

NASSAU UNIFORM SERVICES



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INTERIM REMEDIAL MEASURE WORK PLAN 525 RAY STREET FREEPORT, NEW YORK

SITE NO. 130063
NYSDEC RECORD OF DECISION

APRIL 2008
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1.0 INTRODUCTION

Nassau Uniform Services (NUS) is under a New York State Department of Environmental Conservation (NYSDEC) Order on Consent to remediate their site at 525 Ray Street, Freeport, New York (Figure 1) in accordance with the NYSDEC Record of Decision (ROD), Section 8, Summary of the Selected Remedy dated March 2007. One of the ROD elements is to implement an Interim Remedial Measure (IRM) to remove soils around an external oil/water separator impacted by volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. This work plan describes the IRM to satisfy these requirements.

2.0 SITE HISTORY AND DESCRIPTION

2.1 Site Description

The Nassau Uniform Services (NUS) site is a 0.5 acre site located at 525 Ray Street in Freeport, New York. It is bounded to the west by a man-made tidal canal, to the north by industrial properties, and to the east by residential properties. A new residential complex is currently being constructed to the northeast of the NUS site. The adjacent saltwater canal flows into Milburn Creek, which is classified as a Class SC water body. This creek flows southerly to Freeport Bay.

NUS is a uniform supply company that has operated on this site since the early 1960s. Site operations for approximately 40 years included the washing and dry cleaning of industrial clothing and rags. Tetrachloroethene (PCE) was primarily used in the dry cleaning operations in prior years and that practice has been discontinued.

2.2 Site Geology

As presented in the Remedial Action Report, dated June 22, 2006, prepared by Anson Environmental Ltd., the site's geology consists of mostly sands to four feet below grade with organic marsh deposits to approximately seven feet below grade. Underlying the organic peat layer is fine to medium and coarse-grained quartz sands with varying amounts of gravel. Fine sands, silts and traces of clays were encountered from 33 to 53 feet below grade. Prior to development, the site was believed to be part of the marsh on the eastern banks of Milburn Creek.

Groundwater is tidally influenced and ranges from five to seven feet below grade. Groundwater near the canal is brackish due to salt-water intrusion. Generally, groundwater flows to the west. The groundwater flow changes toward the south during high tide.

2.3 Historic Investigations and Remedial Actions

In March 2002, a blockage in a sewer line caused the wastewater from the laundry operations to overflow from an oil/water separator. The wastewater flowed through a gutter on the northern side of the building to a nearby stormwater catch basin on Ray Street and subsequently into nearby Milburn Creek. Waste oils and solvents were detected in the discharged water. Samples collected from the oil/water separator contained oil and solvents. As a result of the spill, contaminated sediments were removed from the oil/water separator and the nearby catch basin. This spill was assigned two NYSDEC spill numbers: 01-11674 and 01-25346. The latter spill number was assigned to the spill of the wastewater into Milburn Creek.

Several remedial actions have taken place at the NUS site. One was the excavation of three cubic yards of soil and sediment from around the oil/water separator, an area that was impacted by the 2002 spill.

Two Soil Vapor Extraction Systems (SVES) were installed in 2003. They have operated at various times to treat soil and soil vapor contamination. The SVES are currently operating.

Additionally, in 2006, a Groundwater Treatment and Extraction System (GETS) was installed to extract contaminated groundwater from three wells and treat the contaminated water in a low profile air stripping unit. The GETS are currently operating at the NUS site.

In March 2007, the NYSDEC issued the final Record of Decision for NUS. The Record of Decision included the on-going operation and maintenance of the GETS and SVES as well as excavation of soil adjacent to the oil/water separator to remove surficial and subsurface soils impacted with semi-volatile organic compounds and inorganic compounds, and other activities as needed to protect human health and the environment.

In October 2007, a fuel oil spill occurred in the NUS building. The cause of the spill was failure of a 275-gallon indoor day tank. Spill Number 0751018 was assigned to this most recent spill. Fuel oil was normally pumped from two tanks located on the first floor to the day tank, located on the third

floor. Fuel oil released due to the day tank failure spread to the first floor. Some of the fuel oil flowed out of the bay door on the northwest side of the building and along Ray Street (west) eventually flowing into the adjacent canal.

NUS retained a cleanup contractor and fuel oil was removed by vacuum truck and disposed off site in accordance with regulatory requirements. Absorbent materials were placed within the canal and within adjacent sewer-connected manholes to mitigate the release in these areas. The NYSDEC observed all cleanup activities.

3.0 WORKPLAN OBJECTIVES, SCOPE, AND RATIONALE

The IRM will be performed in conformance with the March 2007 NYSDEC ROD and January 2008 Order on Consent.

On-site activities will include the following:

- Delineating surficial soils for semi-volatile organic compounds (SVOCs) and metals
- Excavating surface and subsurface soils around the oil/water separator
- Endpoint sampling
- Transporting the soils to an approved recycling/disposal facility.

3.1 Surficial Soil Delineation

Eight surficial soil samples will be collected from 0 to 6 inches below grade surrounding the oil/water separator to delineate the aerial extent of SVOCs and metals impacts to soil surrounding the oil/water separator prior to excavation activities. The proposed boring locations are provided on Figure 3.

Surficial soil samples will be collected using a stainless steel hand auger. Soil will be placed onto plastic sheeting, screened with a photoionization detector (PID) using a 10.6 lamp calibrated to a 100 parts per million (ppm) isobutylene standard, and visual/olfactory observations will be documented. The hand auger will be cleaned with non-phosphate detergent and potable water between each surficial soil sample collected.

Surficial soil samples will be placed into laboratory-supplied glassware, immediately stored in an ice-filled cooler, and shipped with chain-of-custody documentation to Chemtech Laboratories, a NYSDOH-certified laboratory. Each soil sample will be analyzed for SVOCs by EPA method 8270 and TAL Metals EPA method 6010 and 7471. The data will be reported as category B deliverables.

3.2 Remedial Activities

3.2.1 Utilities Clearance

The geophysical survey contractor will perform a geophysical survey and utility mark-outs on the site prior to excavation. The contractor will contact 'One-Call' to perform public property utility mark-outs.

3.2.2 Excavation Procedures

The initial volume of soil to be excavated will be determined based on historical information from previous investigations, the surficial soil samples collected, and visual observations. The initial quantity of soil removed will also be based on field analytical test instrument results and visual/odor observations. The excavation area is adjacent to the north side of the building in the area of the oil/water separator. Excavation activities will be limited to the maximum depth required to protect the integrity of the building and for safe excavation activities. All soil will be stockpiled on and covered with plastic sheeting on site to prevent soil erosion and transport away from the pile.

Soil sample laboratory analysis will be expedited and compared to the NYSDEC Determination of Soil Cleanup Objectives and Cleanup Levels and 6 NYCRR Subpart 375-6 – Remedial Program Soil Cleanup Objectives Restricted Residential Use as per the March 2007 NYSDEC ROD Section 8, Summary of Selected Remedy. Excavation activities will resume until endpoint samples satisfy the March 2007 NYSDEC ROD or the maximum excavation will be limited to a depth where further excavation would compromise the integrity of the building.

3.2.3 Endpoint Sampling Procedures

GF personnel will document soil lithology and field screen soil vapor headspace in sealable plastic bags with a photoionization detector (PID) using a 10.6 lamp calibrated to a 100 parts per million (ppm) isobutylene standard throughout the excavation event. One soil samples will be collected from each of the five walls and three soil samples will be collected from the bottom of the excavated area for laboratory analysis and will be observed for physical characteristics of contamination (staining, odor, etc.) and screened with a PID.

Soil samples will be placed into laboratory-supplied glassware, immediately stored in an ice-filled cooler, and shipped with chain-of-custody documentation to Chemtech Laboratories, a NYSDOH-certified laboratory. Each soil sample will be analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260, SVOCs by EPA method 8270, and TAL Metals EPA method 6010 and 7471. The data will be reported as category B deliverables.

3.2.4 Community Air Monitoring Program

Air monitoring will be conducted in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Program (CAMP). VOCs and particulates will be monitored continuously during all excavation activities. Action levels described in the CAMP will be utilized to monitor site activities.

Monitors will be set up upgradient and downgradient of the excavation area. A photoionization detector (PID) using a 10.6 lamp to detect chlorinated VOCs will be used due to the presence of PCE impacts to the site. A particulate monitor capable of measuring particulate matter less than 10 micrometers in size and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level will be used.

All data will be logged and presented as an appendix to the IRM Summary Report.

3.3 Waste Disposal

Excavated soil will be stockpiled on plastic sheeting or placed into U.S. Department of Transportation (DOT) approved 55-gallon drums, labeled, and stored in a staging area designated by Nassau Uniform Services. Each drum will be identified by excavation location, date filled and contents. Waste will be characterized and shipped to an appropriate registered recycling/disposal facility based on the waste characterization.

3.4 Summary Report

The activities described in this Work Plan will be scheduled for completion within 45 days of NYSDEC approval. A final report will be prepared summarizing the activities and compliance with NYSDEC ROD requirements. All laboratory data, waste information and photo documentation will be provided as appendices to the report.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

The following sections outline Quality Assurance/Quality Control (QA/QC) protocols and procedures proposed to assure representative and usable data is provided from the soil sampling program described in this Work Plan.

4.1 Field Documentation

A bound field log book will be maintained to record daily activities including:

- Date,
- Start and finish times,
- Summary of work performed,
- Names of personnel present,
- Names of visitors,
- Weather conditions,
- Calibration of equipment, and
- Observations and remarks.

4.2 Photo Documentation

Photo documentation will be performed during all sampling activities using either a digital camera or film camera. The photographs may include the sample, collection activities, and surrounding areas. Photographs to document sampling locations will include two or more reference points to facilitate relocating the sampling point at a later date.

4.3 Field Custody Procedures

Sample custody during the field investigation will be completed in two phases. The first phase encompasses sample collection, packaging, and field custody procedures. The second custody

phase involves sample shipment, method of shipment, air bill numbers, and date and time documentation. Both phases of sample custody will be conducted to ensure that:

- All samples are uniquely identified,
- The correct samples are tested and traceable to their source,
- Vital sample characteristics are preserved,
- Samples are protected from loss or damage, and
- A record of sample custody and integrity is established and maintained through the entire custody process.

4.4 Sample Collection

The following table describes the soil samples to be collected:

Sample	Number of Samples	Sampling Methods	Holding Times	QA/QC Samples	Preservatives	Deliverables
Endpoint sampling	8	8260	14 days	1-Field Blank	None	Category B
		8270	7 days (40 days after extraction)	1-MS/MSD		
		6010	6 months	1-Duplicate		
		7471	6 months			

4.5 Sample Labels

All samples collected from the site must be identified with a sample label and recorded on a chain-of-custody form. Indelible ink will be used to complete sample labels, then labels will be covered with clear, plastic, waterproof tape.

Sample labels are required to include the following information:

- Site name,
- Sample number,
- Sample matrix,

- Parameters to be analyzed,
- Date of collection,
- Time of collection,
- Type of preservative, and
- Sampler's name.

4.6 Sample Numbering

A unique sample number will be used to identify a location (e.g. grid node), sample matrix (i.e. soil), a sequential number for each sample type, a sample depth, and the date and time the sample was collected. The typical format for designating the sample number will be X/XX/XXX/XX-XX where:

X = Consultant designation (i.e. GF – Gannett Fleming)

XX = Sample Matrix (i.e. SB – soil boring, GW – groundwater)

XXX = a two-digit sequential number for each sample

XX-XX = sample depth interval (in feet) from which the sample was collected (for groundwater monitoring wells, the screened interval will be used).

One trip blank, consisting of three 40-ml vials filled with analyte-free deionized water, will be provided by the laboratory for each cooler used to ship and store volatile organic samples during each sampling event. Trip blanks will be analyzed for VOCs only.

4.7 Chain-of-Custody Record

The Chain-of-Custody provides an accurate written record that can be used to trace the possession and handling of the sample from the time of collection to analysis. The Chain-of-Custody form will be completed for each sample at the time of collection and will be maintained while shipping the sample to the laboratory. The following information must be entered on the Chain-of-Custody form:

- Project number,
- Project name,

- Signature of sampler,
- Sample number,
- Date and time,
- Sample matrix,
- Parameters for analysis, and
- Remarks, as needed.

4.8 Sample Containers

Sample containers will be laboratory cleaned, pre-preserved and sealed with the appropriate documentation. Samples will be placed in an ice-filled insulated cooler to ensure a temperature of 4°C. Samples will be protected from breakage by using appropriate packing materials. If samples cannot be delivered to the laboratory on the date of sample collection, they will be shipped to the laboratory using an overnight courier.

4.9 Analytical Laboratory

Chemtech Laboratories, the analytical laboratory subcontracted to conduct the chemical analysis, must maintain current New York State Department of Health (NYSDOH) ELAP-certifications. The laboratory must adhere to the general operating procedures cited in their Laboratory Quality Assurance Manual (LQAM).

4.9.1 Analytical Methods

The laboratory conducting chemical analysis must be capable of performing the most current method revisions cited in USEPA SW-846. The instrument and method detection limits (IDLs/MDLs) must be equivalent to what is currently recognized and accepted within this industry. The laboratory analytical methods are presented in Section 4.4.

4.9.2 Laboratory Data Packages

Data packages submitted by the laboratory for the chemical analysis must include:

- Preparation and analysis methods,

- Case narratives including comments on holding times and blank contamination, a description of percent recoverables for laboratory QA samples including deviations from the established control limits, a summary of upper and lower control limits, an explanation of any biases to the data, a statement by the QA Officer or Laboratory Director verifying the data has been reviewed and is accurate, and a statement indicating the conditions of the samples upon receipt at the laboratory,
- Results of QA/QC sample analysis, including instrument blanks and method blanks results, Laboratory Control Sample (LCS) recoveries, MS/MSD recoveries, and duplicate analysis, where applicable, and
- Report all positive detections between the Reporting limit (RL) and IDL/MDLs as an estimated value.

