by the SSO. The access or "*contamination reduction corridor*" or *CRC* (often also referred to as the "decon area") for the exclusion zone will established daily if decontamination will be necessary. The CRC will be located upwind of the exclusion zone, which will be determined daily and communicated at daily safety briefings by the SSO. Site workers must enter and leave the exclusion zone using this corridor if contact with contaminated media has been made such that contaminated media may be spread from the Exclusion Zone. Workers will sign in and out of the Site. Logbooks will be maintained by the SSO for signing in and out (an example Site Sign-In/Sign-Out Log Sheet is provided as an Appendix in the HSP). Section 12 of the Site HSP contains information about decontamination procedures.

***Support Zone*:** The support zone (sometimes also referred to as the "cold zone" or "clean zone") functions as the clean area and is the outermost zone beyond the Contamination Reduction Zone. This is where support and administrative personnel remain. The support zone is also where the project vehicle, phone, meeting area, and command post are located. The support zone will be located upwind of the high hazard areas (the exclusion zone) as appropriate.

4. AIR MONITORING AND SAMPLING

The following sections detail aspects related to perimeter air monitoring specific to the protection of residential health and safety during test pitting and trenching activities at the Site. Air monitoring with respect to the RHSP is summarized below in Table 4-1. Air sampling with respect to RHSP is summarized in Table 4-2. All action levels for both the HSP and RSHP are summarized in Table 2 of the HSP. An air monitoring log and data sheet are provided in Appendix A.

Both real-time air monitoring and air sampling will be used to assess Site conditions. Portable monitoring equipment will be used to monitor particulates, VOCs, atmospheric conditions, and noise as described below. Sampling will be conducted to verify work practices and action levels.

4.1 WEATHER CONDITIONS

Monitoring will be conducted relative to daily wind directions measured by the SSO and the location of daily work zones. Background levels will be established at a location that is upwind of the work area on a daily basis at the start of each work day, and periodically throughout the day if weather conditions result in a change to upwind and downwind locations relative to the work area. Local wind direction will be verified from the National Weather Service (www.weather.gov) via mobile device. The nearest National Weather Service station is located approximately four miles north of the Site at the North Central State Airport in Smithfield, Rhode Island. This data will be used to establish daily upwind and downwind locations with respect to the work zones. Site observations will also be utilized for identifying upwind and downwind locations using a wind sock at the fenceline of the work area. Local weather conditions and any significant weather changes observed at the Site will be recorded by the SSO. If the prevailing wind direction is not consistent and/or obvious, the default position will be to treat the location of Centredale Manor as downwind, since they are the closest sensitive receptor.

4.2 MONITORING INSTRUMENTATION

All instruments must be validated to calibration standards at least daily or more frequently if required by the manufacturer, and must be in good working order. Monitoring equipment will be calibrated at the beginning of each work day and a calibration check will be conducted at the end of each work day. Applicable field instrumentation alarms will be set on equipment to action limits identified below. Instruments listed below will be used simultaneously to monitor Site conditions with respect to Site worker health and safety, as listed in the HSP, and air monitoring conducted for protection of surrounding residential population:

Photo Ionization Detector (PID): Minirae 3000 or equivalent for the monitoring and direct read of volatile organic vapors in ambient air during all test pitting and trenching activities, and other ground disturbance activities. This instrument will be used by field staff in the test pitting or trenching exclusion zone and Site perimeters to monitor vapor emissions. The Minirae 3000 has a volatile organic compound (VOC) detection range of 0.00 to 15,0000 parts per million (ppm).

Portable-Fixed Dust Level Meter: TSI DustTrak II or equivalent will be implemented for real time continuous monitoring during all test pitting, trenching activities, and other ground disturbance activities. This instrumentation will be used at designated stations along the perimeter of the support zone to continuously monitor for particulate emissions. The TSI DustTrak II can monitor an aerosol concentration range of 0.001 to 400 mg/m^3 and data logging capability to establish time weighted averages. The meter also possesses an alarm function which can be set to the Site support zone perimeter action limits.

Portable Dust Level Meter: Thermo pDR 1000 or equivalent will be implemented for real time continuous monitoring during all test pitting, trenching activities, and other ground disturbance activities inside the exclusion zone. This

instrumentation will be used inside the exclusion zone and at the perimeter of the exclusion zone. The Thermo pDR 1000 can monitor an aerosol concentration range of 0.001 to 400 mg/m^3 and data logging capability to establish time weighted averages. The meter also possesses an alarm function which can be set to the Site particulate exclusion zone action limits

Multi-Gas Meter: Orion Multigas Detector or equivalent for detection of oxygen, hydrogen sulfide and combustible vapor (Lower Explosive Limit or LEL) to be used for continuous monitoring of potential vapor intrusion during all test pitting, trenching activities, and other ground disturbance activities. This instrument will be used inside the exclusion zone to continuously monitor oxygen levels, hydrogen sulfide, and combustible gas emissions.

Noise Meter: Quest Technologies EDGE eg4 or equivalent for the real time monitoring of noise emissions from the work zone. This instrument will be used inside the exclusion zone and the perimeter of the support zone to monitor noise level generation and attenuation.

4.2.1 Particulate Air Monitoring and Sampling

4.2.1.1 Perimeter (Support Zone) Monitoring

Background particulate conditions will be measured using a hand held dust meter at the start of the work day. Should changes in weather conditions result in a change in upwind and downwind locations relative to the exclusion zone, additional background measurements at upwind locations will also be collected.

A minimum of three fixed-portable particulate monitoring stations, capable of logging real time particulate concentrations to 0.0010 mg/m^3, will be set in a triangular formation within the support zone surrounding the exclusion zone. Particulate air monitoring will determine if particulates, as fugitive dust, are generated in the ambient air and are migrating from the exclusion zone to the support zone perimeter during test pitting and trenching activities. The support zone will be established daily per the HSP as designated by the SSO, and thus the position of the fixed portable stations may be adjusted periodically for optimal application. The station meters will be set to record particulates continuously over a fifteen-minute time weighted average. An alarm setting will also be established to notify the SSO that particulate levels exceed action levels, which are provided in Section 4.3 of this RHSP.

