

**HEALTH AND SAFETY PLAN  
ORGANIZATIONAL MAINTENANCE SHOP 28  
ALABAMA NATIONAL GUARD  
1622 SOUTH BROAD STREET  
MOBILE, ALABAMA**

**PREPARED FOR:  
UNITED STATES ARMY CORP OF ENGINEERS  
MOBILE DISTRICT  
109 ST. JOSEPH STREET  
MOBILE, ALABAMA 36602**

**PREPARED BY:  
AEROSTAR ENVIRONMENTAL SERVICES, INC.  
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***FEBRUARY 2006***

**AEROSTAR ENVIRONMENTAL SERVICES, INC.  
HEALTH AND SAFETY PLAN**

**SITE NAME:** OMS 28  
1622 SOUTH BROAD  
MOBILE, MOBILE  
COUNTY, ALABAMA

**SITE CONTACT:** Ms. Melissa Shirley  
U.S. Army Corps of  
Engineers  
109 St. Joseph Street  
Mobile, Alabama 36602

**COUNTY:** Mobile County

**EFFECTIVE DATE:** February 2006  
**AEROSTAR JOB NO:** 0405-517-07

**CONTRACT NO:** W91278-04D-0044  
**TASK NO. :** 0006

SITE ENTRY PURPOSE	"X"	ENTRY DATE
Drilling		
Gauging/sampling	X	
Installation System		
Dewatering		
Tank Pull		
LPH System Removal		
Operation & Maintenance		
Source Removal		

Original Plan Date: 2/15/2006 Task No. \_\_\_\_\_ Task Date \_\_\_\_\_

Revised Plan Date:  / /  Task No. \_\_\_\_\_ Task Date \_\_\_\_\_


Revised Plan Date:  / /  Task No. \_\_\_\_\_ Task Date \_\_\_\_\_

**PLAN PREPARATION:**

Prepared by: Tiffany H. Whitson Date: 2/15/06

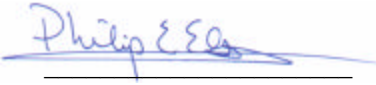
**REVIEWED BY:** (Please print your name under your signature)

Health and Safety Officer:  2/15/06  
Leon Carrero Date

Project Manager:  2/15/06  
Tiffany H. Whitson Date

**APPROVALS:**

Health and Safety Officer:  2/15/06  
Date

Project Director:  2/15/06  
Philip E. Elson Date

## ORGANIZATIONAL MAINTENANCE SHOP 28, MOBILE, ALABAMA SITE-SPECIFIC HEALTH AND SAFETY PLAN

This Health and Safety Plan (HASP) has been prepared by Aerostar Environmental Services, Inc. (AEROSTAR) at the direction of the United States Army Corps of Engineers (USACE) in Mobile, Alabama. This HASP pertains to the delineation of trichloroethylene (TCE) at the Organizational Maintenance Shop (OMS) 28 located at 1622 South Broad Street in Mobile, Alabama. Specifically, this HASP addresses the policies and procedures to assist in anticipating, recognizing, evaluating and controlling potential hazards and hazardous substances that may be encountered as part of this project.

All personnel participating in field activities must be trained in the general and specific hazards unique to this job and, if applicable, meet all medical examination and Occupational Safety and Health Administration (OSHA) requirements. A copy of current Medical Surveillance, employee clearance forms, and training qualifications will remain at the project site for the duration of the project for each employee working at the site. All site personnel and visitors shall follow the guidelines, rules and procedures in this document. The AEROSTAR Project Manager (PM) or Site Safety Officer (SSO) may impose any other procedures or prohibitions judged necessary for safe operations.

This document is also intended to assist in compliance with relevant federal and state safety and health regulations governing specific sampling-related activities and was developed in accordance with the following:

United States Department of Labor, OSHA standards, specifically:

- Title 29 CFR Part 1910.120 - Hazardous Waste Site Operations and Emergency Response
- OSHA Construction Industry Standards, 29 CFR 1926, and General Industry and Construction Standards

Alabama Department of Environmental Management (ADEM) standards, specifically:

- Alabama Environmental Investigation and Remediation Guidance Manual, revised March 2005

Because site conditions are subject to change, and unforeseen conditions may arise, amendments or additions may need to be made to this HASP during the course of work. Only the AEROSTAR PM and/or the SSO can authorize modifications to this plan. This HASP will be kept on the site during field activities.

**SITE DESCRIPTION:** OMS 28, Mobile, Alabama – Brookley Field.

**PROJECT OBJECTIVES - THE OBJECTIVE OF THIS PROJECT IS TO:**

- 1) Perform a Comprehensive Site Assessment to delineate TCE at the above referenced facility

### UNDERGROUND UTILITIES

No underground utilities are anticipated to be encountered during the groundwater sampling activities.

**AREA/VICINITY DESCRIPTION:** OMS 28 is located in Mobile County, near downtown Mobile, between Interstate 10 and Mobile Bay. The area is relatively flat with an elevation of 20 to 30 feet above mean sea level (AMSL). The subject property is located in Section 1, Township 4 South, Range 1 West and at approximate location Longitude 88°03' 42" west and Latitude 30°39' 11".