4.10 Sample Shipment

Custody of the samples must be maintained through the shipment of samples to the laboratory. Samples will be in the custody of the sampling crew until relinquished directly to the laboratory in person or shipped via overnight courier using the following procedures:

- Place about three inches of inert cushioning material (i.e. bubble wrap) in the bottom of the cooler,
- Place and seal the sample containers in clear, reusable plastic bags and pack the containers in the cooler,
- Place suitable absorbent cushioning material around the sample containers,
- Place ice cubes into reusable plastic bags and pack the ice in the cooler; use sufficient ice to maintain 4°C until the samples arrive at the laboratory,
- Sign and retain a copy of the Chain-of-Custody form; place the form into a reusable plastic bag and pack in the cooler,
- Apply signed custody seals to the front and back of the cooler so the seals bridge the cooler and lid,
- Secure the lid by completely wrapping it with clear plastic packaging tape,
- Attach the completed shipping label to the top of the cooler; retain the shipment tracking number on the copy of the Chain-of Custody form, and

- Ship the cooler via overnight to the following laboratory:

Chemtech

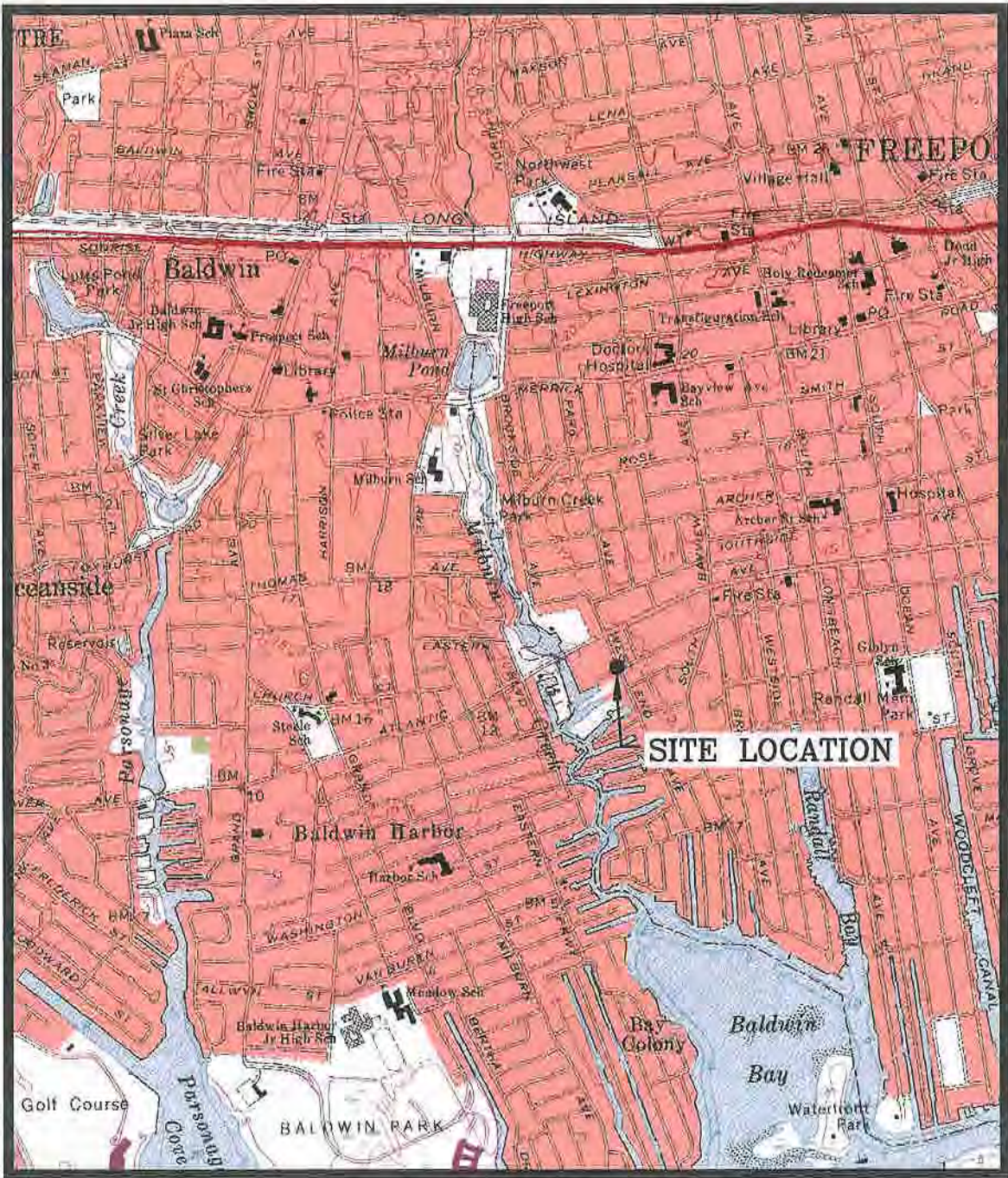
284 Sheffield Street

Mountainside, New Jersey 07092

Phone Number (908) 789-8900

FIGURES

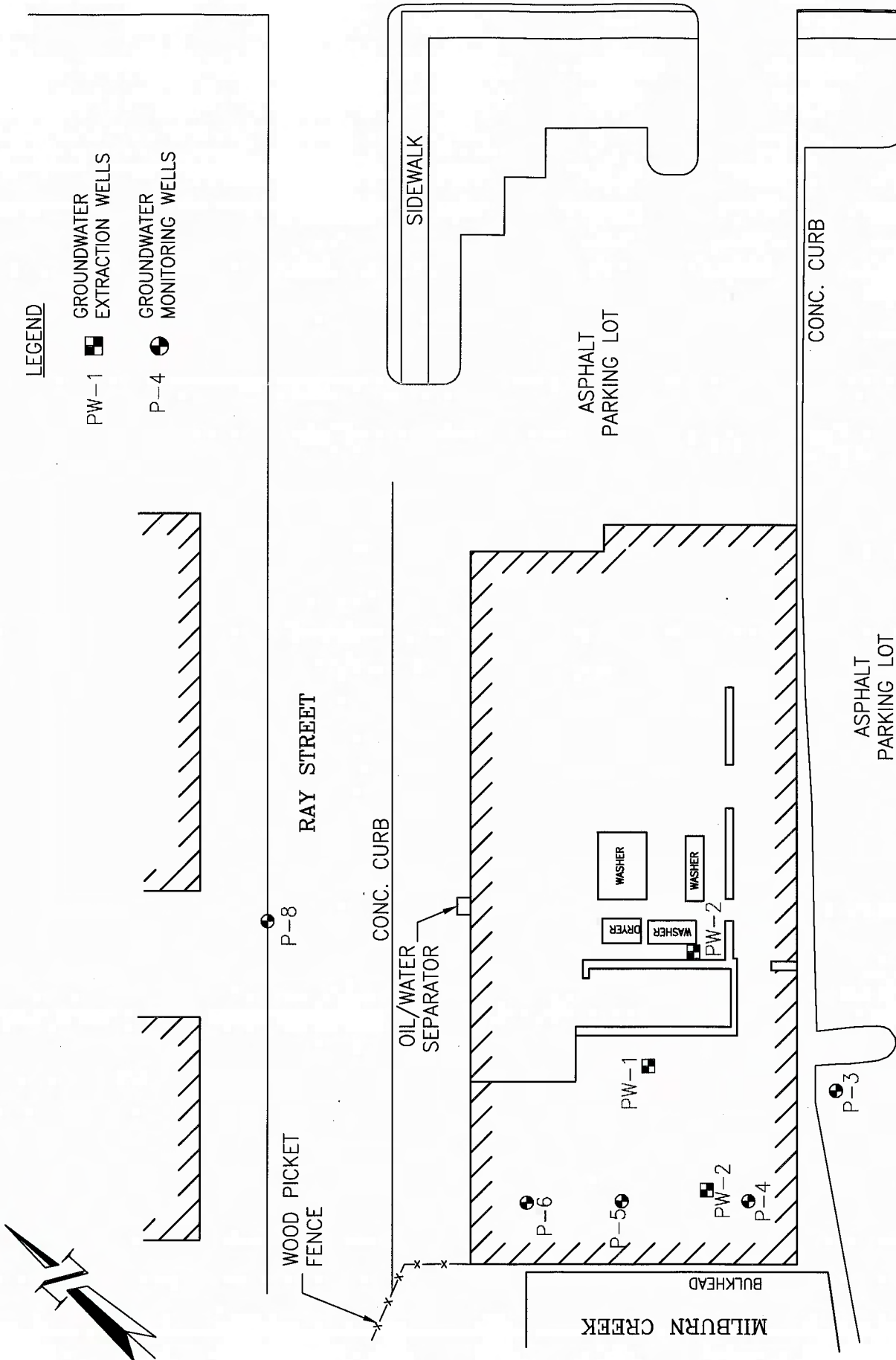
**NASSAU UNIFORM SERVICES
525 RAY STREET
FREEPORT, NEW YORK**



SCALE 1"=2000'

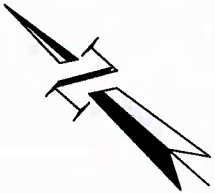
U.S.G.S. 7.5 MINUTE QUADRANGLE
FREEPORT, NEW YORK

LOCATION MAP





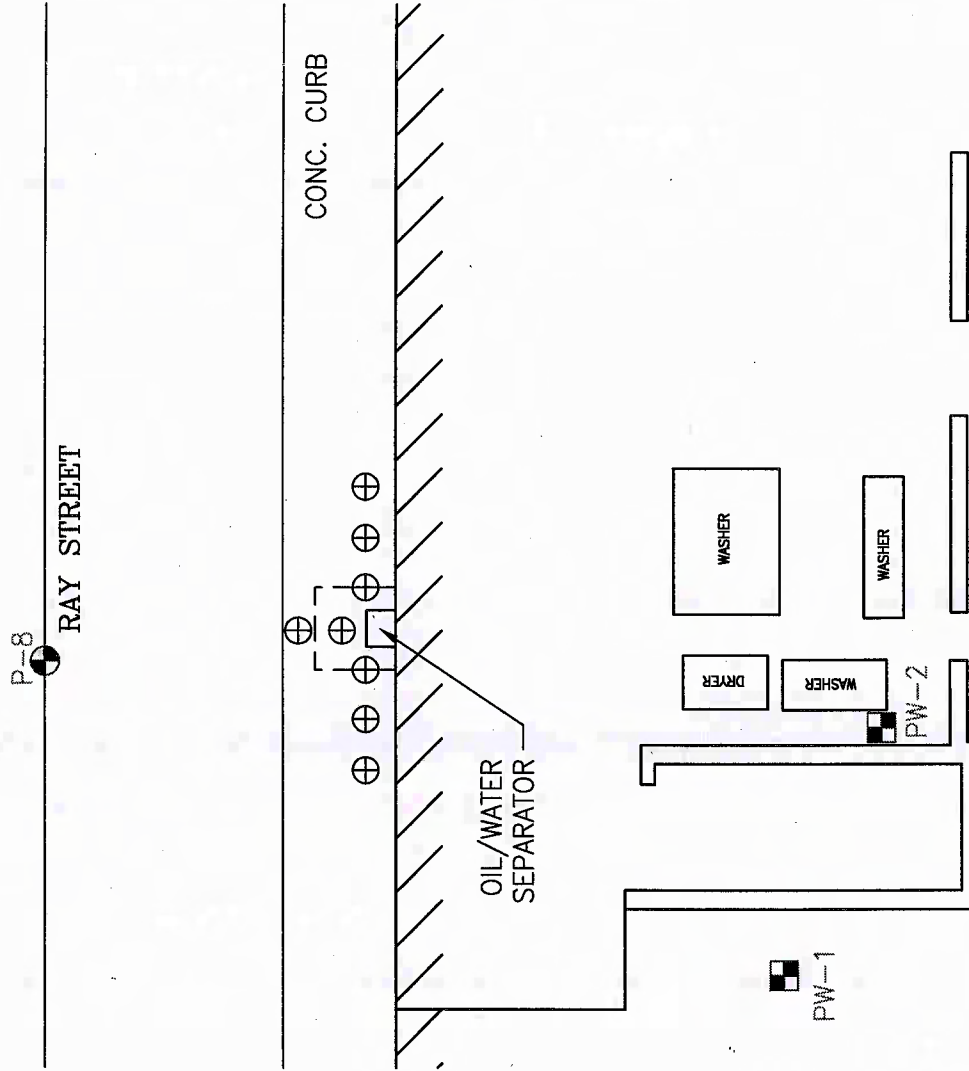
SITE PLAN
 NASSAU UNIFORM SERVICES
 525 RAY STREET
 FREEPORT, NEW YORK

NOT TO SCALE



LEGEND

- APPROXIMATE EXCAVATION LOCATION
- PW-1  EXISTING GROUNDWATER EXTRACTION WELLS
- P-8  EXISTING GROUNDWATER MONITORING WELLS
- ⊕ PROPOSED SURFICIAL SOIL SAMPLE LOCATIONS



**PROPOSED EXCAVATION LOCATION/
SURFICIAL SOIL SAMPLE LOCATION MAP**

NASSAU UNIFORM SERVICES

525 RAY STREET

FREEPORT, NEW YORK

NOT TO SCALE

APPENDIX A
HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

HEALTH AND SAFETY PLAN

**NASSAU UNIFORM SERVICES
525 RAY STREET
FREEPORT, NEW YORK**

APRIL 2008

Prepared for:

NASSAU UNIFORM SERVICES



Gannett Fleming

Prepared by:

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HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

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1.0 PROJECT HEALTH AND SAFETY POLICY

The maintenance of a safe and healthy work environment for Gannett Fleming employees is of utmost importance for the successful operation of our business. To this end, health and safety requirements must be considered fundamental to all aspects of the firm's operations.

To achieve our objectives, it is essential that our personnel be trained to follow procedures consistent with applicable safety standards. However, employees must be constantly alert to their personal obligation to comply with safe operating procedures. The continued cooperation of all our personnel is required to support and sustain an effective safety program.

Willful or consistent disregard of the safety provisions of this Health and Safety Plan (HASP) by a Gannett Fleming Engineers , P.C. (GFE) employee will subject that employee to disciplinary action, up to and including discharge.

GFE employees are required to follow the procedures specified in this HASP for applicable operations. If employees are required to engage in work activities that in their judgment would involve a threat to their personal safety, they shall immediately notify their Department Head and refrain from any exposure to the unsafe condition. The Department Head and the employee shall arrange for and verify that the unsafe condition has been eliminated or that proper safety measures are in place to protect the employee before resuming the work activity.

If employees are planning to engage in work activities that are not covered in this HASP, or if they are uncertain about the safety requirements for a specific work activity, they shall contact their Department Head before proceeding with the work. Also, if employees have any questions about the safety training requirements for their jobs or when and where to obtain safety training, they shall contact their Department Head. Any questions concerning safety procedures, safety equipment or safety training that cannot otherwise be resolved shall be referred by the Department Head to the Project Manager and Corporate Health and Safety Manager.

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2.0 SCOPE AND APPLICABILITY

This HASP is designed to provide safe procedures and practices for GFE engaged in performing site reviews, investigations and inspections at the Nassau Uniform Services, located at 525 Ray Street, Freeport, New York. This HASP will also be made available to GFE subcontractors and subconsultants as a safety reference. The requirements of Part 1910- General Industry Standards, Part 1926- Construction Standards of the Code of Federal Regulations, the New York State Department of Labor (NYDOL) regulations, and New York State Department of Transportation (NYSDOT) regulations apply to these activities. If there is a conflict, the provision more protective of employee safety and health shall apply.

The HASP is based on available information concerning possible hazards that exist, or may exist, at the project sites. If more information concerning the nature of possible health and physical hazards become available, the HASP will be modified accordingly. Modifications will be made by the GFE Site Safety and Health Supervisor (SSHS) and approved by the GFE Project Manager and GFE Health and Safety Manager. All modifications will be documented on a written memorandum by the SSHS. Additionally, a copy of this HASP shall be available for review by all personnel prior to their initial entry onto the site and be maintained on-site by the SSHS.

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3.0 KEY PERSONNEL AND RESPONSIBILITIES

This section establishes the authority and responsibility for site health and safety and lists key project personnel. Any changes in key site personnel must receive prior approval by the GFE Project Manager and Health and Safety Manager. A listing of project contacts is included as Appendix D.

Key Personnel	Title
Jessica Ferngren	Project Manager
Kimberly Simone	Site Safety & Health Supervisor
Thomas Gingrich	Corporate Safety Manager

3.1 GFE Project Manager

- Verify that health and safety provisions as defined in this HASP are implemented at the project site.
- Advise the Site Safety and Health Supervisor (SSHS) of his/her safety, health and environmental responsibilities and hold them accountable for their assigned site activities.
- Approve all changes of key site personnel.
- Design and manage site operations to minimize environmental, safety, and human health impacts and provide workplaces that control recognized safety hazards.
- Review and evaluate site performance in safety, health, and environmental protection.
- Consult with the GFE Health and Safety Manager and Corporate Safety Manager as required to resolve health and safety issues arising at the project site.