One of the three particulate monitoring stations will be representative of background location (i.e. a location upwind of the work zones) to obtain daily data representative of background conditions. The other two monitoring locations will be adjusted/relocated as required to capture potential worse-case exposures to particulate matter based upon daily work zone locations and wind directions.

4.2.1.2 Exclusion Zone Monitoring

Real time monitoring will be conducted at the exclusion work zone per the HSP using a hand-held particulate dust meter. All particulate monitoring will be conducted within the breathing zone (i.e. between three and six feet above ground surface). Periodic exclusion zone perimeter monitoring, typically within 30 feet of the active work, will also be completed at a frequency of approximately once per hour during any ground disturbance activities.

Field personnel will maintain visual observations to determine if visible dust is being generated during test pitting and trenching activities. If continuous uncontrolled visible dust is observed from work activities, or the established monitoring action level is exceeded at the perimeter, Site work will cease and dust suppression controls will be implemented per the Pre-design Investigation Work Plan. After the engineering control measures have had time to mitigate the visible dust hazard, additional readings with real time air monitoring equipment will be taken at the

exclusion zone and support zone perimeters as applicable to where an exceedance is detected to verify that dust levels have decreased below the particulate action level before proceeding with pre-design investigation activities.

4.2.1.3 Sample Collection

A particulate sample will be collected at one downgradient location along the support zone perimeter representing a worse case exposure potential during the first day of test pitting and trenching. The sample will be submitted to confirm that the established action levels, as discussed in Section 4.3 of this plan, and the monitoring protocols implemented, are sufficient in the protection of the surrounding residential population. The sample will be submitted for total dust (particulates) analysis utilizing NIOSH Method 0500. The sample will be submitted for analysis to an accredited laboratory.

4.2.2 VOC Air Monitoring and Sampling

VOCs can be liberated to the air from the exposure or movement of soil impacted by VOCs. To monitor for this issue a program consisting of continuous and periodic field monitoring with a confirmatory laboratory analysis will be implemented.

4.2.2.1 Background Monitoring

The program will include background monitoring prior to the start of the project and prior to the start of each work day. Prior to commencing this scope of work, background VOC concentrations will be measured at a location on the Site downwind from the planned work area by collecting an integrated (8-hour) sample for laboratory analysis by USEPA Method TO-15. This sample will provide a basis for comparing sampling results during work activities. After work commences, daily background conditions will be measured using a PID at the start of the work day. Should changes in weather conditions result in a change in upwind and downwind locations relative to the exclusion zone, additional background measurements at upwind locations will also be collected.

4.2.2.2 Exclusion Zone Monitoring

A handheld PID will be used to monitor ambient air inside the exclusion zone and at the exclusion zone perimeter during ground disturbance activities. Readings will be recorded continuously within the exclusion zone and periodically at the exclusion zone perimeter at a frequency of approximately once per hour during any ground disturbance activities.

4.2.2.3 Sample Collection

Air sampling of VOCs will be conducted at downwind and upwind locations around the support zone perimeter during the first day of test pitting and trenching activities in order to understand potential VOC constituents in air that may be a result of test pitting or trenching. Summa canisters will be positioned at a height of approximately five feet above ground surface to measure concentrations at the typical breathing zone of a potential downwind residential receptor. Air sampling for VOCs will be conducted continuously during one eight hour period at both the upwind and downwind sampling locations during typical workday hours. Samples will be submitted to Accutest Laboratories of New England for analysis by USEPA Method TO-15. All sampling and laboratory analysis described in this Section will take place in accordance with the approved Centredale Manor Superfund Site PDWP and Quality Assurance Project Plan (QAPP; Woodard & Curran, 2013).

4.2.3 Noise Monitoring

Noise from construction equipment will be monitored throughout test pitting and trenching activities. Noise sources typically include the engines and/or motors of the equipment, the operating parts of the equipment, compressed air,

tool operation, and others. Noise levels will be periodically screened at the exclusion zone and the exclusion zone perimeter to ensure noise emissions are not excessive and do not have the potential to affect surrounding residents. Noise levels greater than 85 decibels are not expected outside of the exclusion zone where heavy equipment operation (excavator) will occur. It is anticipated that adequate attenuation of noise will be controlled by the distance (typically one hundred feet or more) between the exclusion zone perimeter and the support zone perimeter. . However, if necessary engineering or administrative controls will be implemented when feasible to control noise levels of 85 decibels or greater if measured at the exclusion perimeter.

Initial saw cutting of pavement has the potential to produce noise levels in excess of 85 decibels. However, this activity will be short duration (i.e. one to two hours) and noise will likely attenuate at distance and will not have the ability to effect nearby residents.

4.2.4 Odor Monitoring

Supplemental monitoring for odor will occur in the exclusion zone and along the perimeter of the support zone on an as-needed basis. Real time monitoring will include olfactory observations and a multi-gas meter fitted with a hydrogen sulfide sensor will be utilized to verify if the presence of odors and if the odor is related to hydrogen sulfide. Should strong odors be present during excavation via olfactory sensing during test pitting activities, controls will be implemented as provided in the PDWP.

4.3 ACTION LEVELS

4.3.1 Particulate Limits

The United States Environmental Protection Agency (USEPA) has established a National Ambient Air Quality (NAAQ) Standard for PM_{10} (particles less than 10 micrometers in diameter) of 0.150 milligrams per cubic meter (mg/m^3) over a 24-hour period. This limit has been conservatively applied to represent the total dust (which includes the PM_{10} fraction) action limit for the Support Zone perimeter. The action level of 0.150 mg/m^3 above background as a 15-minute time weighted average will be the action level to trigger a stop to work activities and require the application of wet control methods and/or cover of exposed soil areas and piles during any work disruptive to Site soils. Evaluation of the Site contaminants that could be transported as particulates, as identified in Table 4-3 of the Remedial Investigation Report for the Site, indicate that lead is present in soil at the greatest concentration. Occupational limits have been calculated, with a safety factor of five, to be 1.9 mg/m^3. This occupational calculation is provided in the HSP. Therefore, applying the USEPA NAAQ Standard for the RHSP action level is considered to be conservative for protection of the surrounding residential population. Total dust analysis with integrated samples will be used to verify that the action limits monitored by field instrumentation in the support zone is accurate and effective for the protection of residential exposure external of the Site boundary.