A single 2000 gallon gas/diesel UST was removed from OMS 28 in October 1992. Following submission of the closure report, a February 1994 Preliminary Investigation (PI) and a December 1994 Secondary Investigation (SI) were subsequently conducted at the site for the former UST.

In August 2005, Bechtel-S submitted a Secondary Investigation (SI) Addendum. During the SI Addendum, monitor well MW-8, a downgradient well, was installed. Benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary butyl ether (MTBE), naphthalene and lead were not detected above Alabama Department of Environmental Management (ADEM) Initial Screening Levels (ISLs) in MW-8; however, the reporting limits for MW-8 were higher than the other groundwater samples due to the dilution by the laboratory of this sample by a factor of 20. Dilution was required due to the interference by TCE in the sample. The trichloroethylene (TCE) is not related to the gasoline/diesel fuel tank being investigated and is believed to be the result of a localized solvent spill. No other groundwater samples collected during this event were diluted by the laboratory. A small amount of light non-aqueous phase liquid (LNAPL) was detected at MW-1. A vacuum extraction event was performed at MW-1 by Bechtel-S in August 2005. Vacuum extraction from MW-1 removed approximately 5.6 pounds of hydrocarbons from the immediate vicinity of MW-1, but had no effect on neighboring wells. Groundwater contamination did not appear to extend offsite. The contaminant plume appeared to extend from the source area (former UST location) towards monitor well MW-6. Dissolved oxygen appeared to be depleted in the source area and extended as far downgradient as monitor well MW-6.

In 2005, the Alabama National Guard (ALNG) installed five wells at the site to further delineate the TCE plume. The wells were installed by hand with a sand filter pack and with hand cut screen. TCE was detected in groundwater well GW-3. None of the remaining wells sampled showed detectable concentrations of TCE. All monitor wells were sampled with a bailer during this event.

Along with the SI Addendum, Bechtel-S also submitted an ARBCA assessment in August 2005. Based on a conversation with Mr. John Pierce, ADEM on November 4, 2005, the Site Specific Target Levels (SSTL) developed in the ARBCA have not been approved.

**SUMMARY OF HAZARDS:** A preliminary evaluation of the site's characteristics has been performed based on information provided to AEROSTAR by the USACE. Based upon historical information and historical activities at the site, the chemical hazards of known concern are TCE and petroleum hydrocarbons. In addition to chemical exposure, other safety hazards exist, including, but not limited to: physical hazards; biological hazards; slip, trip and fall hazards; electrical hazards; heavy equipment hazards and air traffic hazards.

**SITE SAFETY MEETING:** A site safety meeting will be held onsite for all subcontractors and site workers prior to the start of work. The SSO will administer the meeting. The purpose of the meeting is to review the requirements of this HASP and to discuss in detail the required personal protective equipment, onsite monitoring procedures, and contingency procedures. The SSO will also verify that each site worker who will enter the work areas is properly trained and has medical clearance to perform work in contaminated areas.

**ONSITE ORGANIZATION AND COORDINATION - THE FOLLOWING ARE DESIGNATED TO CARRY OUT STATED JOB FUNCTIONS ONSITE.**

The employees listed meet state and federal hazardous waste operations requirements for 40-hour initial training, 3-day on-the-job experience, and 8-hour annual refresher training. The employees listed below are currently active in a medical surveillance program that meets state and federal regulatory requirements for hazardous waste operations.

(NOTE: ONE PERSON MAY CARRY OUT MORE THAN ONE JOB FUNCTION.)

<b><u>RESPONSIBILITY</u></b>	<b><u>PRINT FULL NAME</u></b>
PROJECT MANAGER:	<u>Tiffany H. Whitson</u>
PROJECT DIRECTOR:	<u>Philip E. Elson</u>
FIELD TEAM LEADER	<u>Emilie A. Wien</u>
SITE SAFETY OFFICER:	<u>Emilie A. Wien</u>
COPORATE SAFETY OFFICER:	<u>Leon Carrero</u>

ALL ACTIVITIES ON-SITE MUST BE CLEARED BY THE PROJECT DIRECTOR AND SITE SAFETY OFFICER.

The Project Director is responsible for providing adequate resources (budget and staff) for project-specific implementation of the management process. The Project Director has overall management responsibility for the tasks listed below. The Project Manager may explicitly delegate specific tasks to other staff. The Project Manager is responsible for providing technical assistance for the Field Team Leader. The Site Safety Officer and Safety Officer are responsible for verifying that the project is conducted in a safe manner.

## CHEMICALS OF CONCERN

### ***Diesel Fuel***

Aspiration of liquid into the lungs may cause extensive pulmonary edema (dry land drowning). Prolonged or repeated skin contact will remove skin oils leading to irritation and/or dermatitis. High vapor concentrations are irritating to the eyes and lungs, and may cause headaches, dizziness, and unconsciousness.