3.2 GFE Health and Safety Manager

- Assume responsibility as GFE's Safety Representative to Nassau Uniform Services.
- Designate professional staff to support site safety, health, and environmental control activities.
- Verify that personnel receive the necessary training for conducting an effective site health and safety program.
- Approve all changes of key health and safety personnel.

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- Provide consultation to the SSHS for the resolution of site health and safety issues.

3.3 GFE Site Safety and Health Supervisor

- Overall responsibility for verifying that GFE site activities are conducted in accordance with the provisions contained in this HASP.
- Provide oversight of health and safety issues that affect GFE project activities at the site.
- Advise the Project Manager on health and safety issues that affect project activities at the site.
- Verify that Personal Protective Equipment (PPE), monitoring equipment, sanitation facilities, etc., are adequate to support an effective health and safety program at the site.
- Arrange for site personnel to be informed of potential health and safety hazards associated with their assigned tasks and verify that safe work practices and procedures are instituted, including the proper wearing of PPE.
- Direct site emergency response activities with respect to GFE employees.
- Enforce health and safety provisions applicable to GFE personnel at the project site as applicable.
- The primary site duty and responsibility is to implement and direct the health and safety program at the site in accordance with the provisions contained in this HASP.
- Verify that GFE site activities are conducted in a safe manner.
- Authority to stop any operation that threatens the health or safety of GFE site personnel or the surrounding populace or has the potential for a significant adverse impact to the environment.
- Be present on-site as required during site work activities.
- Maintain a Daily Safety Log summarizing daily GFE health and safety activities, as applicable. The logbook shall include, as a minimum, the following information: instrument field calibration data (if applicable), air monitoring results (if applicable), weather conditions, names of personnel present at the site (including visitors), PPE utilized at site activities, any unusual events, accidents or breaches of procedure. The Daily Safety Log Book shall be turned over to the Project Manager at the conclusion of field activities for inclusion in the project files.
- Maintain Daily Air Monitoring Reports (if applicable) to include instrument utilized for air monitoring, instrument calibration data, air monitoring results from each work location prior to the initiation of each day's activities, periodically throughout the day and the end of each day's activities.
- Conduct initial site safety briefings and daily safety meetings for all GFE site personnel when

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on site.

- Modify the HASP as necessary as on-site activities and events change. All HASP modifications shall be presented in a written memorandum to the Project Manager and GFE Health and Safety Manager.
- Consult with the GFE Health and Safety Manager to resolve site health and safety issues.

3.4 GFE Corporate Safety Manager

- Provide employees with training, safety equipment and personal protective equipment as requested.
- Assist the Project Manager, Health & Safety Manager, and SSHS in identifying and minimizing safety and health hazards at the site.

3.5 Site Personnel

- Take reasonable precautions to prevent injury to themselves and to their fellow employees.
- Perform only those tasks that they believe they can do safely, and immediately report any accidents and/or unsafe conditions to the SSHS.
- Notify the SSHS of any special medical problems or medical restrictions and make certain that all on-site personnel are aware of any such problems.

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4.0 PROJECT BACKGROUND INFORMATION

GFE has been retained by Nassau Uniform Services to perform remediation system operation and maintenance, soil excavation, surveys, data collection, testing, groundwater sampling and install soil borings to investigate the soil, sediment, and groundwater at Nassau Uniform Services for chlorinated volatile organic compounds, semi-volatile organic compounds and metals contamination. This work will be used to evaluate the effectiveness of the existing remediation systems, quantify and delineate impacted soil/sediment, assess groundwater quality and to develop remedial alternatives and/or site monitoring.

Anticipated on-site activities include the following:

- Soil Vapor Extraction Systems/Groundwater Extraction Systems Operations and Maintenance
- Systems effluent sampling
- Modifications to the existing remediation systems
- Advancement of soil borings
- Visual inspection of the adjacent canal for surface water impacts
- Gauging existing wells to determine oil/water interface, product depth and thickness
- Sampling existing monitoring wells
- Soil excavation
- Surveying monitoring well elevations

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

5.0 HAZARD ASSESSMENT AND CONTROL

This section identifies potential physical and health hazards that may be encountered while performing site investigation tasks. Additionally, control measures are provided that will be implemented to reduce the risk associated with the identified hazards. If the nature of the project tasks change or additional hazards are identified, this section will be amended as appropriate.

5.1 Hazardous Materials

Currently the project tasks will require GFE employees to handle, or work around potential chlorinated volatile organic compounds, semi-volatile organic compounds and metals impacted material at the facilities. In the event that previously unidentified hazardous materials or site contamination is encountered during the course of site activities, the work will cease and the SSHS will notify the GFE Project Manager who will in turn notify Nassau Uniform Services.

The GFE Health and Safety Manager will ensure that personnel involved in sampling of hazardous materials and petroleum/metals impacted material have undergone Occupational Safety & Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) 40-hour training. All personnel involved in sampling will also have reviewed the GF, Inc. Standard Operating Procedure Number 1: Respiratory Protection Program (Appendix A).

Additionally, Personal Protective Equipment (PPE) appropriate to the nature and condition of the material (as determined by the inspector) will be worn by field inspectors. Minimum (Level D) PPE requirements for sampling include:

- Disposable latex gloves
- Safety glasses
- Reflective safety vest
- Safety shoes
- Hard hat

Level C PPE will be required if the concentrations and types of airborne substances are known and the criteria for using air purifying respirators are met. Level C PPE requirements will include:

- Full-face or half-mask, air purifying respirators (NIOSH approved)
- Hooded chemical resistant clothing
- Chemical-resistant outer gloves
- Chemical resistant inner gloves
- Chemical resistant outer boots
- Safety Shoes
- Reflective Safety Vest
- Hard Hat

Level B PPE will be required if the highest level of respiratory protection is necessary but a lesser level of skin protection is needed. Level B PPE requirements will include:

- Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive

HEALTH AND SAFETY PLAN NASSAU UNIFORM SERVICES

pressure supplied air respirator with escape SCBA (NIOSH approved).

- Hooded chemical-resistant clothing
- Chemical-resistant outer gloves
- Chemical resistant inner gloves
- Chemical resistant outer boots
- Safety Shoes
- Reflective Safety Vest
- Hard Hat

Level A PPE will be required if the highest level of skin, respiratory, and eye protection is required.

Level A PPE will include:

- Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).
- Totally-encapsulating chemical-resistant clothing
- Chemical-resistant outer gloves
- Chemical resistant inner gloves
- Chemical resistant outer boots
- Safety Shoes
- Reflective Safety Vest
- Hard Hat

Hazardous materials brought on-site by GFE or its subcontractors will be stored in the appropriate containers and labeled as to its contents and hazard potential in accordance with 29 CFR 1910.1200. Additionally, Material Safety Data Sheets (MSDS) will be maintained by the SSHS and reviewed with affected site personnel. Four copies of each MSDS will be sent to Nassau Uniform Services along with the anticipated quantities to be used, methods of use, storage methods and storage location prior to using the materials on-site.

5.2 Physical Hazards

The following physical hazards are anticipated during site investigation activities at each of the sites:

- Slips, trips and falls
- Eye hazards
- Heat stress/cold stress
- Severe weather
- Vehicular traffic
- Trenches and excavation
- Contaminant Exposure

5.2.1 Slips, Trips, and Falls

The potential for slips, trips and falls are posed by working on uneven and/or wet/icy walking/working surfaces. Site personnel should remain cognizant of uneven walking/working surfaces; wet snow or ice conditions, protruding and/or scattered debris or materials and stored equipment. Site personnel will be required to wear appropriate safety footwear for the facility conditions.

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5.2.2 Overhead Hazards

There is a potential for being struck by falling objects from above or bump hazards from protruding objects. Site activities that expose personnel to overhead falling objects or bump hazards shall wear ANSI-approved protective helmets and safety glasses or goggles.

5.2.3 Eye Hazards

The potential for physical and chemical injury to the eyes is inherent with site investigation work. Therefore, site personnel are required to wear ANSI-approved safety glasses with side shields or safety goggles while performing site activities.

5.2.4 Heat Stress/Cold Stress

Heat stress may occur in summer activities, and the SSHS will institute a visual monitoring program when ambient temperatures exceed 70°F. The monitoring program will consist of the following:

- Encourage the routine intake of non-caffeinated fluids
- Monitor employees for visual signs of heat-related illness symptoms
- Establish work/rest regimes in accordance with ACGIH guidelines
- Establish a “buddy system” to ensure that employees are not working alone during activities that pose a potential heat stress concern

Cold stress may occur during winter site activities. The SSHS shall be cognizant of weather conditions and remind employees to dress appropriately with adequate insulating dry clothing to maintain core body temperatures above 96.8°F when air temperatures are below 40°F. The SSHS will visually monitor GFE site workers for the symptoms of cold-related injuries. If continuous work is to be performed in the cold at air temperatures below 19.4°F, the SSHS will institute a work-warming regimen in accordance with the ACGIH guidelines.

5.2.5 Severe Weather

Exterior work will not be permitted when severe weather conditions exist. Severe weather conditions include electrical storms, tornadoes, hurricanes, floods, high winds, heavy rain or snow that creates unsuitable walking/working surfaces, and excessive heat or cold indices.

5.2.6 Vehicular Traffic

The nature of the work to be performed by GFE and subcontractor personnel may expose personnel to nearby vehicular traffic. Traffic control shall be established in accordance with the GF Engineering Company's Safety Manual for Field Operations, Section II.F, Traffic Control Standards and Guidelines (See Appendix A) and the NYSDOT Manual of Uniform Traffic Control Devices to reduce the risk of site personnel being struck by traffic.

5.2.7 Working on Elevated Structures

Work on elevated structures such as roofs, elevated catwalks, scaffolds, lift buckets, powered

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platforms or ladders more than 6 feet above the ground or floor is not anticipated as part of this work scope. Therefore, GFE personnel are not permitted to work on such elevated structures. In the event that it becomes necessary for GFE personnel to work on elevated structures the SSHS will evaluate the structure to ensure that proper protective systems i.e. guardrails, safety nets harnesses are in accordance with 29 CFR 1926.502(b, c & d) are in place.

5.2.8 Trenches and Excavation

GFE personnel will be working near open trenches or excavations greater than 4 feet in depth. The SSHS will evaluate the trench/excavation to ensure that proper protective systems (i.e., shoring, sloping, shielding) in accordance with 29 CFR 1926.652 are in place and atmospheric monitoring for oxygen, flammability and other potential hazard materials has been performed.

5.2.9 Confined Space Entry

Confined space entries by GFE personnel are not anticipated during site activities and, therefore, GFE personnel are not permitted to enter confined spaces. If entry into a confined space becomes necessary, the SSHS must modify this HASP and obtain approval from the GFE Project Manager and Health and Safety Manager prior to entry. Upon authorization, the entry may proceed with appropriately trained personnel and under procedures in accordance with the GF, Inc. Standard Operating Procedure Number 10: Confined Space Entry Program (See Appendix A).

5.2.12 Contaminant Exposure

GFE personnel may encounter areas contaminated with petroleum products, metals, solvents or other hazardous organic or inorganic substances/wastes. Exposure to such contamination may occur through inhalation, dermal contact, or ingestion. Sampling and testing of media for contaminants must be conducted in accordance with training, certification, and PPE requirements outlined in Section 5.1 of this HASP, and the medical requirements described in Section 7.0 of this HASP.

Additionally, air monitoring shall be conducted during intrusive field operations using a calibrated, photo ionization detector (PID). A PID reading of **5 part per million (ppm)** above the ambient or background measurements shall require the SSHS to evaluate the need for respiratory protection. The following procedure should be followed once this action level is exceeded:

- All work will cease within the work zone.
- A benzene detector tube will be used to determine the actual benzene concentration. The OSHA Benzene PEL (29 CFR 1910.1028) is 0.5 ppm.
- If the benzene concentration is less than 0.5 ppm and the total VOCs concentration is less than 10 ppm above ambient concentrations, work will continue.
- If the benzene concentration is less than 0.5 ppm and the total VOCs concentration is more than 10 ppm (up to 500 ppm) above ambient concentrations, a full facepiece air purifying respirator will be required for work to commence.
- If the benzene concentration is between 0.5 ppm and 25 ppm, a full facepiece air purifying respirator will be required for work to commence.
- Additionally, if the benzene concentration exceeds above 0.5 ppm with the benzene detector tubes, personal exposure monitoring, additional PPE and a compliance program will be

HEALTH AND SAFETY PLAN
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required for work to commence.

6.0 SAFETY AND HEALTH TRAINING

In accordance with 29 CFR 1910.1200, Hazard Communication, the SSHS will provide a daily initial site awareness briefing when on-site. The briefing will include a review of this HASP with particular attention to potential hazards, control measures, PPE use and limitations, and emergency response procedures. All personnel will be required to sign the Initial HASP Training Log (Appendix B).

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7.0 MEDICAL REQUIREMENTS

All GFE and subcontractor personnel involved in the site inspections and investigations and who may be required to wear a respirator shall have a current medical certification in accordance with 29 CFR 1910.134(b)(10).

7.1 Medical Treatment For Site Accidents/Incidents

Prior to the start of work at the site, the SSHS shall identify the nearest medical facility emergency room, obtain the phone number and driving directions. Additionally, the SSHS will obtain other local emergency numbers such as the police, fire, and ambulance.

The SSHS shall be informed of any site-related injury, exposure and/or medical condition resulting from activity on the site. All employees are entitled to medical evaluation and treatment in the event of a site accident or incident. If requiring medical attention, injured employees will be evacuated to nearby hospitals. Hospital directions and route maps are provided in Appendix C.

7.2 Universal Precautions

Universal Precautions shall be followed on site to minimize the risk from blood-borne pathogens. The universal precautions consist of treating all human blood and certain human body fluids as if being infectious for HIV, HBV and other blood borne pathogens. Clothing and first-aid materials, visibly contaminated with blood, will be collected by the SSHS and placed into a biohazard bag. Individuals providing first aid should wear latex gloves. If providing CPR, a one-way valve CPR device should be used).

Work areas visibly contaminated with blood or body fluids shall be cleaned up using a 1:10 dilution of household bleach.

7.3 First-Aid Kits

A first-aid kit shall be available, readily accessible and fully stocked at the site.

7.4 Accident/Incident Reports

An Accident/Incident Report (Appendix E) shall be completed by the SSHS following the provision of any first-aid treatment at the site or medical evaluation. A copy of the report shall be provided to the Project Manager and Health and Safety Manager within 24 hours. The Project Manager and the Health and Safety Manager shall be notified by telephone as soon as possible after the event.

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8.0 GENERAL SITE SAFETY REQUIREMENTS

8.1 Safe Work Practices

The following safe work practices are to be incorporated into work activities at the Nassau Uniform Services site:

- The SSHS will be on-site as required during project activities.
- On-site personnel are required to wear hard hat, safety glasses, reflective vest and safety shoes during all project site activities.
- Medical monitoring, respiratory fit test, and training documentation information, as needed, will be kept on file by the SSHS.
- Ground Fault Interrupt (GFI) circuits shall be used for cord and plug equipment in areas where water may be encountered.
- No open flames, fires, or portable kerosene or propane space heaters are permitted on site or within project trailers.
- On-site personnel required to wear respiratory protection devices are not allowed to have facial hair that interferes with a satisfactory fit of the respirator-to-face seal.
- All site personnel must have a respiratory fit test certificate issued within the past six months prior to the use of respiratory protection.
- Adequate quantities of potable drinking water will be available.
- Hazardous Materials brought on site shall be labeled in accordance with 29 CFR 1910.1200 and stored in accordance with 29 CFR 1910.106.
- Compressed gas cylinders brought on-site shall be stored in a designated location, upright, with valve caps secured in place and in secure racks or chained securely to a wall.
- No firearms or knives (except self-retracting utility knives required for work tasks) will be permitted on-site.