Particulate action levels for the exclusion zone are provided in the HSP and are summarized in Table 4-1.

4.3.2 VOC Limits

Review of the available data for the Site indicates that of the VOCs present in soil at the Site, benzene presents the most potential as a hazard for exposure. The VOC action level will be 5 ppm for total VOCs, as measured on the PID. One of the trigger conditions is if an exceedance of action limits provided in the HSP occurs inside the exclusion zone. Monitoring protocol for VOCs within the exclusion zone is summarized in the HSP and has been conservatively established by considering the most hazardous VOC contaminant of concern, benzene, which has been identified in Site source soils. If 5 ppm TVOCs is detected in the exclusion zone, colorimetric tube readings for benzene will be measured to determine the absence or presence of a benzene fraction in the ambient air. Based on that measurement, applicable monitoring and control contingencies are summarized in the HSP.

If this action limit is not exceeded inside the exclusion zone, migration of VOCs in concentrations that would potentially affect residents is not expected due to air dispersion. VOC air monitoring from within the exclusion zone is considered to be the most conservative location to monitor for the potential of VOC migration. By actively monitoring inside the exclusion work zone, the potential source for VOC emissions can be continuously monitored and actions can immediately be implemented to control VOC emissions and mitigate potential residential exposure. As noted in Section 4.2.2 above, VOC samples will be collected for laboratory analysis to establish background conditions and during test pitting and trenching to verify that the selected action limit are appropriate for the protection of residential exposure based on measurable laboratory results, if any.

Should PID readings be observed greater than 5 ppm inside the exclusion zone, work activities will be suspended and additional controls such as limiting volumes of exposed soil, wetting, covering of soil or other means will be applied to mitigate VOCs in air. Work will not restart until PID readings are below VOC action levels. This action limit is based upon an evaluation of occupational exposure levels including the ACGIH Threshold Limit Values (TLVs) and OSHA Permissible Exposure Limit (PELs) of Site COCs.

4.3.3 Atmospheric Limits

Atmospheric monitoring will also be conducted during test pitting and trenching activities inside the exclusion zone. Action levels will be less than 19.5 percent for oxygen (oxygen deficient atmosphere) and 10 percent of the Lower Explosive Limit (LEL) for combustible gas Carbon monoxide, hydrogen sulfide, and an oxygen rich environment are not expected to be encountered, however sensors for carbon monoxide and hydrogen sulfide will be fitted on the multi-gas meter to monitor for unexpected presence of these compounds in the exclusion zone during excavation and test pitting activities. Atmospheric monitoring will be conducted in accordance with OSHA standards for excavations. If atmospheric action limits are exceeded, Site work shall cease until engineering controls can be employed to mitigate conditions (i.e. foam, ventilation of the test pit, etc.)

4.3.4 Noise Limits

An action limit of 85 decibels on the A-weighting scale (dBA) will be implemented at the exclusion zone perimeter. 85 decibels is comparable to truck and other vehicle traffic. Noise levels are expected to dissipate with distance from the exclusion zone. If noise levels exceed 85 decibels at the exclusion zone perimeter, a second reading will be collected inside the support zone nearest to the closest residence. Noise dissipation will be measured to confirm that excessive noise is not emitting from the Site in excess of 85 decibels. If noise levels exceed 85 decibels outside the support zone for an extended duration, noise will be mitigated by the contractor, to the extent feasible. It is anticipated that adequate attenuation of noise will be controlled by the distance (typically one-hundred feet or more) between the exclusion zone perimeter and the support zone perimeter.

4.4 PREVENTATIVE MEASURES

Site workers will conduct investigation tasks as to not generate excessive levels of dust and VOCs. However, due to the intrusive nature of the work, some dust and VOC emissions are expected. However, the duration will be short and likely be limited to established working hours.

Daily briefings will be conducted to communicate this RHSP. Additional preventative measures to be utilized may include the following:

- Monitoring for changes in meteorological conditions that would affect the potential for dust generation or VOC emissions (i.e. wind direction, speed, temperature, relative humidity, etc.);
- Maintaining appropriate particulate and VOC mitigation and control materials at the work site. These materials may include, and would not be limited to:

    - Water wetting for particulate mitigation
    - Water wetting or foam (Rusmar AC-900 Series or equivalent) for VOC mitigation
- Cover stockpiled soil with polyethylene sheeting or equivalent; and,
- Backfill all test pits and/or trenches at the end of each work day.

Table 4-1: Monitoring Summary

Monitoring Type	Monitoring Locations	Monitoring Equipment	Action Level	Response Action
Particulate	Exclusion Zone	Portable-handheld unit	≥1.9 mg/m^3	Stop work and wet down soil with water generating excessive particulates. Evaluate excavation methods and adjust if necessary. Take additional field readings with instrumentation after soil wetting to ensure particulate levels are below action levels.
		Visual	Visual observation of uncontrolled particulate emissions	
	Support Zone	Three fixed-portable stations	≥0.150 mg/m^3 average over 15 minutes	
VOC	Exclusion Zone	PID with 10.6 eV lamp	≥5 ppm*	Stop work and wet down with water or apply foam. Monitor VOC levels with PID after controls to ensure VOC levels are below action levels. Evaluate excavation methods and adjust if necessary. Limit volumes of exposed soil generating VOCs.
Noise	Exclusion Zone	Handheld noise meter	>85 decibels	Stop work and apply controls to reduce noise levels. Controls will vary based on type of equipment emitting noise > 85 decibels.
Odor	Exclusion Zone and Support Zone	Multi-gas meter	≥10 ppm H_2S (multi-gas meter)	Stop work and wet down with water or apply foam. Monitor H_2S levels after controls to ensure particulate levels are below action levels. Evaluate excavation methods and adjust if necessary. If necessary, limit volumes of exposed soil generating odor nuisance.
		Olfactory	Strong Nuisance Odor	
Atmospheric	Exclusion Zone	Multi-gas meter	<19.5% or >23.5% oxygen; 10% LEL for combustible gas; 10 ppm H_2S; 35 ppm CO	Stop work and wet down with water or apply foam. Monitor all parameters after controls to ensure instrumentation readings are below action levels. Evaluate excavation methods and adjust if necessary. If necessary, limit volumes of exposed soil.