### ***Gasoline (unleaded)***

Gasoline is a mixture of hydrocarbons, including aliphatic hydrocarbons, aromatic hydrocarbons, a variety of branched and unsaturated hydrocarbons, and additives. Extremely high levels of exposure could produce conditions such as dizziness, coma, collapse, and death. Exposure to non-lethal doses is usually followed by complete recovery, although cases of permanent brain damage following massive exposure have been reported.

### ***Fuel Oil***

Fuel oil is comprised of mixtures of petroleum distillate hydrocarbons. The various kinds of fuel oils are obtained by distilling crude oil, and removing the different fractions. In terms of refining crude oil, typical heating oil is a middle distillate. The middle distillates include kerosene, aviation fuel, diesel fuels, and fuel oil #1 and 2. These fuels contain paraffins (alkenes), cycloparaffins (cycloalkanes), aromatics, and olefins from approximately C9 to C20. Aromatic compounds of concern include alkylbenzenes, toluene, naphthalenes, and polycyclic aromatic hydrocarbons (PAHs). Aspiration of liquid into the lungs may cause extensive pulmonary edema (dry land drowning). Prolonged or repeated skin contact will remove skin oils leading to irritation and/or dermatitis. High vapor concentrations are irritating to the eyes and lungs, and may cause headaches, dizziness, and unconsciousness.

### ***Trichloroethylene (TCE)***

TCE is a nonflammable, colorless liquid at room temperature with a somewhat sweet odor and a sweet, burning taste. TCE is now mainly used as a solvent to remove grease from metal parts. Exposure routes include eye, skin, ingestion, and inhalation. TCE has a Health Rating of 2-Moderate (Poison); Flammability Rating of 1-Slight; Reactivity Rating of 1-Slight; and a Contact Rating of 3-Severe. Protective equipment such as gloves and goggles should be worn.

## CHEMICAL ROUTES OF EXPOSURE

Bodily injury can result to people onsite if they are exposed to chemicals at concentrations above recommended exposure limits. Toxic chemicals can enter the body through injection, ingestion, eye and skin absorption, and inhalation.

## Injection

Injection or skin punctures by sharp or pointed objects represent a very hazardous route of exposure because some form of tissue damage (and the likelihood for infection) is combined with direct transport into the body. Many such routes of entry, such as through broken glass, needles, or work-related tools, can be avoided by following approved safety procedures and wearing appropriate safety boots, long pants, long-sleeved shirt, hard hat, gloves, and shatter-resistant eye and face protection.

## Ingestion

Exposure by ingestion involves the oral intake of a hazardous substance. Workers may ingest materials unintentionally when they handle food, drink, smoke, or bite fingernails after contact with the material and before thoroughly washing their hands. Workers may also unintentionally contaminate their families by bringing hazardous substances home with them on their bodies, clothes, or vehicles without adequately decontamination. This route of exposure can be minimized if workers practice adequate personal hygiene by washing thoroughly prior to leaving the work site. Also, many hazardous substances have been known to adsorb into foods, liquids, and tobacco products, thus creating a potential route of exposure through ingestion. For this reason, at no time will food, gum, or tobacco products be allowed in any work area.

## Eye and Skin Absorption

The skin is the largest organ of the body, comprising about 2,880 square inches or 19 square feet of surface area and about 15 percent of total body weight. Skin is a tough flexible cover and is the first body barrier to come into contact with a wide variety of industrial hazards. Chemical hazards can cause physical injury to the skin (e.g., chemical burns and dermatitis). The skin may also act as a vehicle of transport for some chemicals through long-term and sometimes brief dermal contact. Similarly, the sensitive eye tissues and mucus membranes, with their inherent high moisture content, may act as a "chemical sponge" that adsorbs hazardous substances causing tissue damage or provides a mode of transport into the body.

Adverse effects of eye and skin absorption of hazardous substances depend on the specific contaminant present and may include local tissue damage, dermatitis, or systemic effects such as liver, kidney, or central nervous system (CNS) effects. Some chemicals such as formaldehyde act as sensitizing agents that produce little effect upon first exposure but exhibit extreme effects (such as heightened allergic reactions) upon subsequent exposures.

Adverse reactions to chemical contact with skin or eyes can be avoided if workers wear appropriately selected PPE, such as Tyvek<sup>®</sup> suits, safety glasses/chemical goggles, gloves, and chemical-resistant boots.

## Inhalation

Many foreign materials may be inhaled into the respiratory system, which, generally speaking, comprises numerous nasal and lung tissues. The respiratory system presents a quick and direct avenue of entry for toxic materials into the body because of its intimate association with the circulatory system and the consistent need to oxygenate human tissue cells. Anything affecting the respiratory system also affects the entire human organism, whether the inhaled material is contaminated air such as a toxic gas, dust, or an irritant, or whether insufficient oxygen is inhaled. Inhaled contaminants that adversely affect the body fall into three general categories:

- Aerosols and dusts, which, when deposited in the lungs, may produce either acute or chronic tissue damage, tissue reaction, adverse health, disease, or physical destruction. Examples of aerosols and dusts are asbestos fibers, which cause fibrotic growth in the alveolar tissue of the lungs and may lead to mesothelioma (a form of lung cancer).