8.2 Housekeeping Requirements

In accordance with 29 CFR 1910.141 and 29 CFR 1926.25 work areas (as applicable) should be kept in a neat and orderly condition. Work areas should be kept dry and free of obstacles or protrusions.

8.3 Posting

In accordance with 29 CFR 1903.2, the OSHA poster, informing employees of the protection and

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obligations provided for in the OSHA Act, shall be available, as applicable.

Emergency phone numbers and directions to the designated site hospitals (Appendix C) will be maintained in this HASP document. Copies of this HASP will be available to site personnel and at least one copy will be on-site at all times during field activities.

8.4 Material Safety Data Sheets

Copies of MSDS for all chemical materials brought on site (if any) will be maintained on site by the SSHS.

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9.0 EMERGENCY RESPONSE

9.1 Emergency Contacts

The following organizations are to be contacted for the provision of emergency services:

Agency	Telephone
Police Department	911
Fire Department	911
Poison Control	(800) 222-1222
Project Manager Jessica Ferngren	(516) 671-8440 ext.1319 (office) (516) 669-1504 (cell)
Insurance Manager Craig Campbell	(717) 763-7211, ext. 2794
Corporate Safety Manager Thomas Gingrich	(717) 763-7211, ext. 2087 (717) 545-0454 (residence)

9.2 Emergency Signal for Site Operations

Prior to start of work at a specific site, the SSHS shall designate an assembly location, preferably uphill and upwind of the work area.

Verbal communications between personnel shall be used to signal on-site GFE personnel to safely discontinue work and immediately leave their location and meet at the pre-designated assembly location.

9.3 Emergency Standard Operating Procedures

The following standard operating procedures are to be implemented by on-site personnel in the event of an emergency. The SSHS shall be notified and shall conduct response actions. Upon notification of a personnel injury, the designated emergency signal shall be sounded. All personnel are to terminate their work activities. The SSHS, if necessary, shall notify the ambulance service and hospital emergency room of the situation. If the injury is minor, but requires medical attention, the SSHS shall transport the victim to the hospital by an on-site vehicle. The SSHS shall accompany the victim to the hospital and provide assistance in describing the circumstances of the accident to the attending physician.

Upon notification of an equipment failure or accident, the SSHS shall determine the effect of the failure or accident on-site operations. If the failure or accident affects the safety of personnel or prevents completion of the scheduled operations, all work shall be stopped until the situation is

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evaluated and appropriate actions taken.

Upon notification of a natural disaster such as tornadoes, high winds, floods, thunderstorms or earthquakes, all work activities are to be terminated by the SSHS and all personnel are to evacuate the area.

Upon discovery of previously unidentified hazardous materials or contamination, the SSHS should evacuate the work area and contact the Project Manager.

9.4 Emergency Response Follow-Up Actions

Following activation of the Emergency Response Plan, the SSHS shall notify the Project Manager by telephone and the following individuals as appropriate: Insurance Manager, Safety Manager, and the Health and Safety Manager. The SSHS shall submit a written report documenting the incident within one working day.

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APPENDIX A

Gannett Fleming Corporate Safety Manual for Field Operations

SAFETY MANUAL #

I Acknowledge that a copy of Gannett Fleming's "Safety Manual for Field Operations" has been issued to me for my use.

Name _____
(Please Print)

Employee No. _____

Signature _____

Date _____

SAFETY MANUAL
FOR
FIELD OPERATIONS

GANNETT FLEMING
ENGINEERING COMPANIES

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INTRODUCTION

This manual has been developed by Gannett Fleming for use by Gannett Fleming Engineering Companies' employees. It is not intended to be used by any client or subcontractor of the Gannett Fleming Engineering Companies.

INTENT AND USE OF MANUAL

The maintenance of a safe and healthy working environment for our employees is of the utmost importance for the successful operation of our business. To this end, safety requirements must be considered fundamental to all aspects of the firm's operations.

To achieve our objectives, it is essential that our personnel be trained to follow procedures consistent with applicable safety standards. However, employees must be constantly alert to their personal obligation to comply with safe operating procedures. The continued cooperation of all our personnel is required to support and sustain an effective safety program.

Willful or consistent disregard of the safety provisions of this manual by any Gannett Fleming employee will subject that employee to disciplinary action, up to and including discharge.

This manual is not intended to be all inclusive or to address all health and safety issues. The health and safety procedures of this manual are intended only for the applications cited herein. In addition, they may require supplementation with Standard Operating Procedures or site specific health and safety plans more specific to the nature of the work being performed.

Gannett Fleming employees are required to follow the procedures specified in this manual for applicable company field operations. If employees are required to engage in work

activities that in their judgment would involve a threat to their personal safety, they shall immediately notify their supervisor and refrain from any exposure to the unsafe condition. The supervisor and the employee shall arrange for and verify that the unsafe condition has been eliminated or that proper safety measures are in place to protect the employee before resuming the work activity.

If employees are planning to engage in work activities that are not covered in this manual, or if they are uncertain about the safety requirements for a specific work activity, they shall contact their supervisor before proceeding with the work. Also, if employees have any questions about the safety training requirements for their jobs or when and where to obtain safety training, they shall contact their Supervisor. Any questions concerning safety procedures, safety equipment or safety training that cannot otherwise be resolved shall be referred by the Supervisor to the Safety Manager.

Modification of the procedures contained in this manual can be made on a case by case basis only after consulting with and obtaining the written approval of the Safety Manager. Questions concerning the implementation of this manual should be directed to the Safety Manager.

PART I
DEFINITIONS

DEFINITIONS

The terms defined herein shall, for all purposes of this Safety Manual for Field Operations, have the meanings herein specified, unless the context clearly indicates otherwise:

APPROVED	-	In reference to a code, standard, device, or item of equipment, one that is sanctioned, endorsed, accredited, certified, listed, labeled, or accepted by a duly constituted and nationally recognized authority or agency as satisfactory for use in a specified manner.
ATTENDANT	-	A person who is assigned as standby to monitor a confined space process or operation and provide support or react as required.
AUTHORIZED - EMPLOYEE		A Gannett Fleming employee designated or assigned by his supervisor to perform a specific type of duty or duties, to use specified equipment or vehicles, and/or to be present in a given location at specified times.

DEFINITIONS

(continued)

**AUTHORIZED -
REPRESENTATIVE**

A person, other than a Gannett Fleming employee, who has been designated by his Supervisor, company, or agency to act on its behalf on specified matters.

BLINDING

- Inserting a solid barrier across the open end of a pipe leading into or out of the confined space, and securing the barrier in such a way to prevent leaking of material into the confined space.

**CATENARY
SYSTEM**

- A system of suspended cables attached at fixed points, implied herein as high tension electric cables.

**COMBUSTIBLE
GAS INDICATOR**

- An instrument which samples air and indicates (a) whether there is an explosive mixture present, and (b) the percentage of the lower explosive limit of the air-gas mixture that has been reached.

DEFINITIONS

(continued)

CONFINED SPACE

- An enclosed area that has the following characteristics:
 - ? its primary function is something other than human occupancy,
 - ? has restricted entry and exit,
 - ? may contain potential or known hazards.

Examples of confined space include, but are not limited to: tanks, silos, vessels, pits, vaults, pipelines, ducts, manholes, sewers, septic tanks, tunnels, caves, drainage pipes, culverts, caissons, cut and cover excavations, sinkholes, open topped space more than four feet deep, such as pits and trenches, or a chlorine room when a leak is suspected. Tanks and other structures under construction may be considered confined spaces until completely closed.

DEFINITIONS

(continued)

CPR	-	Cardiopulmonary Resuscitation
DOUBLE BLOCK AND BLEED	-	A method used to isolate a confined space from a line, duct or pipe by physically closing two in-line valves on a piping system, and opening a "vented-to-atmosphere" valve between them.
ENGULFMENT	-	The surrounding, capturing, or both, of a person by divided particulate matter or liquid.
ENTRY	-	Ingress by persons into a confined space which occurs upon breaking the plane of the confined space portal with his/her face; and all periods of time in which the confined space is occupied.
EQUIPMENT CENTER MANAGER	-	The person in charge of any Gannett Fleming equipment center or equipment dispensing.

DEFINITIONS

(continued)

FIRE EXTINGUISHER

- A device having characteristics essential for extinguishing flame. Fire extinguishers may contain liquid, dry chemicals, or gases. They are tested and rated to indicate their ability to handle specific classes and sizes of fires, as follows:
 - ? Class A Extinguishers – for ordinary combustibles, such as wood, paper and textiles, where a quenching/cooling effect is required.
 - ? Class B Extinguishers - for flammable liquid and gas fires, such as oil, gasoline, paint, and grease, where oxygen exclusion or a flame interruption effect is essential.
 - ? Class C Extinguishers - for fires involving energized electrical

DEFINITIONS

(continued)

wiring and equipment, where the non-conductivity of the extinguishing agent is of prime importance.

? Class D Extinguishers - for fires in combustible metals such as magnesium, potassium, powdered aluminum, zinc, sodium, titanium, zirconium, and lithium.

FLAMMABILITY - Property of a substance referring to its ability to be easily ignited or to burn.

FLAMMABLE - Said of any substance that is easily ignited, burns intensely, or has a rapid rate of flame spread.

HARD HAT - An approved metal or plastic helmet worn by a worker to provide head protection when the worker is subject to the hazard of falling or moving objects.

DEFINITIONS

(continued)

HAZARDOUS ATMOSPHERE	-	An atmosphere that may be or is injurious to occupants by reason of: oxygen deficiency or enrichment; flammability or explosivity; or toxicity.
INSURANCE MANAGER	-	The Gannett Fleming employee who is responsible for insurance matters for the company.
LANYARD	-	A flexible line to secure a worker wearing a safety belt or harness to a drop line, lifeline, or fixed anchorage.
LIFELINE	-	A horizontal line between two fixed-anchorage, independent of the work surface, to which a lanyard is secured either by tying off or by means of a suitable sliding connection.
LOCKOUT/ TAGOUT	-	The placement of a lock/tag on the energy isolating device in accordance with an established

DEFINITIONS

(continued)

procedure, indicating that the energy isolating device shall not be operated until removal of the lock/tag in accordance with an established procedure. (The term "lockout/tagout" allows the use of a lockout device, a tag, or a combination of both.)

LOWER
EXPLOSIVE
LEVEL

- Minimum or least concentration of gas or vapor in air below which a substance will not burn or explode.

LOWER
FLAMMABLE
LEVEL

- Minimum or least concentration of gas or vapor in air below which a substance will not burn.

MSHA

- Mine Safety and Health Administration, an agency of the Federal government.

NON-PERMIT
CONFINED SPACE
(NPCS)

- A space which, by configuration, meets the definition of a confined space but which after evaluation is found to have little potential for generation of hazards or has the hazards

DEFINITIONS

(continued)

		eliminated by engineering controls.
OCCUPATIONAL ILLNESS	-	A physical ailment or injury incurred as a direct result of exposure to a work environment.
OSHA	-	Occupational Safety and Health Administration, an agency of the Federal government.
PERMIT REQUIRED CONFINED SPACE (PERMIT SPACE) (PS)	-	A confined space which after evaluation has actual or potential hazards which have been determined to require written authorization for entry.
PERSONAL PROTECTIVE EQUIPMENT	-	Equipment and/or clothing worn by an individual to prevent illness or injury.
PROTECTIVE CLOTHING	-	Clothing worn to protect a worker from exposure to or contact with harmful substances.

DEFINITIONS

(continued)

QUALIFIED PERSON	-	A person who by reason of training, education and experience is knowledgeable in the operation to be performed and is competent to judge the hazards involved.
RESPIRATOR	-	A protective device for the human respiratory system designed to protect the wearer from inhaling contaminated air.
SAFETY BELT	-	A device usually worn around the waste which, by reason of its attachment to a lanyard and lifeline or a structure, will prevent a worker from falling.
SAFETY MANAGER	-	A person trained in safety and having specific authority to direct the safety program of the company.
SHALL	-	Denotes a mandatory requirement.

DEFINITIONS

(continued)

SHOULD	-	A recommendation that is a sound safety and health practice; it does not denote a mandatory requirement.
SUPERVISOR	-	Person in responsible charge of a group of workers or a work activity.
THIRD RAIL	-	An exposed or partially exposed electrified conductor, adjacent to a railroad track, used to provide electric power to a locomotive.
TOXIC GASES -		Gases which are poisonous or which reduce the oxygen content of an atmosphere below safe levels for human occupancy.
TOXICITY	-	A measure of the poisonous nature of a substance, such as gases or liquids.

PART II

GENERAL REQUIREMENTS

II.A. ACCIDENTS

1.0 PURPOSE:

To establish procedures for seeking medical attention and reporting of job related accidents, injuries and occupational illnesses.

2.0 SCOPE:

Applies to all Gannett Fleming employees.

3.0 RESPONSIBILITIES:

Employee - To report and seek medical attention for all job related accidents or occupational illnesses.

Supervisor - To supply emergency information for field offices; to complete or require the completion of the "Employer's Report of Occupational Injury or Disease" form and send it to the company Insurance Manager; to immediately notify the Safety Manager of employee fatality; to correct or arrange for the correction of deficiencies that were determined to contribute to or cause an injury.

Safety Manager - To investigate accidents, injuries and occupational illnesses; to identify deficiencies; to prepare appropriate reports for governmental agencies, insurance and internal purposes.

II.A. ACCIDENTS

(continued)

4.0 PROCEDURES:

- 4.1 Emergency telephone numbers such as physician, hospital, ambulance, fire and police departments and utility companies shall be posted at field offices.
- 4.2 All accidents, however minor, should be reported to the immediate supervisor.
- 4.3 For injuries such as minor cuts and bruises, employees should seek treatment from an individual trained in first aid. For all other injuries, if the injury is not so severe as to prevent the moving of the employee, the employee should be transported to the nearest medical facility, hospital or physician. If the injury is of a severe nature as to prevent the moving of the employee or if unsure of the severity of the injury, the hospital emergency care telephone number or ambulance service telephone number shall be called and an ambulance requested. The caller shall be prepared to give the location, phone number being called from, number of people injured and nature of injuries. The caller shall stay on the line until party called hangs up.

II.B. CONFINED SPACE ENTRY

1.0 PURPOSE:

To establish procedures for safe work practice to be utilized when engaged in work activities that may involve confined space entry.

2.0 SCOPE:

2.1 Provides minimum safety requirements to be followed by Gannett Fleming employees while entering, exiting and working in confined spaces.

2.2 Although this section describes specific safety steps to be taken for entry into confined spaces, it is not intended to preclude the use of any additional measures that may be deemed necessary for a particular situation.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to obtain a confined space entry permit when required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

II.B. CONFINED SPACE ENTRY

(continued)

Supervisor - To arrange employee safety training pertinent to the job, including confined space entry; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager identification and entry procedures; to assist employees if assistance is needed to identify and minimize work site safety hazards; to advise Employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - To train employees in the identification of and entry into confined spaces; to provide employees with safety equipment and personal protective equipment; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

Entry Supervisor – Know the hazards that may be faced during the confined space entry. Verify that the permit has been completed prior to entry. Terminate the entry and cancel the permit if any of the required provisions of the permit are not met or if additional hazards which affect the safety of the entrants become apparent. Advise the designated rescue service of the entry and confirm that they are available to respond to an emergency. Enforce the removal of unauthorized persons who enter or attempt to enter the confined space. Be responsible for the adherence to procedures to insure that all operations remain consistent with the terms of the entry permit and that entry conditions remain acceptable.