* Per Section 3.2 of this RHSP, monitoring protocols for VOCs inside the exclusion zone is also summarized in the HSP and has been conservatively established by considering benzene as the most hazardous VOC contaminant at the Site. If 5 ppm TVOCs is detected in the exclusion zone, colorimetric tube readings for benzene will be measured to determine the absence or presence of a benzene fraction in the ambient air. Based on that measurement, applicable monitoring and control contingencies are summarized in the HSP.

** Per Section 4.2.4 of this RHSP, real time monitoring meters including the PID and multi-gas meter fitted with a hydrogen sulfide sensor will be utilized to verify if the presence of odors may indicate an elevated contaminant in the ambient air. Should strong odors be present during excavation via olfactory sensing during test pitting activities, controls will be implemented as provided in the PDWP.

Table 4-2: Air Sampling Summary

Sampling Type	Sampling Equipment	Laboratory Analysis	Sampling Location Description	Data Interpretation
VOCs	6-Liter provided Summa canister	USEPA TO-15	Upwind Support Zone Perimeter (pre-construction)	Establish background ambient air VOC concentrations.
			Upwind Support Zone Perimeter (active construction)	Eval.
			Downwind Support Zone Perimeter (active construction)	Results will be used to evaluate if VOCs related to the Site do not exceed action levels provided in Table 2 of the HSP. VOCs present will be evaluated and VOC action levels will be adjusted, if necessary.
Particulates	37 millimeter PVC with 2 to 5 micrometer pore size membrane or equivalent hydrophobic filter cartridge*	NIOSH Method 0500	Downwind Support Zone Perimeter (active construction)	Results will be used to confirm and verify the effectiveness of the real time field instrumentation monitoring program.

5. REFERENCES

Woodard & Curran (Woodard & Curran). 2013a. Pre-Design Work Plan, Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, October 7, 2013.

Woodard & Curran (Woodard & Curran). 2013b. Health and Safety Plan, Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, October 7, 2013.

Woodard & Curran (Woodard & Curran). 2013a. Residential Health and Safety Plan, Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, October 7, 2013.

APPENDIX A: AIR MONITORING LOG AND DATA SHEET

WOODARD &CURRAN

Direct Reading Air Monitoring Form
Centredale Manor Restoration Project Superfund Site

DATE: _____ **USER:** _____

PROJECT: _____ **CALIBRATION: (Good, Bad)**_____

PROJECT #: _____ **CALIBRATED BY:** _____

WEATHER CONDITIONS: _____ **COMMENTS:** _____

WIND DIRECT/SPEED: _____

ACTIVITY	INSTRUMENT	WORKING RANGE	TIME	READING	COMMENTS

Air Monitoring Log

Project Site: _____

Date: _____

Weather: _____

Logged by: _____

Time	Location	Site Activity	Upwind/ Downwind	PID Reading (PPMv)	PM-10 Dust mg/m3 (Average over 2 minutes)

APPENDIX F: EMERGENCY RESPONSE PLAN

Emergency Response Plan

Prepared for:
Centredale Manor
Restoration Project
Superfund Site

Pre-Design
Investigation Area

980 Washington Street, Suite 325
Dedham, MA 02026
800-446-5518

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

226845
NECC Customer Group
November 6, 2013

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1. INTRODUCTION

This Emergency Response Plan (ERP) has been developed by Woodard & Curran, Inc. (Woodard & Curran) on behalf of the Respondents[1] for the Centredale Manor Restoration Project Superfund Site (the Site) located in North Providence, Rhode Island. This ERP was prepared in accordance with Appendix B of the Statement of Work (SOW) for the Source Area Soil Pre-Design Investigation, which is an attachment to the Settlement Agreement (CERCLA Docket No. 01-2013-0019). The Centredale Manor Restoration Superfund Site is located at 2072/2074 Smith Street (Route 44) in North Providence, Rhode Island. The full Site includes sediment and floodplain areas of the Woonasquatucket River from Route 44 southerly to the breached Allendale Dam and further to an area just below the Lyman Mill Dam.

This ERP has been prepared in conjunction with, and may reference information provided in the Pre-Design Work Plan (PDWP; Woodard & Curran, 2013a), Health and Safety Plan (HSP; Woodard & Curran, 2013b), and Residential Health and Safety Plan (RHSP; Woodard & Curran, 2013c).

The ERP has been developed for the on-Site activities to be implemented to complete the PDWP. The purpose of the ERP is to act as a guide during actual emergency situations; minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous materials and hazardous waste to the air, soils and surface water; and other threats or hazards that may affect normal work operations. This ERP also will serve to familiarize local emergency response personnel (i.e. Police, fire, rescue departments, hospital, and emergency medical service personnel) with the procedures implemented during Site emergency response activities.

The ERP outlines potential emergencies and corresponding responses as follows:

1. Fire/Explosion
2. Spill or Release
3. Injuries & Illnesses
4. Civil or Nuisance Disturbances
5. Severe Weather
6. Evacuation

Vulnerable resources and populations that may be affected by an emergency incident exist both on-Site and at surrounding off-Site properties. This ERP is designed to protect these resources and populations from hazardous releases as well as from accidents that may occur during the implementation of the PDWP. The plan describes the emergency management system and the procedures to respond to releases and other emergencies. This plan also describes the countermeasures to minimize any adverse impact to the environment, and to reduce injuries from hazardous conditions resulting from accidents.

[1] The "Respondents" is a defined term in the Settlement Agreement – BASF Corporation; BNS Company; CAN Holdings LLC; Cranston Print Works Company; Duro Testiles LLC; Exxon Mobil Corporation; Lonza, Inc.; Organic Dyestuffs Corporation; Sequa Corporation; Teknor Apex Company; The Original Bradford Soap Works, Inc.; Union Oil Company of California.

2. SITE CONTACT INFORMATION

General site and key contact information is presented.