- Toxic gases that produce adverse reaction in the tissue of lungs themselves. One toxic gas, hydrogen fluoride, will cause pulmonary edema and chemical burns of the lung tissues.
- Toxic aerosols or gases that do not affect the lung tissue but are passed from the lung into the bloodstream, where they are carried to other body organs or have adverse effects on the oxygen-carrying capacity of the blood. Carbon monoxide (CO) is an example of a toxic gas that is passed into the bloodstream. Carbon monoxide ties up red blood cells so they cannot accept oxygen, causing oxygen starvation.

Individual susceptibility to inhalation hazards in the occupational setting varies according to factors that include rate of clearance of the lung, effects due to cigarette smoking, any existing pulmonary disease, and genetic factors.

Inhalation hazards can be successfully avoided by using the appropriate National Institute of Occupational Safety and Health (NIOSH) -approved respirators when necessary and by eliminating downwind work stations whenever possible.

## SAFETY HAZARDS

Site features, conditions, and activities that are potential safety hazards include:

- Excavations, trenches, holes, or ditches (either constructed naturally occurring)
- Slip, trip, and fall hazards
- Contact with sharp or jagged objects such as nails, sharp metal, or broken glass
- Contact with blunt or immovable objects, such as overhangs and beams
- Electrical hazards
- Equipment and machinery hazards
- Unstable surfaces, which may fall or give way
- Unstable objects or structures, which may fall or give way.

Other safety hazards can be caused by the work itself. For example, protective clothing or equipment may impair a worker's agility, hearing, and vision, increasing the risk of an accident.

All personnel, contractors, and subcontractors shall become familiar with the field activities. Hard hats and safety shoes are required in all areas of the site. As minimum requirements, hard hats will be donned prior to performing any site activities. This will prevent minor injuries caused by bumping one's head while working around and under construction equipment. Personnel will be trained in and required to use proper lifting techniques when lifting heavy objects. The following are physical hazards that may be present at the site:

### Tripping, Slipping, and Falling Hazards

Personnel will be reminded daily to maintain sure footing on all surfaces. Work surfaces of unknown or suspect integrity will be strengthened or overlain with a work platform capable of supporting all personnel and equipment in use in that area.

To minimize tripping hazards caused by debris, equipment, or other obstacles will be removed daily from the work areas and stockpiled in appropriate designated storage areas. This "house cleaning" effort will be enforced by the SSO at the end of each day.

## Falling Objects

All tasks can be accomplished without any object free-falling to the ground.

## Heavy Equipment and Traffic

The use of heavy equipment onsite presents the greatest potential for injury to personnel. To minimize these hazards, designated routes will be established for mobilization to and from the site and specific traffic patterns will be established. All trucks will use spotters for backing procedures. All personnel working along roadsides are required to wear orange safety vests.

Personnel needing to approach heavy equipment during operation will observe the following protocols:

1. Make eye contact with the operator.
2. Signal the operator to cease heavy equipment activity.
3. Approach the equipment and inform the operator of intentions.

Only qualified personnel will operate heavy equipment. Those crew members directly involved with spotting for the operator will be the only personnel allowed within the operating radius of the heavy equipment. All other personnel will remain a safe distance away from these operations. Vehicles will yield to all bikes, pedestrians, and railroad crossings.

Only equipment that is in safe working order will be used. To maintain this policy, all equipment brought onto the project site will be inspected for structural integrity, smooth operational performance, and proper functioning of all critical safety devices in accordance with the manufacture's specifications. This inspection will be performed by a qualified equipment operator and the AEROSTAR SSO. Equipment not conforming to the operational and safety requirements during this inspection will not be put into service until all necessary repairs are made to the satisfaction of the inspection group. Only qualified operators familiar with the equipment will be permitted to operate equipment.

## Electrical Hazards

To prevent accidents caused by electric shock, the SSO will inspect all electrical connections on a daily basis. He will shut down and lock out any equipment found to have frayed wiring or loose connections until a qualified electrician can be contacted and repairs effected. Electrical equipment will be de-energized and tested by an electrician before any electrical work is done. All equipment will be properly grounded prior to and during all work.

In addition, ground fault circuit interrupters (GFCIs) will be installed whenever possible in each circuit between the power source and tool, unless the presence of a potentially explosive atmosphere precludes this procedure. In the event that generators are used to supply power, these generators will be equipped with GFCIs.

## Physical Hazards

Physical hazards involve the potential for injury or adverse health from physical agents such as:

- Noise;



- Heat and cold stress;
- Vibration;
- Explosion and fire;
- Illumination;
- Oxygen deficiency;
- Electrocution;
- Lacerations, cuts and scrapes;
- Vehicular traffic;
- Falling into excavation;
- Hit by heavy equipment; and
- Lifting heavy equipment.