II.B. CONFINED SPACE ENTRY

(continued)

4.0 CONFINED SPACE CLASSIFICATIONS (PERMIT SPACE):

4.1 A Permit Required Confined Space (PS) is an enclosed space which has all of the following characteristics:

? Is large enough and so configured that an employee can bodily enter and perform assigned work;

? Has limited or restricted means for entry or exit (some examples are tanks, vessels, silos, manholes, storage bins, hoppers, vaults, pits, and diked areas);

? Is not designed for continuous employee occupancy; and

? Has one or more of the following characteristics:

- Contains or has a known potential to contain a hazardous atmosphere;
- Contains a material with the potential to engulf an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging

II.B. CONFINED SPACE ENTRY (continued)

walls, or a floor which slopes downward and tapers to a smaller cross section;

- Has an energy hazard which can involve contact with electrical equipment, steam or other sources of heat inside the space. This type of equipment can include shafts, augers, mixers or impellers; or
- Contains any other known serious safety or health hazard.

4.2 A Non-Permit Confined Space (NPCS) is an enclosed space which does not meet the PS definition. If there is any doubt whether or not a confined space may be classified as an NPCS, the employee should request a determination by the Supervisor or Safety Manager.

5.0 GENERAL PROCEDURES

5.1 Hazards shall be identified for each confined space. The hazard identification process shall include, but not be limited to, a review of the past and current uses of the confined space, which may adversely effect the atmosphere of the confined space. This information shall be used to determine testing requirements prior to entry.

II.B. CONFINED SPACE ENTRY

(continued)

- 5.2 Review the means of entry and exit into the confined space and the hazards posed by adjacent spaces and operations.
- 5.3 Field personnel working in or around confined spaces shall have a working knowledge and understanding of the hazards that may exist.
- 5.4 Before entry into a confined space, testing shall be conducted for a hazardous atmosphere by a competent team member who has been trained in proper testing techniques. The equipment used must be calibrated to the manufacturers specifications. At a minimum, testing must monitor oxygen levels, combustible gases, vapors and any toxic materials which are known to exist in the space. Testing needs to be done prior to entry to assess the conditions and while the space is occupied. The air outside the space should be tested to detect hazards that may affect persons remaining outside the space.

The confined space shall not be entered unless confined space atmosphere testing results are within the following acceptable limits:

II.B. CONFINED SPACE ENTRY

(continued)

- ? Test for gases in the correct order. Always test for oxygen first. Oxygen content should be between 19.5% and 23%. If the oxygen level is low, other meter readings, such as flammables and toxics, may not be accurate.
- ? Test for flammability shall be less than 10% of Lower Explosive Level (LEL) or Lower Flammable Level (LFL).
- ? Test for toxicity shall be less than recognized exposure limits for each monitored substance.

Test the air at several levels in the space. Some gases may be present only at the bottom, others only at the top. Testing at lower, middle and upper levels of space will detect these differences. Sometimes it is necessary to enter the space to test corners or behind equipment. If entry into the space for testing is required, the tester must wear appropriate respiratory protection equipment.

Initial testing of atmospheric conditions and subsequent testing after a job has been stopped for a significant period of time shall be done with ventilation systems shut down. Further testing shall be conducted with ventilation system turned on to verify that the contaminants are removed and the ventilation system is not itself causing a

II.B. CONFINED SPACE ENTRY

(continued)

hazardous condition. If the confined space is vacated for any significant period of time, the atmosphere of the confined space shall be retested before re-entry is permitted.

- 5.5 Whenever testing of the atmosphere indicates that levels of oxygen, flammability, or toxicity are not within acceptable limits, entry shall be prohibited. If the source of the contaminant cannot be determined, precautions shall be adequate to deal with the worst possible condition that the contaminant could present in the confined space.
- 5.6 Based on the evaluation of the confined space hazards, a qualified person shall classify the confined space as either a PS or an NPCS.
- 5.7 Personal protective equipment shall be worn as needed for safe entry and occupancy of the confined space. Personal protective equipment includes but is not limited to: approved respirator, hard hat, safety goggles or safety glasses, safety shoes, gloves and chemical protective clothing. Personal safety equipment is not an adequate substitute for safe working conditions, adequate ventilation or safe working practices.

II.B. CONFINED SPACE ENTRY

(continued)

- 5.8 Approved low-voltage electrical equipment must be used where the atmosphere in the confined area may contain flammable vapors or where the atmosphere could contain solvent vapors within their flammable limits. All electrical outlets and circuits used to energize such equipment shall be equipped with ground-fault interrupters.
- 5.9 If initial air monitoring indicates the presence of flow oxygen levels or high toxic levels, forced ventilation into the space using adequately sized equipment should be provided. The most effective method of ventilation involves placing an air hose far enough into the space to force the air to the bottom. The air will eventually be vented through an opening in the space.

If the entrant is welding inside the space, it will be more efficient to capture the contaminants at the point of generation and carry them out of the space via flexible piping. If this method is chosen be sure that the exit point is far enough outside the space to keep contaminants from being drawn back down into the space.

If any work is being done outside, be aware of environmental factors such as the direction the wind is blowing. Vent exhaust contaminants downwind from the space. If air is being vented into the space using outside air, be sure the air is taken upwind from any airborne contaminants.

6.0 PERMIT SPACE PROCEDURES

6.1 A confined space entry permit shall be prepared by the entry supervisor for all Permit Space entries. This document shall include as a minimum the following information:

1. Name and location of the space to be entered
2. Purpose of entry
3. When the entry will be performed including the date and the authorized duration of entry
4. Who will be entering the space
5. Who will be serving as attendants
6. Who is authorizing the entry into the space
7. The hazards anticipated inside the space
8. How the space will be made safe for entry including:
 - ? lockout and tagout procedures

II.B. CONFINED SPACE ENTRY

(continued)

- ? emptying, cleaning or purging the space
 - ? disconnecting process supply lines
 - ? insertion of blanks into supply lines
9. The acceptable conditions inside the space prior to the entry such as:
- ? acceptable oxygen level
 - ? acceptable levels of airborne toxic materials
 - ? acceptable levels of flammable vapors
10. The equipment needed to control the hazards existing in the space and the equipment needed to respond to an emergency situation:
- ? personal protective equipment
 - ? testing equipment
 - ? communication equipment
 - ? rescue equipment

II.B. CONFINED SPACE ENTRY

(continued)

11. Initial, periodic or continuous monitoring of conditions inside the space. Include the name or initials of the person who performed the tests and the times and date the tests were completed
12. The person who will initiate the rescue procedures and the team that will be called to perform the rescue in an emergency situation
13. Procedures entrants and attendants will follow
14. Additional required permits (e.g., Hot Work Permits) needed to safely perform work inside the space.

Each permit is valid for not more than one work shift.

- 6.2 A sample PS permit is provided in Appendix B. Each Gannett Fleming division or section may develop a permit form which best meets its needs. However, the form must be approved by the Corporate Safety Manager prior to use.
- 6.3 An attendant trained for confined space entry shall be stationed outside any PS. It is important that communication be maintained between team

II.B. CONFINED SPACE ENTRY

(continued)

members. If problems arise, the attendant must be able to order the entrants out of the space, or the entrants must be able to summon for help. The entrants and the attendants can maintain visual and voice contact. If the entrants are out of visual range, portable electronic communication equipment can be used. The attendant shall provide standby assistance to occupants entering the confined space, direct occupants to exit the confined space when irregularities are observed, initiate evacuation and emergency procedures, monitor conditions or changes that could adversely affect the entry and remain at the point unless relieved by another attendant.

- 6.4 All energy sources that are potentially hazardous to confined space entrants shall be secured, relieved, disconnected and/or restrained before personnel are permitted to enter the confined space. Precautions shall be used to prevent flammable, toxic, irritating or oxygen displacing gases and vapors from entering the space. All hazardous material piping, high pressure piping, high temperature piping and other piping that could induce a hazard shall be isolated by utilizing blinding, disconnection, removal or double block and bleed as needed to prevent entry of material and hazardous contaminants.

II.B. CONFINED SPACE ENTRY

(continued)

- 6.5 Procedures and equipment necessary to rescue entrants from a PS must be provided. In PS having a restricted means of access (such as a sewer manhole), any person entering the confined space must be fitted with a safety harness and lifeline. The lifeline should be secured outside the entrance. Where entry into a vessel, manhole, or other confined space must be made through a top opening, an approved hoisting device or other effective means must be provided to lift employee out of space. Ladders must be in place for entrances and exits where the drop or climb involves a depth of more than 3 feet.
- 6.6 Continuous monitoring of the PS atmosphere is required during occupancy.

7.0 NPCS PROCEDURES

- 7.1 When a qualified person determines atmospheric test results are within acceptable limits (Oxygen - 19.5 % to 23.5%; Flammability - less than 10% of the lower explosive limit or lower flammable limit, and toxicity less than recognized exposure limits) and there is no known potential for generation of hazards, a confined space permit will not be required.

II.B. CONFINED SPACE ENTRY

(continued)

- 7.2 A qualified person shall determine the need for periodic testing and re-evaluation of the hazards based on possible changes in activities in the space, or other physical or environmental conditions which could adversely affect the space and change the classification.
- 7.3 Continuous monitoring of the NPCS atmosphere is not required during occupancy.

II.C. ELECTRICAL HAZARDS

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized when engaged in work activities that may involve electrical hazards.

2.0 SCOPE:

Applies to all Gannett Fleming personnel in work activities that may involve electrical hazards.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange employee safety training pertinent to the job; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise Employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

II.C. ELECTRICAL HAZARDS

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, liquids, or other causes.
- 4.4 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.

II.C. ELECTRICAL HAZARDS

(continued)

- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.6 Gloves shall be worn when hand protection is required.
- 4.7 Employees are expected to utilize proper judgment in their personal habits. When they report to work they must be in a condition fit to meet daily responsibilities.
- 4.8 Except where the electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers have been erected to prevent physical contact with the lines, employees shall maintain clearances under, over, by, or near power in accordance with the following:
 - (1) For lines rated 50 kv and below, minimum clearance between the lines and any part of the body shall be 10 feet

II.C. ELECTRICAL HAZARDS

(continued)

plus 0.4 inches for each 1 kv or twice the length of the line insulator, but never less than 10 feet.

- 4.9 Before starting operations near electrical lines, the owner of the lines or his authorized representative shall be notified of the work and shall be provided information about the nature of the work. The Supervisor shall ascertain the electrical line owner's requirements pertaining to the type of work being performed and shall seek the electrical line owner's cooperation in minimizing potential electrical hazards to workers.
- 4.10 Any electrical line or wire shall be considered to be an energized line until the owner of the line or his authorized representative confirms that it is de-energized. Electrical equipment shall be considered energized until determined to be de-energized by test or other appropriate methods or means.
- 4.11 If portable ladders are used, they shall be at such a pitch that the horizontal distance from the top support to the foot of the ladder is about 1/4 of the working length of the ladder. The side rails shall extend not less than 36 inches above the

II.C. ELECTRICAL HAZARDS

(continued)

landing. They shall be tied and blocked, or otherwise secured, to prevent their being displaced. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors. Ladders shall not be used in a horizontal position as platforms or scaffolds. The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited.

- 4.12 Operating voltage of equipment and lines shall be determined before working on or near energized parts.
- 4.13 Guards or barriers shall be erected as necessary adjacent to all energized equipment or lines to prevent accidental contact when such equipment or lines cannot be de-energized. Where appropriate, signs indicating the hazard shall be posted near the barricade or barrier.
- 4.14 Measuring tapes or measuring ropes that are metal or contain conductive strands shall not be used when working on or near energized equipment.

II.C. ELECTRICAL HAZARDS

(continued)

- 4.15 Appropriate warning signs shall be placed near the opening when covers of electrical manholes, handholes or vaults are removed.
- 4.16 Before an employee enters an electrical manhole, handhole or vault, it shall be protected with a barrier, temporary cover, or other suitable guard.
- 4.17 Electrical manholes, handholes, and unvented vaults are confined spaces. Entry into these spaces shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.18 Safety switches or circuit breakers shall not be operated without the consent and approval of the Owner or his authorized representative.
- 4.19 Panelboard covers shall not be removed and/or associated wiring disturbed unless assisted and approved by the Owner or his authorized representative.
- 4.20 Employees shall not open, internally inspect, or work on any energized electrical control panel, unless such work is required for the employee's performance of a specific work assignment, the

II.C. ELECTRICAL HAZARDS

(continued)

employee has authorization from his supervisor, and the employee is accompanied by facility maintenance personnel. When opening, internally inspecting, or working on any energized electrical control panel, precautions shall be taken to prevent accidental operation of relays or other electrical devices due to jarring or vibration.

4.21 Employees shall not enter energized electrical substations, unless entry is required for the employee's performance of a specific work assignment and the employee has been authorized by his supervisor to enter. Prior to entering an energized electrical substation, the employee shall:

- ? Obtain authorization from the Owner or his authorized representative.
- ? Determine which facilities are energized.
- ? Determine what protective equipment and precautions are required and implement them.
- ? Comply with "Confined Space Entry Procedures" if the space to be entered is a confined space.

II.D. BOATING SAFETY

1.0 PURPOSE:

To establish procedures for safe boating practices to be utilized when work is done from a boat.

2.0 SCOPE:

Applies to all Gannett Fleming employees when using a boat in their work activities.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

II.D. BOATING SAFETY

(continued)

Safety Manager - To provide field employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR first aid and safety training appropriate for the job.
- 4.2 Employees are expected to utilize proper judgement in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.3 Boats shall be equipped with Coast Guard approved personal flotation devices for each passenger. In addition, power boats shall be equipped with Coast Guard approved navigation lights, stern light and a horn capable of producing a 4 second blast audible for ½ mile. Additional equipment is determined by the length of the boat.
- 4.4 The law prohibits the throwing, discharging or depositing of any refuse matter of any kind into the water.

II.D. BOATING SAFETY

(continued)

- 4.5 The operator of any vessel involved in an on-the-water accident must stop, render assistance to those in danger and offer identification. If a person disappears from a vessel or a death occurs as a result of a boating accident, local authorities must be notified immediately.

II.E. HEAT AND COLD STRESS

1.0 PURPOSE:

To establish practices and procedures to be utilized while performing field activities during periods of hot and cold weather.

2.0 SCOPE:

Applies to all Gannett Fleming personnel engaged in field activities.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To monitor temperature and humidity of work site and to observe employees for symptoms of heat or cold stress. This duty may be assigned to an on-site health and safety officer, as appropriate.

Safety Manager - To assist the Supervisor in selecting and implementing practices and procedures necessary to reduce heat or cold stress.

II.E. HEAT AND COLD STRESS

(continued)

4.0 PROCEDURES

- 4.1 Work modifications may be necessary during temperatures of greater than 78°F. This may include additional rest periods, supplemental fluids, use of cooling vests or modification of work practices. The Safety Manager should be consulted for recommendations to reduce the employee's heating load.
- 4.2 Employees exhibiting symptoms of heat exhaustion or heat stroke should receive medical attention from a hospital or physician. Both conditions can be life threatening and should be immediately treated.