Company / Entity	Role	Name	Primary Contact Number
Woodard & Curran	Project Manager	Peter Nangeroni	781-752-6715
Woodard & Curran	Project Safety Officer	Kyle Apigian	857-523-0241
Woodard & Curran	Site Safety Officer	Daniel Clinton	508-769-5274
Woodard & Curran	Staff	Crista Trapp	857-523-0196
Woodard & Curran	Staff	Nicole D'Angelo	401-578-1257
Tantara Corporation	Excavation Contractor	Chris Pereria	508-752-5599
Local Fire, Police, and Medical Response	Emergency Response		911
			911
Poison Control	Poison Emergency	U.S Poison Control Centers	800-222-1222
Dig Safe NOTE: Advanced notice to Dig Safe is required before any digging activity.	Utility Clearance	National Dig Safe Call Center	811
USEPA	Federal Project Coordinator	Anna Krasko	617-918-1232
RIDEM	State Project Coordinator	Louis R. Maccarone	401-222-2797

3. INCIDENT MANAGEMENT

Emergency response at the site will be coordinated under an Incident Command System. The Incident Command System establishes the responsibilities of various response personnel, the chain of command, and the proper lines of communication. This response management system will enable a coordinated effort between Site and off-Site responders. A general description of the various response personnel and their responsibilities is provided in the sections that follow.

3.1 INCIDENT OBSERVER

An Initial Observer may be anyone person present during PDWP activities who witnesses an emergency. The Initial Observer of the spill or incident must respond as follows:

- Evaluate the level of risk associated with the spill, fire, explosion, or other hazard and assess whether or not emergency responders (i.e., fire department, police department, emergency medical technicians, etc.) are necessary to control the incident. In making this assessment, the Initial Observer must consider all factors that may affect the safety and health of those on-Site and in the surrounding community as well as the individuals who may respond to the incident. The Initial Observer should identify the incident type, hazards involved, magnitude of the problem, and resources threatened in making this assessment.

- As is appropriate, notify the appropriate off-Site response personnel by dialing 911 and by providing the following information:

    - the name of the person reporting the incident, and the number of the telephone from where the report is being made;

    - the location where the incident occurred;

    - the nature of the emergency, and whether or not there are any injuries; and

    - the type and amount of material involved in the incident (if known).

- Notify the Site Safety Officer (SSO) of the incident and the status of the response so that they assume control of the response activities.

3.2 SITE SAFETY OFFICER

Under the Incident Command System, the SSO, as defined in the HSP, will serve as the primary emergency coordinator. This individual is responsible for implementing this ERP and for directing all emergency response efforts in controlling a fire, explosion, spill, or other hazard and will be responsible for handing command over to off-Site responders if the emergency warrants this transition. The SSO will coordinate on-Site and off-Site emergency response personnel, and will be responsible for communicating with local emergency management officials, especially where the safety of the general public is concerned.

The SSO will direct on-Site and off-Site response personnel. However, when off-Site responders are needed, emergency response action will be directed under a unified command, such that once the off-Site responders arrive at the scene of the incident, they will assume control of the response efforts. The SSO will then provide technical support, including reference materials such as Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS), if applicable, to the off-Site responders.

The general actions to be taken by the SSO are summarized below.

- If applicable, activate on-Site communication systems to evacuate any and all personnel who may be endangered by the incident.
- Identify the character, source, and extent of the fire, explosion, release, or other hazard, and notify emergency responders (i.e., fire department, police department, emergency medical technicians, etc.) if off-Site support is necessary to control the incident.
- Coordinate all emergency response activities with off-Site responders. Provide technical support, including available reference materials such as SDS/MSDS and response procedures, to all off-Site responders, who will have jurisdictional and functional control of the emergency response efforts once on-Site.
- Where safety to the general public is a concern, notify the USEPA.
- Perform ambient air monitoring to ensure that hazardous conditions resulting from the incident do not warrant the evacuation of on-Site personnel or the population of the surrounding community.
- Coordinate containment and mitigation of the release. Contain the incident to limit the extent of hazards to human health and the environment and initiate appropriate mitigation measures and remedial action, within the capabilities of available trained personnel and equipment on site.
- Notify the appropriate federal, state, and local agencies if their assistance is needed to control the incident.
- Coordinate all security efforts with USEPA in accordance for crowd and traffic control measures.
- Identify the necessary spill control equipment and notify the appropriate clean-up personnel to respond to the incident.
- Identify and assess hazards to human health and the environment based on the location of the incident, the type of emergency, the nature and volume of the material involved, prevailing wind direction, sustained injuries, and the potential for further damage (fire, explosion, health effects, etc.).
- Notify the Project Safety Officer (PSO) and Project Manager (PM).
- Ensure that all emergency response equipment is cleaned and fit for intended use before normal operations are resumed.
- Assess and implement the required level of protection.
- Coordinate and ensure appropriate treatment and disposal activities.
- Ensure that all required emergency notifications to regulatory and community agencies have been made.
- Participate in post-emergency assessments and preventative measures.

3.3 NOTIFICATION PROCEDURES

Once the Initial Observer assesses the incident and notifies the appropriate off-Site emergency response personnel, as is necessary, the SSO is to be notified. In assuming control of the incident, the SSO is responsible for notifying all applicable project personnel, including the Centredale Manor management personnel. The SSO is responsible for ensuring that the notifications are carried out in a timely manner. The PSO is responsible for informing the

Respondents about the emergency. In addition to these notification requirements, additional "external" notification procedures may need to be followed in the event of an emergency.

If the incident results in the release of hazardous waste or hazardous waste constituents to the environment, then the SSO is also responsible for assessing the need to report the incident to the appropriate agencies as may be required under federal or state regulations. These agencies include federal and state emergency management agencies. Notification to these agencies will be made as early as possible to facilitate a response by all necessary federal and state responders. In addition, the SSO will notify the USEPA Project Coordinator as listed in Section 2 of this ERP. Notification to all affected residents, town officials, local environmental groups, agencies, and other interested parties will be coordinated with USEPA and made as early as possible so that they are well informed about the emergency.