### General Health and Safety Work Practices

This HASP advocates exercising every reasonable precaution when performing the work to prevent property damage and to protect the safety and health of employees, the public, and the environment. Employees have certain responsibilities for their own safety, as follows:

- Report to work rested, physically and mentally fit to perform the job assignment.
- Working while under the influence of intoxicants, narcotics, or controlled substances is strictly prohibited as required by The Drug Free Workplace Act of 1988, Defense Federal Acquisition Regulation Supplement Subpart 252.223-7004 for Drug Free Workplace and EM 385-1-1.
- Wear suitable clothing for the weather and the work.
- Wear PPE and follow established procedures for a particular job. Do not wear jewelry or loose-fitting clothing when operating or near equipment.
- Call the SSO's attention to any behavior or condition that may cause injury or illness to others or damage to property.
- Read warning labels on containers and equipment. Follow specified precautions.
- Discontinue any operation that could lead to injury, illness, or property damage.
- Keep horseplay and other disruptive behavior away from the job.
- Promptly report to the PM/SSO, any occupational injury, illness, or exposure to toxic material. If injured, get first aid. Small injuries can become serious if neglected.
- Promptly inform the PM/SSO whenever new substances, processes, procedures, or equipment that could present new safety and health hazards are brought into work areas or onto projects.
- Do not eat, smoke and/or chew tobacco, or chew gum in work area.
- Do not allow visitors without adequate safety training into the work area.

- Work upwind of any field activity.
- Perform work in a manner that will minimize dust from becoming airborne (i.e., use water spray or wet technique when feasible).
- Do not work alone. Use the "buddy system" during all work activities.
- Enter the work area only while in proper PPE and with a "buddy." The buddy system will also be in effect at any work zone where respirators are being worn.
- While in the work area, avoid contact with objects or soil unless the contact is necessary to the field operation.
- Be alert to abnormal behavior of other personnel that may indicate distress, disorientation, or other ill effects.
- Verify that vehicles have an ABC-rated fire extinguisher and first-aid kit.
- Monitor all weather conditions; particularly the wind direction, because they could affect potential exposure.
- Be aware of the amount of solar radiation exposed skin is receiving. Take steps to minimize the potential for sunburn.
- Operate a vehicle only if you are a licensed driver. Seatbelts must be worn when operating a company vehicle or when driving a private vehicle on company business.
- Drive vehicles in a safe manner and obey traffic regulations.
- Operate equipment only if you are a trained operator. Conduct and document a daily equipment inspection. Post equipment operating rules in accordance with OSHA regulations.
- Contact the PM/SSO if contact with human body fluids occurs during the administration of first aid.
- These general safety responsibilities listed above also apply to subcontractors and visitors.

### Activity Hazard Analysis

The Activity Hazard Assessment (AHA) identifies potential safety, health, and environmental hazards and provides for the protection of personnel, the community and the environment. Because of the possibility for change exists in construction projects, supervisors must continually inspect the work site to identify hazards that may harm site personnel, the community, or the environment. The AEROSTAR SSO will perform the AHA prior to performing field work and will inform the AEROSTAR PM of these changing conditions and will implement measures to protect the health and safety of site personnel, adjacent general population and the environment. The AES SSO and SSO will write addenda to change the Job Safety Analysis and associated hazard controls as necessary.

All AES personnel and subcontractors shall be familiar with the hazards, and strictly adhere to the appropriate safety procedures. The potential hazards and the appropriate controls shall be presented to project personnel during Daily Safety Briefings.

## Biological Hazards

Biological hazards that may be found on-site include insects and arachnids, such as: bees, wasps, mosquitoes, spiders, and ticks. Poisonous snakes, domesticated dogs and hazardous plants may also be encountered on the project site.

Cogon grass occupies the western portion of the project site. Cogon grass is a perennial grass and is considered one of the 10 worst weeds in the world. It is commonly found in humid tropics and thrives in areas of minimal tillage. A common way that cogon spreads is through the transfer of soil and other material infested with rhizomes. Employee awareness and the safe work practices should reduce the risk associated with these hazards to acceptable levels.

## Confined Space Entry

No confined space entry is anticipated for this project.

## Site Security

The Field Team Leader must evaluate the seriousness of the situation and determine the level of a health or safety risk to response personnel or the public in general and notify the Incident Commander as soon as possible. If the situation requires security, local military police should be contacted. Local law enforcement officials should also be contacted for evacuations, establishing road blocks, and limiting access to response areas.

### **ADDITIONAL INFORMATION:**

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## SITE CONTROL

A SAFE PERIMETER HAS BEEN ESTABLISHED WITH CONTROL BOUNDARIES IDENTIFIED AND MARKED OFF WITH - (BOUNDARY TAPE, TRAFFIC CONES, BARRICADES).