Heat Exhaustion - Symptoms and Treatment:

Symptoms - Cool, wet, pale skin; body temperature normal or lower; dilated pupils.

Treatment - remove victim from heat to a cooler place. Have the victim rest and elevate the feet. Loosen or remove clothing. Cool but do not chill the victim (fan and apply cold packs or wet towels).

II.E. HEAT AND COLD STRESS

(continued)

Care for shock. If the victim is conscious, give one-half glass full of water every 15 minutes, as tolerated. Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

Heat Stroke - Symptoms and Treatment:

Symptoms - Hot, dry or wet, red skin; body temperature very high; pupils constricted.

Treatment - remove the victim from heat to a cooler place. Cool victim fast (immerse in a cool bath or wrap wet sheets around him or her and direct a fan over the body). Care for shock. Give nothing by mouth. Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

- 4.3 If heat cramps are suspected, move the victim to a cooler place. Have victim stop activity. If there are no other injuries, give the victim one-half glass full of water every 15 minutes for 1 hour as tolerated.

II.E. HEAT AND COLD STRESS

(continued)

A victim of extreme heat may first experience heat cramps and then heat exhaustion. If not helped he or she can suffer a heat stroke, a life threatening condition.

- 4.4 Cold stress may occur during exposures of less than 40°F. Additional clothing and rest periods in heated areas may be necessary to maintain the employee's core temperature. The Safety Manager should be consulted for recommendations to reduce cold stress.
- 4.5 Cold extremes can produce two kinds of cold emergencies: hypothermia and frostbite.

Hypothermia - Symptoms and Treatment

Symptoms - slowed heart rate; slowed breathing rate; slurred speech; staggered walking; reduced response to pain; cold skin; low core temperature (less than 35°C or 95°F); confusion; muscle stiffness.

Treatment - move the victim from the cold to a warm place. Remove wet clothes and cover with dry clothing or blankets. Warm body slowly, give

II.E. HEAT AND COLD STRESS

(continued)

nothing by mouth unless victim is fully conscious. Do not warm the victim too quickly. Rapid warming could cause serious heart problems or increase circulation to body surface causing additional cooling of vital organs. Do not give beverages containing alcohol or caffeine. Give warm broth or water.

Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

Frostbite - Symptoms and Treatment:

Symptoms - skin may be slightly flushed prior to frostbite; skin changes to white or grayish yellow as frostbite develops; may be early pain, but often there is no pain; part feels intensely cold and numb; skin may have glossy appearance.

Treatment - move the victim from the cold to a warm place. Rewarm frozen part quickly by immersing in warm (not hot) water; do not rub or massage; put sterile gauze between warmed toes and

II.E. HEAT AND COLD STRESS

(continued)

fingers; loosely bandage. Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized when engaged in work activities within or adjacent to roads, streets, or highways.

2.0 SCOPE:

2.1 Provides procedures to be followed by Gannett Fleming employees while working within or adjacent to roads, streets, or highways.

2.2 Although this section describes specific steps to be taken to provide for the safe movement of traffic through work zones and to enhance the safety of our work force, it is not intended to preclude the use of good judgment or any additional measures that may be deemed necessary for a particular situation.

2.3 The information in this manual shall be used in conjunction with appropriate state and Federal traffic control manuals.

II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange employee safety training pertinent to the job, including traffic control standards and guidelines; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager when assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - To train employees in the application of traffic standards and guidelines; to provide employees with safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

4.0 GENERAL PROCEDURES:

- 4.1 The guidelines contained herein are minimum desirable guidelines for normal situations. Additional protection must be provided when special complexities and hazards prevail. The protection prescribed for each situation shall be based on speed and volume of traffic, duration of operation, and exposure to hazards. As used in these guidelines, the term street refers to all streets or roadways in any municipality, including cities, towns, villages, or other local jurisdictions.
- 4.2 Motorists should be guided in a clear and positive manner while approaching and driving through work and survey areas.
 - a. Adequate warning and direction by means of proper pavement markings, signing, and use of other devices which are effective under varying conditions of light and weather should be provided to assure the motorist of positive guidance ahead of and through the work area.

II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

- b. Flagging procedures, when used, should provide guidance to the motorist traversing the work area. Flagging should only be employed when required to control traffic or when all other methods of traffic control are inadequate to warn and direct drivers.

5.0 SIGNS

- 5.1 Warning signs shall have a black legend on orange background. It is acceptable to utilize materials having fluorescent red-orange or yellow-orange colors as background. Existing yellow warning signs already in place within these areas may remain in use.
- 5.2 All signs intended for night use shall be fabricated with encapsulated lens reflective sheeting or an illuminated sign may be used.
- 5.3 Signs shall be placed to the right of traffic on the street or placed on both sides. Advance warning signs on open highways should be placed about 1,500 feet ahead of the work area. The sign nearest the work or restriction area should be 500 feet from the point of restriction

II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

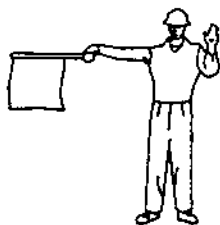
(continued)

with additional signs at 500 to 1,000 foot intervals. These distances may be adjusted depending on the street type.

- 5.4 An advance flagger sign shall alert drivers that they are approaching a flagman. This sign may contain words or the flagger symbol. The sign shall be promptly removed, covered, or turned to face away from the street whenever the flagger is not on duty.
- 5.5 A worker sign is intended for protection of workers in or near a street. This is for use at limited obstruction sites, such as an open manhole with a fence around it, on low speed streets.

DIAGRAM 1

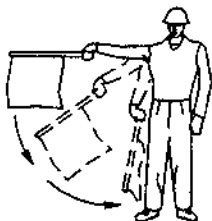
FLAG



TO STOP
TRAFFIC



TRAFFIC
PROCEED



TO ALERT
AND SLOW
TRAFFIC

PADDLE



USE OF HAND SIGNALING DEVICES BY FLAGGER

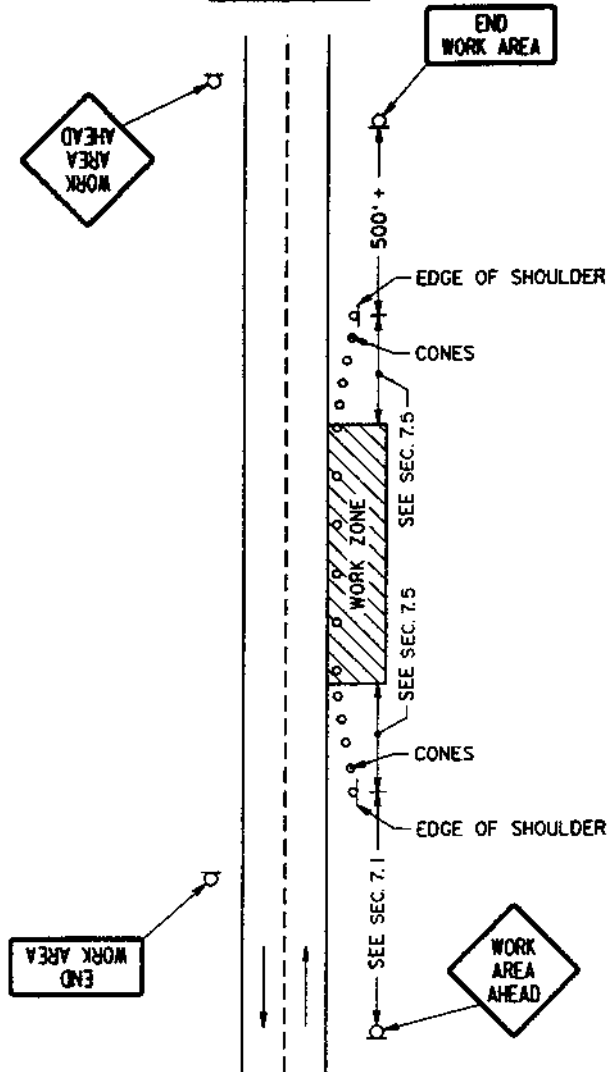
II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

6.0 USE OF HAND SIGNALING DEVICES BY FLAGGER

- 6.1 When a flagger is used to signal oncoming traffic, he shall use a red warning flag or slow/stop paddle.
- 6.2 Use of the signal flag, slow/stop paddle, and associated hand signals are shown in Diagram 1, opposite page.

DIAGRAM 2



II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

- 7.0 TRAFFIC CONTROL FOR WORK BETWEEN TRAVELWAY AND DITCHLINE ON RURAL STREETS (Refer to Diagram 2, opposite page.)
- 7.1 Distance between advance warning sign and beginning of cone taper should be 350 feet to 500 feet where posted speed limit is 45 mph or less and 500 feet to 800 feet where posted speed limit is greater than 45 mph.
- 7.2 Traffic cones are not required on the departure end of the work zone on four-lane undivided and divided primary streets.
- 7.3 On rural streets having a median wider than 8 feet, left and right side sign assemblies shall be required.
- 7.4 Spacing of cones shall be 40 feet on straight road and 20 feet on curves and transitions.
- 7.5 To determine the length of cone transition, use the formula

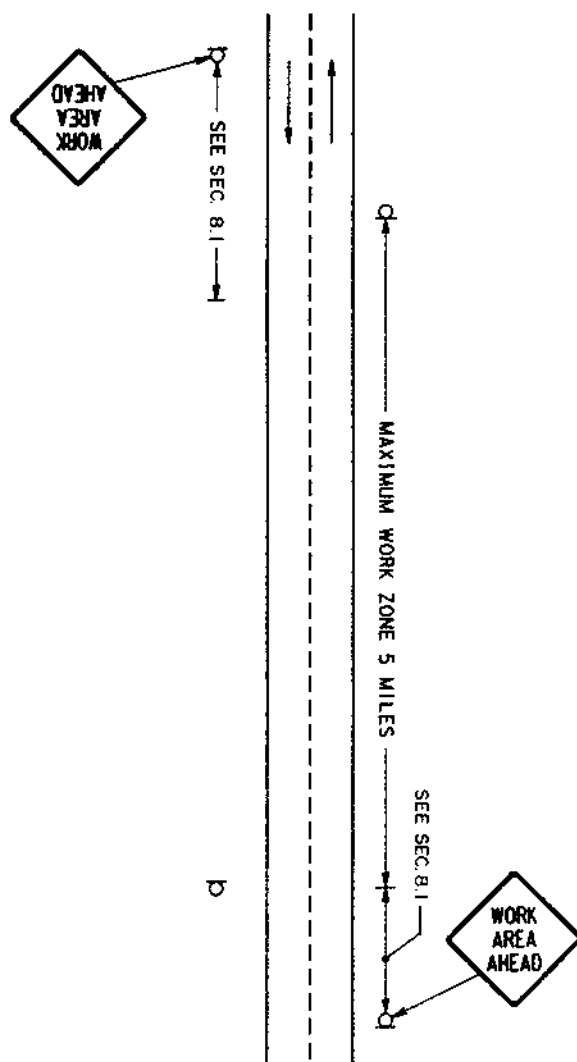
$$L = \frac{WS^2}{60}$$

II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

where L equals the taper length in feet; W equals the width of offset in feet; and S equals the posted speed.

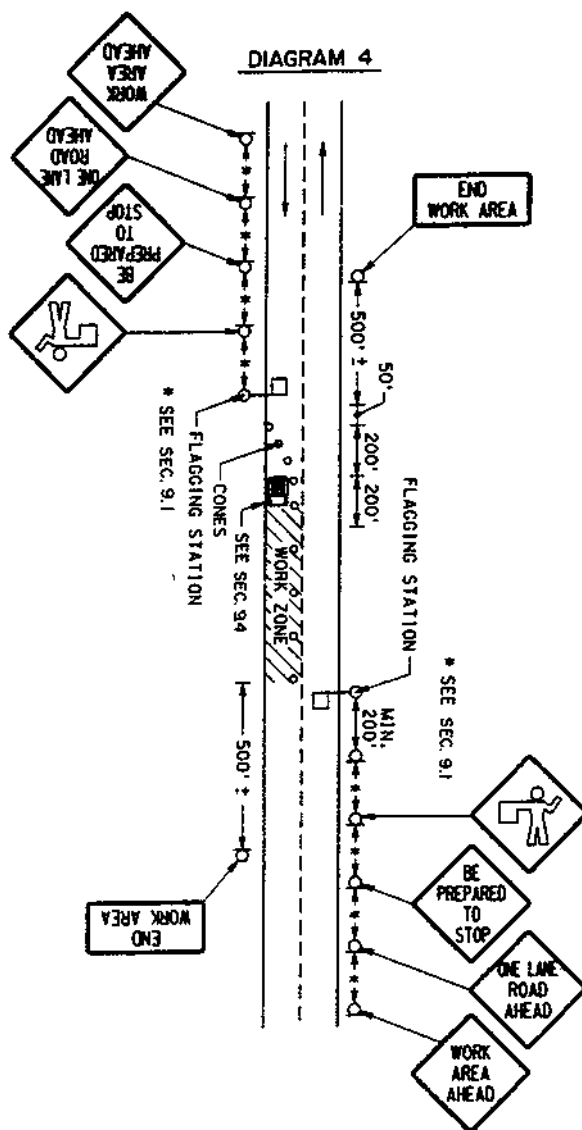
DIAGRAM 3



II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

- 8.0 TRAFFIC CONTROL FOR WORK OPERATIONS OFF TRAVELWAY ON RURAL STREETS (Refer to Diagram 3, opposite page.)
 - 8.1 Distance between advance warning sign and beginning of work zone should be 350 feet to 500 feet where posted speed limit is 45 mph or less and 500 feet to 800 feet where posted speed limit is greater than 45 mph.
 - 8.2 On rural streets having a median wider than 8 feet, left and right side sign assemblies shall be required.



II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

- 9.0 TRAFFIC CONTROL FOR WORK ON TRAVELWAY ON TWO-LANE RURAL STREETS (Refer to Diagram 4, opposite page.)
 - 9.1 Distance between advance warning sign and beginning of work zone should be 350 feet to 500 feet where posted speed limit is 45 mph or less and 500 feet to 800 feet where posted speed limit is greater than 45 mph.
 - 9.2 Flagging stations shall be located far enough in advance of the work zone to permit approaching traffic to reduce speed and/or stop before passing the work zone and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic.
 - 9.3 Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition.
 - 9.4 A truck or trailer with at least one rotating or two alternating high intensity amber flashers shall be parked at the beginning of work in advance of work crew.

**II.F. TRAFFIC CONTROL STANDARDS AND
GUIDELINES**
(continued)

- 9.5 Spacing between cones shall be 40 feet on straight roads and 20 feet on curves and transitions.

PART III
SAFETY EQUIPMENT

III.A. AVAILABLE SAFETY EQUIPMENT

The following is a listing of safety equipment which is available to Gannett Fleming personnel in the performance of their duties:

PERSONAL PROTECTIVE EQUIPMENT

- A. Hard hats, liners, and chin straps
- B. Safety goggles, glasses, and face shields
- C. Ear plugs and muffs
- D. Gloves (leather, rubber, or both)
- E. Boots and overboots
- F. Steel toes and metatarsels for footwear
- G. Protective coveralls
- H. Reflectorized safety vests
- I. Safety belts and harnesses
- J. Lifelines
- K. Lanyards
- L. Respirators, self-contained breathing apparatus

III.A. AVAILABLE SAFETY EQUIPMENT

(continued)

- M. Resuscitators
- N. Rainsuits
- O. First aid kits
- P. Fire extinguishers
- Q. Flashlights and lanterns
- R. Miscellaneous items (as requested)

TRAFFIC CONTROL ITEMS

- A. Safety cones (28 to 36 inches in height)
- B. Traffic-warning and traffic control signs
 - 1. Nonreflective-day
 - 2. Reflective-night
- C. Barricades
- D. Flashing lights

III.A. AVAILABLE SAFETY EQUIPMENT

(continued)

- E. Revolving lights
- F. Arrow boards

MEASURING DEVICES

- A. Oxygen/combustible gas/toxic gas detector
- B. Oxygen and combustible gas detector
- C. Toxic gas detector
- D. Toxic gas detector tubes
- E. Sound-level meter
- F. Light meter
- G. Velocimeter
- H. Thermometer
- I. Ground fault circuit interrupter

Other items of safety equipment, not specifically included in this listing, will be provided as needed, upon request.