4. EMERGENCY RESPONSE PROCEDURES

In assessing the need to implement the ERP, the incidents may be generally classified as those that may be handled on-Site by personnel; those that require off-Site responders; and those that require off-Site responders including personnel trained in hazardous materials emergencies and evacuation procedures. The SSO may choose to implement the ERP if the following conditions exist:

- fire;
- explosion;
- imminent danger of a fire or explosion involving hazardous materials resulting in the igniting of hazardous wastes; and,
- spills or releases not only including a spill or release that could result in the release of flammable liquids or vapors, thus causing a fire or explosion hazard;
- injuries or illness;
- civil or nuisance disturbances affecting work, health, or safety;
- severe weather

Factors that should be considered prior to the implementation of this ERP include:

- the location of the incident;
- the danger or nature of the incident;
- the ability to contain and mitigate the hazard; and
- the potential hazards to human health and the environment.

4.1 PROCEDURES

The initial response to any emergency shall be to protect the health of Site workers and surrounding populations. This may include ordering an evacuation. Limiting damage to the environment should be addressed as a secondary priority only after all measures have been taken to protect human health. This secondary priority may include containment and spill countermeasure procedures. The clean-up and disposal of spilled or released material shall be made after the SSO has identified and assessed all of the hazards.

Upon arriving on the scene of the hazardous condition, the SSO will assess the situation. If the SSO determines that a PPE upgrade is required, off-Site responders shall be notified and the incident area will be evacuated and the SSO shall assess if further evacuations should be implemented from the Site and implement notification procedures.

If the incident area is deemed safe to implement measures to protect the workers and the public and implement mitigating actions to control, contain, and recover any hazardous materials, the SSO shall do so (i.e. small spills or releases that do not require off-Site responders. The SSO also will identify resources that are needed in responding to the hazardous condition.

4.2 HAZARD ASSESSMENT

The SSO should immediately identify pertinent information about the hazards of the incident (i.e., type, character, source, amount, extent, etc.). This identification involves visual analysis and investigation of the location and nature of the incident hazard.

If a spill or release has occurred, the SSO will assess the likelihood of a fire or explosion by checking for nearby ignition sources. The SSO will also determine the type of emergency, whether an additional exclusion zone is

necessary, whether the source is under control, and the type of response resources needed. In the hazard assessment, the SSO should account for human populations (both workers and the public), the environment, and other site-specific concerns.

4.3 FIRE AND/OR EXPLOSION

If a fire or explosion occurs, the Initial Observer will first assess the situation; if the fire is small and contained and does not involve hazardous materials and they been trained in the use of a fire extinguisher, it may be extinguished with an on-Site extinguisher. An appropriate fire extinguisher meeting the requirements of 29 CFR 1910 Subpart L must be available in the support zone during on-Site activities. No more than two fire extinguishers are to be used on a fire as this would indicates that the fire is too large for on-Site workers to handle. If the fire cannot be extinguished in this manner or it is a large fire or involves hazardous materials or an unknown substance, immediately dial 911 and implement notification procedures. If evacuation is required, see the Section 5 of this ERP.

The Initial Observer of a fire or explosion shall contact the SSO or appropriate off-Site responders at the earliest possible moment and will provide the following information:

- the name of person reporting and the number of the telephone from which the report is being made (if 911 is dialed);
- the incident location;
- the nature of the emergency;
- the nature and amount of the material involved;
- the corrective action taken, if any;
- the extent of personnel injuries, if any; and
- whether or not a spill or release has occurred or is threatening to occur.

The SSO will then assess the character, exact source, amount, and extent of the hazard associated with the fire or explosion and communicate this to Site contacts and to off-Site responders, if applicable. Off-Site responders will assume direct command of the response once they arrive at the scene of the emergency.

4.4 SPILLS OR RELEASES

In the event of a spill or release of a material to the environment whether it be from a potentially hazardous source (i.e. release from a buried drum) or non-hazardous source, the Initial Observer must notify the SSO of the incident and report the status of the response so that the SSO assumes control of the response activities. The SSO then assesses the character, exact source, amount, and extent of any released materials or chemical spill and define the spill or the release as minor or major, as defined below. The SSO will also evaluate if on-Site response is safe via field instrumentation and procedures described in the HSP and RHSP, also in consultation with the PSO and PM. If deemed safe, the SSO will take all reasonable measures to prevent the spill or release of from spreading to other areas. If possible, action will be taken to contain, limit, and clean up a spill by qualified on-Site personnel. If the spill or release spreads beyond the incident area, nearby drains should be isolated or blocked to prevent material from entering. Drain blocking equipment shall be stored within the support zone. Application of spill materials and equipment shall be completed if it is safe to do so and workers have been properly trained. Spill materials will also be stored in the support zone. All response activities must avoid risk or injury to personnel and minimize the impact on the environment. If the SSO deems that a major spill or release has occurred, off-Site responders shall be notified.

Spill and Release levels are defined as follows:

Minor Spill or Release: A minor spill or release is defined as one that poses no significant harm to human health or the environment. These spills involve generally less than 5 gallons and can usually be quickly cleaned up by site

personnel who have received Hazard Communication training. Other characteristics of a minor spill include ALL of the following:

- The spilled material is easily stopped or contained at the time of the spill;
- The spill is localized;
- The spilled material is not likely to reach surface water or groundwater;
- There is little danger to human health; AND
- There is little danger of fire or explosion.

On-Site workers that are properly trained may respond with spill control materials for minor spills and releases. This response is generally for materials such as oil, decontamination water, minor releases from buried drums encountered during test pitting and trenching, etc., that do not pose significant health risks.

In the event of a minor spill the following guidelines shall apply:

- Notify the PSO and PM;
- Ensure that conditions remain safe for Site workers. If conditions are not safe, evacuate;
- Don the appropriate personal protective equipment (PPE; i.e., Tyvek™ coveralls, nitrile gloves);
- Stop the source of the leak (i.e. Plug leaking drum or container, etc.);
- Isolate or block nearby drains to prevent material from entering;
- Isolate and contain the spill (i.e. use spill socks) with spill materials and equipment if it is safe to do so and you have been properly trained; and
- Immediate reporting may be required to government agencies. Contact the PSO and PM immediately so the necessary notifications can be made.

Major Spill or Release: A major spill or release is defined as one involving a spill that cannot be safely controlled or cleaned up by Site workers. Characteristics include ANY of the following:

- The spill is large enough to spread beyond the immediate spill area;
- The spilled material enters storm water catch basins, collection trench or the ground (regardless of spill size);
- The spill requires special training and equipment to cleanup;
- The spilled material is dangerous to human health;
- The spill is not contained or is out of control; OR
- There is a danger of fire or explosion.