## PERSONAL PROTECTIVE EQUIPMENT

BASED ON EVALUATION OF POTENTIAL HAZARDS, THE FOLLOWING LEVELS OF PERSONAL PROTECTION HAVE BEEN DESIGNATED FOR THE APPLICABLE WORK AREAS OR TASKS:

<u>JOB FUNCTION</u>	<u>LEVEL OF PROTECTION</u>
Groundwater Sampling	A B C <u>D</u> OTHER
Boring/Monitor Well Installation	A B C <u>D</u> OTHER
Soil Sampling	A B C <u>D</u> OTHER

## Level D PPE

A work uniform affording minimal protection used for nuisance contamination only. The following constitute Level D PPE, which may be used as appropriate:

- Coveralls or field clothing
- Gloves Outer-Nitrile-22-mil maximum with latex inner glove (when potential contact with contaminated soils exists)
- Boots/shoes; leather or chemical-resistant, steel toe and shank
- Safety glasses
- Hardhat
- Earplugs and/or earmuffs
- Escape mask available (optional as applicable)

## Modified Level D PPE

This level of protection applies when concentration(s) and type(s) of airborne substance(s) are known to be below the PELs/TLVs. Air purifying respirators should be readily available. The following constitute Modified Level D PPE, which may be used as appropriate:

- Chemical-resistant clothing (e.g., Tyvek<sup>®</sup>, polyethylene-coated Tyvek<sup>®</sup>, or Saranex<sup>®</sup>) is optional as applicable
- Coveralls or field clothing
- Gloves, outer, chemical-resistant (Nitrile, 22-mil minimum)
- Gloves, inner, chemical-resistant (Latex, 2-mil minimum)
- Boots, outer, chemical-resistant, steel toe and shank (disposable, optional as applicable)
- Safety glasses or chemical splash goggles
- Hardhat (optional as applicable)
- Earplugs and/or earmuffs (optional as applicable)
- Escape mask (optional as applicable)

Note: Use of an air-purifying respirator with Modified Level D PPE will constitute Level C PPE. If a half-face air-purifying respirator is required, it must be NIOSH-approved and fitted with combination organic vapor/HEPA filters.

**NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE FIELD TEAM LEADER AND PROJECT MANAGER.**

## DECONTAMINATION PROCEDURES

### Personal Decontamination

Field work is anticipated to be performed in Level D and Modified Level D. Site workers shall wash their hands, face, and exposed skin surfaces with soap and water upon leaving the work area and prior to ingestion of food, liquids or smoking. A portable or fixed hand washing facility with potable water, soap, and paper towels shall be located immediately outside of the work area. Disposable personal protective equipment shall be placed in a sealed metal container, which is double-lined with 6-mil polyethylene bags.

### Equipment Decontamination

Equipment used during this project shall be decontaminated by pressure washing prior and after each activity. The decontamination pad shall be constructed by overlaying a chemically resistant impermeable flexible membrane, such as high density polyethylene (HOPE), polyvinyl chloride (PVC), or VLDPE with a minimum thickness of 1 mm or 40 mils. The base layer of soil on which the membrane is placed shall be free of objects greater than 0.375 inches in diameter and any other materials which could puncture or damage the membrane. The pad shall be constructed to capture decontamination water, including overspray, and shall allow for collection and removal of the decontamination water using a sump or ditch along one side of the berm. Overspray shall be contained by construction of two (2) vertical walls, six (6) feet in height, using PVC piping and polyethylene sheeting. High pressure, low volume water wash shall be used to remove gross mud and debris from equipment and vehicles. Decontamination water shall be periodically pumped out of the sump into DOT approved 55-gallon drums and stored onsite. These drums shall be later sampled to determine disposal classification and costs. Personnel shall protect themselves while pressure washing equipment by wearing poly-coated Tyvek<sup>®</sup>, faceshields, Nitrile gloves and boots. All loose materials should be brushed off prior to steam cleaning.

A designated "clean area" shall be provided outside the work area for performing equipment maintenance. This area shall be used when personnel are required by normal practices to come in contact with the ground, i.e., crawling under a vehicle to change engine oil. Equipment within the work area shall be decontaminated before maintenance is performed.

Sampling equipment such as hand augers, oil/water interface probe, and other devices that have had direct contact with soil and/or water samples shall be decontaminated individually in a designated area by laying plastic sheeting over the ground surface and placing decontamination tubs on top. This shall prevent spills onto site soils and further protect equipment from unnecessary contact with foreign material. The following procedure shall be conducted during each decontamination event:

1. Wash with laboratory-grade non-phosphate detergent
2. Rinse with tap water
3. Air dry

## ENVIRONMENTAL MONITORING

### Air Monitoring for Project Operations

Analyte/Instrument	Calibration Schedule	Monitoring Frequency	Recommended Action
Petroleum hydrocarbons and VOCs / PID, FID, or OVA	1 x daily before startup of work in accordance with manufacturer's specifications.	Continuously during activities in the EZ that disturb soil. Initially twice per day to determine the potential hazard. Frequency may be upgraded/downgraded based on measured levels.	If sustained reading ( $\geq 1$ minute) of 1 ppm in breathing zone, use benzene colorimetric tube. If benzene detected, stop work, evacuate area, notify PM/SSO
Explosive gases / CGI	1 x daily before startup of work in accordance with manufacturer's specifications. Set alarm at 10% LEL; if feasible, use calibration gas specific to gases suspected to be present.	Continuously during activities in the work area that disturb soil.	If reading $> 10\%$ LEL, personnel must leave area. Use fans to lower LEL. No reentry until LEL $< 10\%$ .