III.B. HOW TO OBTAIN SAFETY EQUIPMENT

Safety equipment may be obtained by submitting a requisition to the Safety Manager, who has the necessary forms. The requisition must be approved by the Division or Subsidiary Director, Section Head or Regional Office Manager, or an authorized representative and be filed at least 24 hours in advance to allow for equipment scheduling.

The care and maintenance of assigned safety equipment is the responsibility of the employee to whom it is assigned. After use, all equipment must be promptly returned to the Safety Manager or other designated Company employee.

The Safety Manager can be contacted by calling the switchboard operator at the Headquarters Building in Camp Hill (717/763-7211).

III.C. EQUIPMENT OPERATING PROCEDURES

The proper operation and use of safety equipment is essential for the protection of employees who use the equipment. The Equipment Center Manager will demonstrate the proper operation of all requisitioned safety equipment. Questions about the operation or limitations of use should be referred to the Equipment Center Manager. The safety equipment shall be used only for its intended purposes.

PART IV

BASIC PROGRAM REQUIREMENTS

IV.A. CONSTRUCTION PHASE ACTIVITIES

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized during construction phase activities. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

2.0 SCOPE:

Applies to all Gannett Fleming personnel engaged in construction observation or construction management.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state, and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

IV.A. CONSTRUCTION PHASE ACTIVITIES

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.4 Hard hats shall be worn at all times when on the active portion of a construction site.

IV.A. CONSTRUCTION PHASE ACTIVITIES

(continued)

- 4.5 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.6 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes.
- 4.7 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.8 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.9 Gloves shall be worn when hand protection is required.

IV.A. CONSTRUCTION PHASE ACTIVITIES

(continued)

- 4.10 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.11 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.
- 4.12 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.13 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized during drilling, boring and subsurface investigation. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

2.0 SCOPE:

Applies to all Gannett Fleming personnel engaged in drilling, boring or subsurface investigation activities.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective or safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify or minimize work site safety hazards; to advise

IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION

(continued)

employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - to provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.

IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION

(continued)

- 4.4 Hard hats shall be worn at all times.
- 4.5 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.6 Hearing protection is required during all drilling and boring activities when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.7 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.8 Gloves shall be worn when hand protection is required.
- 4.9 Employees are expected to utilize proper judgment in their personal habits. When they

IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION

(continued)

report to work, they must be in a condition fit to meet daily responsibilities.

- 4.10 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.
- 4.11 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.12 Safety glasses with side-shields or safety goggles shall be worn when in close proximity to drilling, boring and subsurface investigation activities, or as otherwise directed by the Supervisor.
- 4.13 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.
- 4.14 The contract with the drilling, boring, or subsurface investigation contractor shall require the contractor, at its expense and in the presence of the engineer, to have the owners of underground

IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION

(continued)

utilities and service lines locate all underground utilities and service lines which may be in the immediate vicinity of the drilling, boring, or subsurface investigation.

IV.C. WORK ON ELEVATED STRUCTURES

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized during the work on elevated structures such as bridges, buildings and towers. Required references for these procedures are appropriate OSHA Safety and Health Standards and U.S. Department of Transportation/ F.H.W.A. Bridge Inspector's Training Manual 70.

2.0 SCOPE:

Applies to all Gannett Fleming personnel engaged in work on elevated structures.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to

IV.C. WORK ON ELEVATED STRUCTURES

(continued)

identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.

IV.C. WORK ON ELEVATED STRUCTURES

(continued)

- 4.4 Hard hats shall be worn at all times when on the job site.
- 4.5 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.6 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes.
- 4.7 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.8 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.

IV.C. WORK ON ELEVATED STRUCTURES

(continued)

- 4.9 Gloves shall be worn when hand protection is required.
- 4.10 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.11 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.12 When working in an area not normally used for human occupancy or travel and there is danger of a fall greater than six feet, a safety belt must be worn and secured by a lanyard to a lifeline or to the structure with the appropriate fastening device. If it is impractical or impossible to be secured to the structure, a safety net or other safety device shall be used in accordance with OSHA requirements.
- 4.13 When working over, on, or near water, where the danger of drowning exists, U.S. Coast Guard-approved life jackets or buoyant work vests shall be worn. In addition, ring buoys with 90 feet of line (minimum) and a life saving skiff shall be in close proximity to the work area for use in a rescue.

IV.C. WORK ON ELEVATED STRUCTURES

(continued)

- 4.14 When performing work operations from a man basket or mobile platform, employees shall wear safety belts and tie off to the platform on which they are standing.
- 4.15 Scaffolds more than 4 feet above the ground or floor shall have guardrails and toeboards. Guardrails shall be approximately 42 inches high and toeboards shall be a minimum of 4 inches in height.
- 4.16 When working from a suspended scaffold, employees shall wear a safety belt secured by a lanyard to a lifeline and the lifeline shall be secured to an anchorage or structural member capable of supporting a minimum dead load of 5,400 lbs. Where the support capability is questionable, contact the Safety Manager. The lanyard shall be a minimum of one-half inch nylon, or equivalent, with a maximum length allowing a fall of no greater than 6 feet. The lanyard and the lifeline shall have a nominal breaking strength of at least 5,400 pounds.
- 4.17 If portable ladders are used, they shall be at such a pitch that the horizontal distance from the top support to the foot of the ladder is about 1/4 of

IV.C. WORK ON ELEVATED STRUCTURES

(continued)

the working length of the ladder. The side rails shall extend not less than 36 inches above the landing. They shall be tied or blocked, or otherwise secured, to prevent their being displaced. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors. Ladders shall not be used in a horizontal position as platforms or scaffolds. The use of ladders with broken or missing rungs or steps, broken or split siderails, or other faulty or defective construction is prohibited.

- 4.18 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.
- 4.19 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.

IV.D. WORK ON RAILROAD PROPERTY

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized during work on railroad property. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

2.0 SCOPE

Applies to all Gannett Fleming personnel engaged in work on railroad property.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

IV.D. WORK ON RAILROAD PROPERTY

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Hard hats shall be worn at all times on the job site.
- 4.4 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids or other causes.
- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine,

IV.D. WORK ON RAILROAD PROPERTY

(continued)

drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.

- 4.6 Gloves shall be worn when hand protection is required.
- 4.7 Employees are expected to utilize proper judgment in their personal habits. When they report to work they must be in a condition fit to meet daily responsibilities.
- 4.8 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.9 Employees shall be mindful that they are on an operating railroad and shall have a safe place to go if a train should approach the work area. Employees shall also be aware of the location and extent of "no clearance" areas.
- 4.10 When railroad flagmen are provided by the railroad, the employees shall ascertain where the flagmen want them to go when a train passes and what signals will warn of an approaching train.

IV.D. WORK ON RAILROAD PROPERTY

(continued)

When no railroad flagmen are provided, the Gannett Fleming crew shall be alert to the approach of trains and shall warn other crew members of a train's approach.

- 4.11 When a train approaches:
- ? Move to a safe place as far from the track as judgment dictates.
 - ? Stand still.
 - ? Secure all items of clothing, papers, and equipment to prevent the air blast created by the train from dislodging them.
 - ? Always be alert for dragging objects from the train.
 - ? Move all inspection equipment clear of the track.
- 4.12 Minimize walking along the railroad tracks and property except as required for the job. When walking along or across railroad tracks, the following procedures shall be followed:

IV.D. WORK ON RAILROAD PROPERTY

(continued)

- ? Know the direction of traffic and walk facing traffic. (Note: during construction and in single track areas, traffic may come from either direction).
- ? Be alert. Look and listen for approaching trains. Have a safe place to go when a train approaches.
- ? Do not cross between the cars of a train or, in the train switching areas, between the engine and the train.
- ? Walk outside the track area where possible. Do not step on switch points, switch mechanisms, wires, tie ends, rail or other tripping hazards. (Note: rails and ties may be extremely slippery due to oil, frost, or rain).
- ? Do not touch or make contact with any electrical wires, cables, bonds, grounds, or other electrical connections attached to the rails, structures or signal system. They may be energized and pose the risk of electrocution.
- ? Wear a reflective vest and hard hat.

IV.D. WORK ON RAILROAD PROPERTY

(continued)

4.13 Railroad tunnels and other restricted areas:

- ? Comply with all applicable provisions of Section 4.11 above.
- ? Proper lighting or flashlights shall be provided and used while in tunnel areas.
- ? Employees shall not be in restricted areas such as tunnels and depressed cuts without proper railroad protection personnel unless adequate safe areas or train restrictions are in force to provide a safe working area.
- ? Do not run on bridges or in tunnels, retained cuts, or other restricted areas. If you cannot move safely away from an oncoming train, lie flat on the ground or bridge outside of the track area.

4.14 Assume third rail and catenary systems are energized and that they pose the risk of electrocution until you are certain they have been de-energized. Do not touch or allow objects to touch or come in close proximity with an energized third rail or catenary system and their support structures. Do not use metal tapes, rules, flashlights or ladders for inspection.

IV.D. WORK ON RAILROAD PROPERTY

(continued)

- 4.15 De-energizing and grounding of the electrical systems, when required, shall be performed by railroad personnel. Do not touch any apparatus or equipment unless required by your duties and you are absolutely sure it is safe to do so.
- 4.16 Do not cross third rail areas except as required by your duties. Do not step on, sit on, or touch third rails, cover boards, bonds, grounds or other apparatus. Do not touch third rail contact shoes of engines or electrical cars. They may be energized on both sides of engine or car and pose the risk of electrocution. Do not touch anything that is in contact with the third rail system such as debris, wire, or string as they may also be energized and pose an electrocution risk.
- 4.17 Do not climb any catenary support and do not climb onto the top of any engine, train, or high rail vehicle, unless authorized and required in performance of your duties. Authorized employees shall have proper training and knowledge to perform this duty. Maintain a safe distance from the catenary support and any cables attached to the catenary support system.

IV.D. WORK ON RAILROAD PROPERTY

(continued)

Never touch anything that is in contact with the catenary system such as debris, wire or string as they may be energized and pose the risk of electrocution.

- 4.18 Do not enter operating substations unless authorized railroad personnel are present. Do not touch equipment, wire, cables, or other appurtenances or operate any equipment unless authorized and required in the performance of your duties.
- 4.19 Normal safety practices as appropriate for each construction operation shall apply while inspecting or observing construction on railroad property.
- 4.20 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

IV.E SURVEYING

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized when performing all types of field surveying. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

2.0 SCOPE:

Applies to all Gannett Fleming personnel engaged in all types of field surveying.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

IV.E SURVEYING

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids or other causes.
- 4.4 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with

IV.E SURVEYING

(continued)

"Confined Space Entry Procedures", as specified in Section II.B of this manual.

- 4.5 Gloves shall be worn when hand protection is required.
- 4.6 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.7 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.8 When surveying in dangerous areas or along highways or roads open to traffic, reflective vests shall be worn.
- 4.9 When working along highways or roads open to traffic, surveyors shall warn motorists of their presence and be responsible for traffic control. Advance warning signs shall be placed to warn both directions of traffic. Cones shall be located between the workmen and the advance warning signs. A yellow flashing light shall be mounted on the survey vehicle and used as a warning device. See Traffic Control Standards and Guidelines.

IV.E SURVEYING

(continued)

- 4.10 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

IV.F. TUNNEL AND MINE ENTRY

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized during entry into or work in tunnels or mines. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

2.0 SCOPE:

Applies to all Gannett Fleming personnel engaged in tunnel or mine entry activities.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

IV.F. TUNNEL AND MINE ENTRY

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Hard hats shall be worn at all times.
- 4.4 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.

IV.F. TUNNEL AND MINE ENTRY

(continued)

- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, or other confined spaces, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.6 Gloves shall be worn when hand protection is required.
- 4.7 Caution shall be exercised around over-head power lines to avoid electrocution.
- 4.8 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.9 Safety glasses with side shields or safety goggles shall be worn when in close proximity to drilling, boring and subsurface investigation activities; when there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes; or as otherwise directed by the Supervisor.

IV.F. TUNNEL AND MINE ENTRY

(continued)

- 4.10 Before entering into or making a mine inspection, the Supervisor shall check with the appropriate state regulatory agency (in Pennsylvania, Pennsylvania Bureau of Deep Mine Safety and Pennsylvania Department of Environmental Resources) to determine whether the mine has recently been inspected by the state and whether a state mine inspector can participate in the inspection. The mine inspector's duty is to make sure the mine is safe to enter. In Pennsylvania, the presence of a mine inspector is mandatory.
- 4.11 Carrying of matches or smoker's articles into tunnels or underground mines is strictly prohibited.
- 4.12 Any equipment used in tunnels or underground mines shall be MSHA or OSHA approved.
- 4.13 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

IV.G. SOLID WASTE FACILITY INVESTIGATIONS

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized during site investigations of solid waste facilities. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

2.0 SCOPE:

Applies to all Gannett Fleming personnel engaged in solid waste facility investigations.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments; to have a current tetanus inoculation (these are usually good for a maximum of 5 years).

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety

IV.G. SOLID WASTE FACILITY INVESTIGATIONS

(continued)

hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manger - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Hard hats shall be worn at all times in active work areas.

IV.G. SOLID WASTE FACILITY INVESTIGATIONS

(continued)

- 4.4 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, trench, hole, sinkhole or open-topped space more than four feet deep, or other confined spaces, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.6 Gloves shall be worn when hand protection is required.
- 4.7 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.8 Safety glasses with side-shields or safety goggles shall be worn if an activity is observed that produces airborne particulate matter or if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes. The wearing of contact lenses is not recommended

IV.G. SOLID WASTE FACILITY INVESTIGATIONS

(continued)

due to the presence of dusts and airborne particles and microbes.

- 4.9 No open flames or sparks are permitted on the site of a landfill.
- 4.10 Inhalation of landfill gases should be avoided as far as practicable. Prolonged exposure may require the use of respiratory protection to reduce the chances of overexposure, symptoms of which may include nausea and dizziness.
- 4.11 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.12 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

IV.H OTHER FIELD ACTIVITIES

1.0 PURPOSE:

To establish procedures for safe work practices to be utilized during other field activities not specifically covered by other sections of this manual. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

2.0 SCOPE:

Applies to Gannett Fleming employees engaged in work activities in outdoor areas, inside process areas of industrial buildings, or in such other locations as may reasonably be expected to have potential safety hazards.

3.0 RESPONSIBILITIES:

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to

IV.H OTHER FIELD ACTIVITIES

(continued)

identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

4.0 PROCEDURES:

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.

IV.H OTHER FIELD ACTIVITIES

(continued)

- 4.4 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.5 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes.
- 4.6 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.7 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.8 Gloves shall be worn when hand protection is required.