A major spill or release will require the notification of off-Site responders and the requirement of a spill cleanup contractor that can respond to both hazardous and non-hazardous substance spills. Emergency action is as follows:

- All personnel shall immediately evacuate the spill site and move to a safe distance away from the spill.
- Immediately report the spill to off-Site responders and applicable Site contacts. Implement notification procedures.
- Isolate the area at a safe distance so that others may not enter or an exclusion zone.
- Stop the flow of the chemical if it can be done without risk.
- If a flammable material is involved, remove all ignition sources.
- Advise the PSO and PM if a spill clean-up contractor is needed or if evacuation of an area or the facility if necessary.

4.5 INJURIES OR ILLNESS

Hazardous material exposures and physical hazards may cause injuries and illnesses. Medical treatment may range from bandaging of minor cuts and abrasions to life-saving techniques. In some cases, essential medical help may not be immediately available.

When one or more of the following symptoms are present, the SSO should be notified immediately in order to contact outside medical support services or an ambulance:

- Extreme difficulty breathing.
- Chest pain.
- Sudden change in mental condition such as unusual behavior, confusion, decreased alertness.
- Severe sudden pain anywhere in the body.
- Bleeding that cannot be controlled by local pressure.
- The inability to walk.

Dial 911 directly and to inform them of the nature of the illness or injury, location, and arrange for worksite gate access.

For non-life threatening injuries or illnesses, first aid treatment may be applied. If possible, move or assist the injured person to a safe area and decontaminate as much as possible, if needed. If transport to a medical facility is needed, this may accomplished by ambulance or automobile, depending on the situation. The nearest hospital is Fatima Hospital and driving directions for the hospital route are provided below and in the HSP.

If a worker is exposed to hazardous material, the following actions are recommended, depending on the route of exposure:

- SKIN OR EYE CONTACT: Flush with ample amounts of water. Wash/rinse affected area thoroughly, and then provide appropriate medical attention. Eyes should be thoroughly rinsed for at least 15 minutes. An eye wash station should be stored in the support zone.
- INHALATION: Move to fresh air and, if necessary, decontaminate and transport to hospital.
- INGESTION: Decontaminate and transport to hospital.
- PUNCTURE WOUND or LACERATION: Decontaminate, if possible, and, if necessary, transport to hospital.

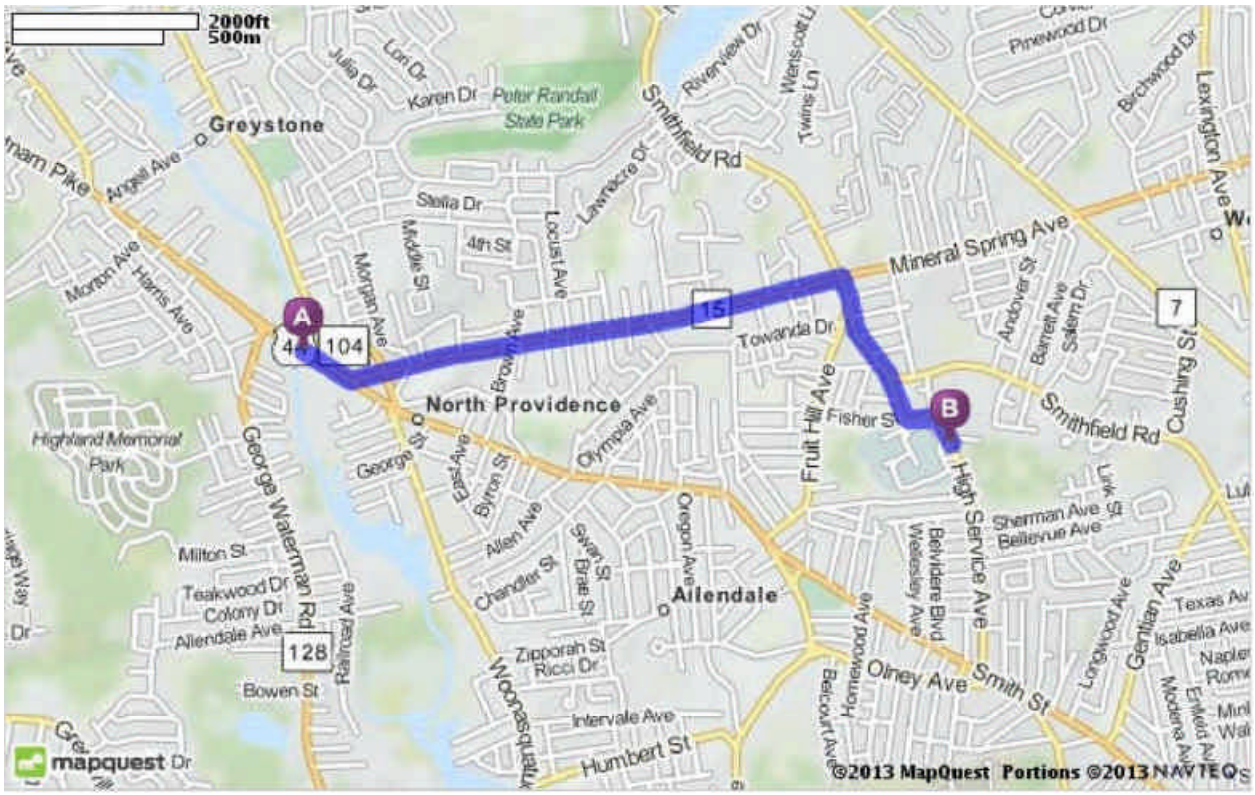
Directions and map to the nearest hospital:

Name: Fatima Hospital

Address: 200 High Service Avenue, North Providence, RI

Directions:

1. **Start out going southeast on Smith St / US-44 S toward Waterman Ave / RI-104 N.**
2. **Turn slight left onto Mineral Spring Ave / RI-15 E.**
3. **Turn right onto Smithfield Rd.**
4. **Turn slight right onto High Service Ave.**
5. **200 HIGH SERVICE AVE is on the right.**



4.6 CIVIL OR NUISANCE DISTURBANCES

A civil disturbance is identified as activities outside or inside the premises that could threaten the security of the Site or the welfare of its personnel (trespassing, picketing, or demonstrating against the Site). A nuisance disturbance is identified as any visitor, contractor, or colleague on Site who is not acting in a safe manner or threatens the safety and security of the Site (i.e., violent behavior or actions that degrade Site safety). If the matter cannot be SSO or in a manner consistent with the Pfizer Values (e.g., boisterous language) and does not meet the definition of Civil Disturbance.