**PID** Photo ionization detector.

**FID** Flame ionization detector.

**OVA** Organic vapor analyzer.

**CGI** Combustible gas indicator

**LEL** Lower explosive limit.

### ACTION LEVELS

Breathing Zone Background to 200 ppm	Level D protection
200 to 300 ppm over background.	Level C Protection
300 to 500 ppm over background.	Level B Protection
Over 500 ppm over background.	EVALUATE EXPOSURE SOURCE

## EMERGENCY RESPONSE PLAN

### Pre-Emergency Planning

The SSO performs the applicable pre-emergency planning tasks before starting field activities and coordinates emergency response with onsite parties, the facility, and local emergency-service providers as appropriate.

- \$ Review the facility emergency and contingency plans where applicable.
- \$ Determine what onsite communication equipment is available.
- \$ Determine what offsite communication equipment is needed (e.g., nearest telephone, cell phone).
- \$ Confirm and post emergency telephone numbers, evacuation routes, assembly areas, and route to hospital; communicate the information to onsite personnel.
- \$ Review changed site conditions, onsite operations, and personnel availability in relation to emergency response procedures.
- \$ Where appropriate and acceptable to the client, inform emergency room and ambulance and emergency response teams of anticipated types of site emergencies.
- \$ Designate one vehicle as the emergency vehicle; place hospital directions and map inside; keep keys in ignition during field activities.
- \$ Inventory and check site emergency equipment, supplies, and potable water.
- \$ Communicate emergency procedures for personnel injury, exposures, fires, explosions, and releases.
- \$ Rehearse the emergency response plan before site activities begin, including driving route to hospital.
- \$ Brief new workers on the emergency response plan.
- \$

### Emergency Equipment and Supplies

The Site Safety Officer should mark the locations of emergency equipment on the site map and post the map.

#### **Emergency Equipment and Supplies**

20 LB (or two 10-LB) fire extinguisher (A, B, and C classes)

First Aid Kit

Eye Wash

Potable Water

Bloodborne-pathogen kit

#### **Location**

Support Zone/Heavy Equipment

Support Zone/Field Vehicle

Support &Decon Zone/Field Vehicle

Support &Decon Zone/Field Vehicle

Field Vehicle

## EVACUATION

- \$ Evacuation routes and assembly areas will be designated by the SSO before work begins.
- \$ Personnel will assemble at the assembly area upon hearing the emergency signal for evacuation.
- \$ The Site Safety Officer and a Buddy will remain on the site after the site has been evacuated (if safe) to assist local responders and advise them of the nature and location of the incident.
- \$ The SSO will account for all personnel in the onsite assembly area.
- \$ A designated person will account for personnel at alternate assembly areas.
- \$ The SSO will write up the incident as soon as possible after it occurs and submit a report to the Corporate Director of Health and Safety.

## EVACUATION SIGNALS

### **Signal**

Grasping throat with hand  
Thumbs up  
Grasping buddy's wrist  
Continuous sounding of horn

### **Meaning**

Emergency-help me.  
OK; understood.  
Leave area now.  
Emergency; leave site now.

### **Emergency Phone Numbers**

LOCAL POLICE	911
LOCAL FIRE	911
LOCAL RESCUE	911

LOCAL HOSPITAL: Mobile Infirmary Medical  
5 Mobile Infirmary Circle  
Mobile, Alabama  
Emergency Number (251) 435-2475

Branch Medical Clinic has ALS capabilities, paramedics, and ambulances (full life-support capabilities).

### **KEY PERSONNEL: Office Resources**

Aerostar Environmental Services, Inc.  
(251) 432-2664 - (251) 432-2685 Fax  
803 Government Street, Suite A  
Mobile, Alabama 36695

PRESIDENT:	<u>Dawn Blackledge, P.G.</u>
PROJECT MANAGER:	<u>Tiffany H. Whitson</u>
PROJECT DIRECTOR:	<u>Philip E. Elson</u>
FIELD TEAM LEADER	<u>Emilie A. Wien</u>
SITE SAFETY OFFICER:	<u>Emilie A. Wien</u>
CORPORATE SAFETY OFFICER:	<u>Leon Carrero</u>
EQUIPMENT OPERATOR:	<u>James Astry</u>



## SITE MAP

A copy of a local road map is included as an attachment.

### **A TOPOGRAPHIC MAP IS NOT ACCEPTABLE.**

FIGURE 1 – STREET LOCATION MAP indicating the site and adjacent roads.  
FIGURE 2 – HOSPITAL LOCATION MAP indicating the route from the site to the hospital.

#### COMMENTS:

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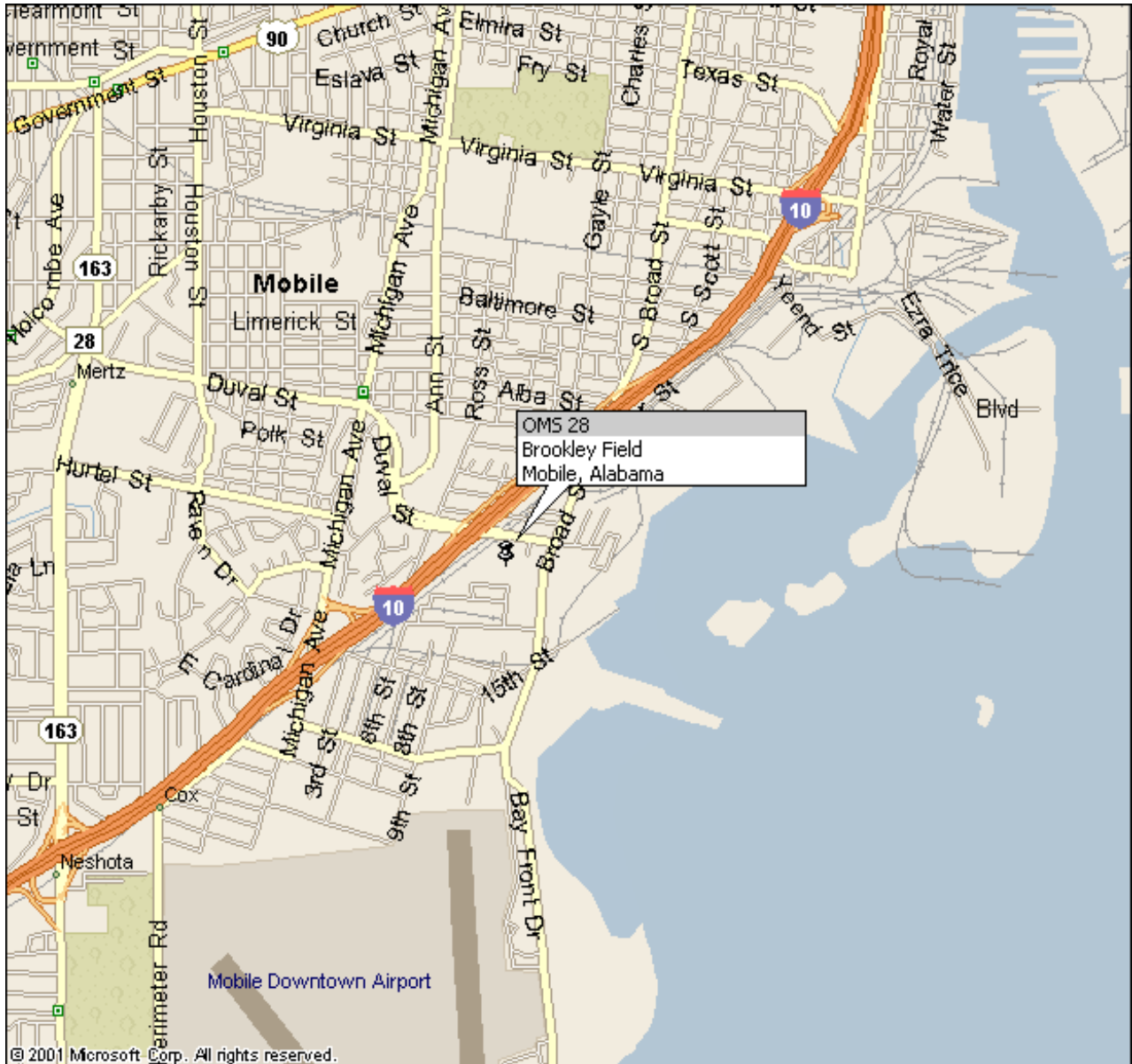


FIGURE 1 - SITE LOCATION MAP



OMS 28  
 ALABAMA NATIONAL GUARD  
 1622 SOUTH BROAD STREET  
 MOBILE, ALABAMA

DRAWN BY: EAW

REFERENCE: MAP OF  
 MOBILE, ALABAMA  
 PREPARED BY: THE  
 MICROSOFT CORP.



Driving Directions from OMS 28 to Mobile Infirmary: **Total Est. Time: 12 minutes Total Est. Distance: 4.44 miles**

- |  |            |
|--|------------|
| 1: Start out going north on South Broad St toward Duval St             | 2.3 miles  |
| 2: South Broad St becomes US-90 / US-98.                               | 0.3 miles  |
| 3: Turn left onto US-98 W / St Anthony St. Continue to follow US-98 W. | 1.5 miles  |
| 4: Turn slight right onto Mobile Infirmary Boulevard                   | 0.2 miles  |
| 5: Turn right onto Mobile Infirmary Circle                             | <0.1 miles |
| 6: End at <b>5 Mobile Infirmary Cir</b> Mobile, AL 36607-3513          |            |

**FIGURE 2 – HOSPITAL MAP**



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