If a civil or nuisance disturbance occurs the SSO shall be notified. Actions shall be taken to assure the health and safety of personnel and the surrounding public and may include the notification of the PSO, PM, USEPA, and/or police (911) if warranted and the situation or incident cannot be remedied on-Site.

4.7 SEVERE WEATHER

Response may be necessary in the event of severe weather, such as hurricanes, tropical storms, thunderstorms, and nor'easters, which in turn can cause major flooding on the Site due to the proximity to a river, and tornado. All attempts will be made to complete work when a severe weather hazard is not present and flood conditions and severe weather monitoring should be implemented each workday.

If flash flooding or tornado is imminent and may have the potential to affect Site work zones, two-way radios and cellular telephones will be used to notify personnel of evacuation. Receipt of instructions to evacuate must be confirmed. If all personnel cannot be contacted by radio or phone, the established emergency signal of three air horn blasts (see Section 5) shall be used to alert personnel of the need to evacuate the Site due to severe weather conditions. As described in the section 2 (Site Evacuation), the emergency signal for site evacuation is three sustained blasts from an air horn. The air horn is stored inside the support zone. Site evacuation procedures shall be implemented as described in Section 5.

In the event a tornado watch or warning is issued by the National Weather Service a response is necessary. A tornado "watch" is issued when weather conditions are favorable for the development of severe thunderstorms that are capable of producing tornadoes. A watch does not mean that the severe weather is actually occurring; only that conditions have created a significant risk for it. If a tornado watch is issued, the SSO will inform personnel of the tornado watch. The weather will be monitored and the SSO will stop work if a tornado warning is issued.

In the event a tornado warning is issued by the National Weather Service: If a tornado "warning" is issued, it means that a tornado has actually been spotted, or is strongly indicated on radar, and it is time to go to a safe shelter immediately.

Personnel should take shelter in the nearest permanent building. They should crouch down and cover their head from falling or flying debris. Areas to avoid include glass enclosed places, trailers or other vehicles.

If a spill or release has occurred due to severe weather, please refer to Section 4.4 of this ERP.

5. EVACUATION PLAN

In the event of a sudden and uncontrollable hazardous condition such as fire, explosion, or major uncontrollable chemical spill that poses a threat to the safety of personnel, the area of the hazardous condition shall be evacuated immediately in an orderly and efficient manner. The SSO is responsible for implementing this evacuation plan.

During an evacuation, the SSO is responsible for ensuring that all on-Site personnel leave the hazardous area in a quickly and orderly manner. The SSO must also instruct personnel to retreat to a designated command post. The command post location will be established by the SSO at an upwind of the incident location. Once all on-Site personnel have retreated to this command post, the SSO will immediately document any missing persons and report this to off-Site responders and the PSO.

During an emergency, establish the safest exit route, do not delay evacuation, DO NOT re-enter the site until instructed to do so.

5.1 COMMUNICATION

Communication between the Site and off-Site personnel will be by voice or through cell phones to coordinate emergency response efforts, notify appropriate authorities, and maintain contact with all personnel. Three short blasts from an air horn will be provided as a signal to evacuate the Site via air horn stored in the support zone.

5.2 EVACUATION PROCEDURE

Three short blasts from an air horn will be provided as a signal to evacuate. The SSO will coordinate the evacuation of all personnel to the designated command post. The evacuation route from the Site is shown on Figure 1 of the HSP. Personnel shall exit by the evacuation route if deemed safe to do so depending on the type of emergency and other conditions (i.e. wind direction). The SSO will designate the command post based on the source and the extent of the hazardous condition. The command post will typically be at the Centredale Manor entrance on Smith Street if deemed safe during and emergency.

When an evacuation alarm sounds, workers will meet at the command post and report to the SSO. If workers are in a work exclusion zone, proceed to the access corridor of the contamination reduction zone and proceed to the designated command post for further instructions. Visitors and contractors that may be on-Site will be accounted for by use at the Site log sheet maintained by the SSO.

6. EMERGENCY EQUIPMENT

The appropriate off-Site responder will provide the necessary emergency response equipment and resources to control and manage uncontrollable fires, explosions, and the release of hazardous wastes that may threaten human health or the environment. Emergency response equipment and resources to control and manage emergencies and hazardous conditions that do not require the implementation of this plan are stored in the support zone. Generally, this equipment will be PPE, fire extinguisher, first aid kit, spill control equipment, and air horn.

7. INCIDENT REPORTING REQUIREMENTS

This section contains a summary of the verbal and written notifications that must be made to federal, state, and local agencies in the event of a release. The SSO will provide for a signed record of initial notifications to document compliance with the ERP. Any incident involving the discharge, spillage, uncontrolled loss or seepage of any chemical product (solid, liquid, or gas) or hazardous waste must be reported immediately to USEPA as soon as practical after an incident. A written report documenting the nature of the incident shall be completed by the SSO or PSO for the project record shall be provided to USEPA representatives.

The following information should be provided in the incident record:

- the name of the reporter;
- the name and address of the Site;
- the time that the incident occurred;
- the nature of the incident;
- the name and quantity of the materials involved, to the extent known;
- the extent of injuries, if any;
- the possible hazards to off-Site populations and the environment; and
- the containment and mitigation actions taken to control the release.

USEPA may also require that additional agencies need to be notified of the release or incident. The USEPA Project Coordinator will communicate the specific agencies or groups that must be notified.

8. REFERENCES

Woodard & Curran (Woodard & Curran). 2013a. Pre-Design Work Plan, Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, October 7, 2013.

Woodard & Curran (Woodard & Curran). 2013b. Health and Safety Plan, Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, October 7, 2013.

Woodard & Curran (Woodard & Curran). 2013a. Residential Health and Safety Plan, Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, October 7, 2013.