IV.H OTHER FIELD ACTIVITIES

(continued)

- 4.9 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.10 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.11 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.
- 4.12 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.
- 4.13 The “Construction Site Safety Awareness Handbook for Employees of Gannett Fleming Companies” is available from the Corporate Safety Manager. All construction site inspectors should have this handbook in their possession.

PART V

HOW TO OBTAIN MORE INFORMATION ABOUT OSHA

V. HOW TO OBTAIN MORE INFORMATION ABOUT OSHA

The requirements of the Occupational Safety and Health Act have been published and are periodically updated in the Federal Register which is on file in our Headquarters Office. Current information about the Act is published by Commerce Clearing House, Inc., and may be found in similar publications. The U.S. Bureau of Labor Statistics also has a number of publications relating to the Act.

For specific information concerning the requirements of the Act, the Safety Manager should be consulted.

PART VI
APPENDICES

APPENDIX A

HEALTH AND SAFETY

STANDARD OPERATING PROCEDURES

The health and safety procedures of the Safety Manual for field operations are intended only for the cited applications. They may require supplementation with Standard Operating Procedures more specific to the nature of the work being performed. The following is a listing of Gannett Fleming Standard Operating Procedures currently being considered:

Decontamination

Air Monitoring & Sampling

Hearing Conservation

Respiratory Protection

Asbestos Sampling & Investigations

Personal Protective Equipment

Handling of Drums & Containers

First Aid Kits

Incident Investigation & Reporting

APPENDIX A

(continued)

Monitoring Equipment (various items)

Communications

Site Specific Health & Safety Plans

Health & Safety Audits

Medical Monitoring

Additional Standard Operating Procedures may be developed as requested.

STANDARD OPERATING PROCEDURE NUMBER 1

RESPIRATORY PROTECTION PROGRAM

1.0 PURPOSE

It is the purpose of this document to provide the employees of Gannett Fleming, Inc. as well as any subsidiaries and affiliated companies (hereinafter the Company) with a safe working environment when utilizing respiratory protection. No Company personnel may use respiratory protection devices until the provisions of this document are met, and shall have a current, valid Respirator User Card.

1.1 SCOPE

This program applies to all Company employees required to wear respiratory protection to protect them from inhalation hazards while performing tasks for the Company.

1.2 REFERENCES

- 29 CFR 1910.134 - Respiratory Protection for General Industry and Construction
- 29 CFR 1910.1020/1926.33 - Access to Employee Exposure and Medical Records
- 42 CFR Part 84 - Respiratory Protective Devices
- G-7.1 - 1989 - ANSI/CGA Commodity Specification for Air

1.3 RESPONSIBILITIES

To protect the safety and health of Company personnel who may be required to wear respiratory protection in the performance of their duties, it is imperative that Company personnel adhere to this respiratory program. Responsibilities of respirator wearers, Program Coordinators, the Program Administrator, the Medical Review Officer and Company management personnel are described in this section. Each person whose responsibilities are described herein is solely accountable for fulfilling the designated responsibilities. The names of the Program Administrator and the Medical Review Officer are provided in Section 1.10.

1.3.1 Respirator Wearers

- Wear his/her respirator when and where required and in the manner in which trained.
- Report any malfunctions of the respirator to his/her supervisor or, if applicable, the Safety Coordinator immediately.
- Guard against mechanical damage to the respirator, clean the respirator as instructed, and store the respirator in a clean, sanitary location.

1.3.2 Safety Coordinator

The Safety Coordinator is responsible for assisting the Program Administrator maintain a respiratory protection program that protects Company personnel from recognized inhalation hazards and providing guidance to the project managers and respiratory wearers in the implementation of the program. They are also responsible for the following:

- Verifying all personnel assigned to the office/organization whose duties require the use of respiratory protection are identified.
- Scheduling appropriate training, fit testing and a medical evaluation for all respirator wearers assigned to the office/organization. Establishing and maintaining a system for keeping records for training, fit testing and medical evaluations and forwarding the originals of said records to the Program Administrator.
- Evaluating the tasks for which respiratory protective devices are believed to be required. Assisting in determining the degree of hazards posed by the potential exposure.
- Assisting in determining whether engineering controls and/or administrative procedures are feasible to protect the employees from the hazards.
- Inspecting and repairing respiratory protection devices.

1.3.3 Program Administrator

The Program Administrator is responsible for maintaining a respiratory protection program that protects the Company personnel from recognized inhalation hazards and providing guidance to the Company staff in the implementation of the program. The Administrator also is responsible for conducting, or delegating as appropriate, the following:

- Implementing and administering the Company medical evaluation program.
- Coordinating medical evaluations with the Company's Medical Review Officer.
- Selecting/Assisting in selecting a Safety Coordinator where respiratory protective devices are required.
- Evaluating the tasks for which respiratory protective devices are believed to be required. Determining the degree of the hazards posed by the potential exposure.
- Determining whether engineering controls and/or administrative procedures are feasible to protect the employees from the hazards.
- Determining which respiratory protection devices are required for the appropriate protection for the hazards present.
- Training personnel in the use of respiratory protective devices.
- Conducting qualitative and quantitative fit testing, and issuing necessary protective devices.
- Overseeing the inspection of and verifying the repair of the respiratory protective devices.

- Overseeing the purchase and issuance of respiratory protection devices.
- Establishing and maintaining a system for keeping records of medical evaluations and fit testing.

1.3.4 Business Unit Manager/Organization Manager

- Designate an office/organization Safety Coordinator to assist the Program Administrator with the Respiratory Protection Program.
- Identify all personnel assigned to their organization whose duties require the use of respiratory protection. Provide the names to the Program Administrator.
- Verify each employee under his or her supervision using a respirator has received appropriate training in its use and an annual medical evaluation to determine an employee's ability to use a respirator.
- Provide the appropriate respirator(s) and accessories, provide adequate storage facilities, and encourage proper respiratory equipment maintenance.
- Report malfunctions of the respiratory equipment to the Program Administrator and, if applicable, the Safety Coordinator immediately.
- Be aware of tasks requiring the use of respiratory protection, and make sure all employees engaged in such work are provided the appropriate equipment and are following this program.

1.3.5 Regional/Division Director

- Verify with Business Unit Manager/Organization Manager where respiratory protection is utilized that all personnel wearing respiratory protection devices have been identified and are receiving the required training and medical evaluation.
- Recommend to the Program Administrator an office/organization Safety Coordinator for regional offices where the use of respiratory protection is required.
- Verify that appropriate respiratory devices are being used and the employees are following this program.

1.3.6 Medical Review Officer

The Medical Review Officer is responsible for the following:

- Establishing medical evaluation and surveillance procedures
- Reviewing the health status of the Company's personnel who may be required to wear respiratory protective equipment in the completion of their assigned tasks.

1.4 MEDICAL EVALUATION

The Medical Review Officer, initially and periodically thereafter, makes a determination as to whether or not an employee can wear the required respirator without physical or psychological risk. Based on the overall health of the individual and the results of medical

tests (pulmonary function studies, EKG, etc.), which may be specified by the Medical Review Officer, the examining physician determines whether or not the individual will be restricted from wearing respiratory protective equipment. If a medical restriction is applied, the individual and the Program Administrator are formally notified of the restriction. Specific medical tests and procedures will be determined by the Medical Review Officer, when necessary, and will be in accordance with OSHA medical surveillance requirements.

Additional medical evaluations will be performed in the following instances:

- The employee reports problems wearing a respirator
- When recommended by the Medical Review Officer, Program Administrator or the employee's supervisor

Medical evaluation records shall be maintained by the Medical Review Officer. Employees and their representatives may have access to their medical records by contacting the Medical Review Officer and/or the Corporate Safety Manager.

1.5 SELECTION AND USE OF RESPIRATORY PROTECTIVE DEVICES

1.5.1 Respirator Use

If engineering controls and/or administrative procedures are not sufficient to eliminate the hazards, then respiratory protection is authorized and issued for the following personnel who have a current, valid, Respirator User Card:

- Workers on projects known to have contaminant levels requiring the use of respiratory protection or in which contaminant levels requiring the use of respiratory protection may be created without warning.
- Workers performing operations documented to have health hazards requiring the use of respiratory protection and those required to be in the immediate vicinity of where similar levels of contaminants are generated.
- Workers on suspect projects or performing operations suspected of having health hazards requiring the use of respiratory protection but for which adequate exposure data has not been obtained.

1.5.2 Respirator Selection

All respirators selected for use by the Company's workers will be certified by the National Institute for Occupational Safety and Health.

Selection of the proper respirator(s) to be used on any Company project or operation will be made only after a determination has been made as to the real and/or potential exposure of employees to harmful concentrations of contaminants. Due to the variety of Company projects, the evaluation will be project and site specific. This evaluation will be performed prior to the start of any task requiring respirators and will be based on the contaminants, atmospheric sampling results, personnel assigned to the project and degree of exposure

(e.g. casual, moderate, heavy,). Respiratory protective devices will be selected by the Program Administrator or his/her designee. The following items will be considered in the selection of respirators:

- Effectiveness of the device against the hazards
- Estimated maximum concentration of the substance
- General environment (open air, confined space, etc.)
- Known limitations of the respiratory protective device
- Comfort, fit, and worker acceptance
- Other contaminants in the environment or the potential for oxygen deficiency

Project Managers will contact, with sufficient lead time, the Program Administrator prior to performing work tasks which may expose workers to hazardous substances or oxygen deficient atmospheres. Examples of work that may require the use of respirators include, but are not limited to:

- Hazardous material activities/site investigations
- Lead abatement activities
- Asbestos inspection/abatement activities
- Painting/Coating, especially with epoxy or organic solvent based compounds
- Using solvents, thinners, or degreasers
- Work which generates large amounts of dust
- Repair work in a confined space
- Drilling activities

During the implementation of a work task, a review of the real and/or potential exposures will be periodically performed to determine if respiratory protection continues to be required, and if so, an assessment that the previously chosen respirators still provide adequate protection.

1.5.3 Types of Respirators

A. Air Purifying Respirator

These respirators remove contaminants from the atmosphere by filtering, absorbing, adsorbing, or chemical reaction with the contaminants as they pass through the respirator canister or cartridge. This type of respirator is a negative pressure respirator which means the user receives air when they inhale. The different types of air purifying respirators are disposable filtering fabric, half face, full face and powered air purifying. Even though powered air purifying respirators have battery operated fans to pull the air through the cartridges or canisters they are considered negative pressure respirators. Air purifying respirators are to be used only where the oxygen content of the atmosphere is between 19.5% to 23.5%.

Air purifying respirators can be classified as follows:

- Particulate removing respirators, which filter out dusts, fibers, fumes and mists. These respirators may be single-use disposable filtering fabric respirators or respirators with replaceable filters.
- Gas and vapor removing respirators, which remove specific individual contaminants or a combination of contaminants by absorption, adsorption or by chemical reaction. Gas masks and chemical cartridge respirators are examples of gas and vapor removing respirators.
- Combination particulate/gas and vapor removing respirators, which combine the respirator characteristics of both kinds of air purifying respirators.

B. Supplied Air Breathing Apparatus

These respirators provide breathing air independent of the environment and offer the highest degree of protection. The air is supplied to the user through a hose, called an air line. Such respirators are to be used when the contaminant has insufficient odor, taste or irritating warning properties, or when the contaminant is of such high concentration or toxicity that an air purifying respirator is inadequate. The Company's supplied air respirators, also called airline respirators, are pressure demand and also are equipped with an emergency escape bottle for use in case of loss of air. This type of respirator maintains a continuous positive pressure within the face piece, thus preventing leakage into the face piece and supplies the required quantity of air to the user on demand (inhalation).

C. Self Contained Breathing Apparatus

These respirators provide breathing air independent of the environment and also offer the highest degree of protection. The air is supplied to the user in a container mounted on the user's back. This type of respirator allows the user complete independence from a fixed source of air. Such respirators are to be used when the contaminant has insufficient odor, taste or irritating warning properties, or when the contaminant is of such high concentration or toxicity that an air purifying respirator is inadequate. They maintain a continuous positive pressure within the face piece, thus preventing leakage into the face piece, and supply the required quantity of air to the user on demand (inhalation).

D. Emergency Escape Packs

Emergency Escape Packs are for use in case of emergency. Emergency Escape Packs consist of a small pressurized tank containing 5 or 10 minutes of air, a valve and airline and a loose fitting see-through hood. Even though the hood is loose fitting the Emergency Escape Pack is positive pressure because the air exiting the hood keeps the wearer from being exposed to the atmospheric contaminants. The

air will last only as long as the indicated tank rating. They are to be used only in an emergency situation. Such situations include Air Purifying Respirator failure or an atmospheric monitoring instrument alarm when not wearing respiratory protection.

Air used in Supplied Air Breathing Apparatus, Self Contained Breathing Apparatus and Emergency Escape Pack must be Grade D Breathing Air. Certification of Grade D Breathing Air must be obtained from the supplier of the breathing air. If a compressor is used to supply air to breathing apparatus, the air must be tested and certified to be Grade D Breathing Air by a qualified laboratory.

1.5.4 Identification of Respirator Cartridges and Gas Mask Canisters

Respirator cartridges and canisters are designed to protect against potentially hazardous atmospheric contaminants, and are specifically labeled and color coded in accordance with NIOSH requirements to indicate the type and nature of protection they provide. The label must not be removed.

The NIOSH approval label on the respirator will also specify the maximum concentration of a contaminant(s) for which the cartridge or canister is approved.

1.5.5 Warning Signs of Respirator Failure

A. Particulate Air Purifying

Increased resistance in breathing due to partial clogging of the filtering fabric, canister or cartridges is called loadup. When this occurs the filtering media must be discarded and replaced. If loadup continues to be a reoccurring problem and controls (e.g. forced mechanical ventilation) does not correct the problem, a Supplied Air Breathing Apparatus or Self Contained Breathing Apparatus is required.

B. Gas or Vapor Air-Purifying

If, when using a gas or vapor respirator (chemical cartridge or canister), any of the warning properties (e.g., odor, taste, etc.) occur, immediately leave the work area and check the following:

- Proper face seal
- Damaged or missing respirator parts
- Saturated or inappropriate cartridge or canister

If no discrepancies are observed, replace the cartridge or canister. If any of the warning properties appear again, the concentration of the contaminants may have exceeded the cartridge or canister design specification. When this occurs, a Supplied Air Breathing Apparatus or Self Contained Breathing Apparatus is required.

C. Service Life of Air-Purifying Respirator Canisters and Cartridges

The canisters or cartridges of air-purifying respirators are intended to be used until filter resistance precludes further use, or the chemical sorbent is expended as signified by a specific warning property (e.g., odor, taste, etc.). New canisters, cartridges or filters shall always be used when starting a project or task.

The maximum service life of canisters, cartridges and filters will be established by site specific safety procedures or a Health and Safety Plan. The service life will be based on the contaminants, atmospheric sampling results, Permissible Exposure Limits, degree of exposure, task(s) to be performed and other pertinent information collected prior to and during the project. Manufacturers information, including computer software provided by the manufacturer, will also be utilized to establish the maximum service life.

D. Supplied Air Breathing Apparatus/Self Contained Breathing Apparatus

When using a Supplied Air Breathing Apparatus, leave the work area immediately when the air pressure alarm is activated or activate the emergency escape bottle if an air pressure drop is sensed. When using a Self Contained Breathing Apparatus leave the work area as soon as the air pressure alarm is activated.

1.6 RESPIRATOR TRAINING

Respirator users will receive training on the contents of the Company Respiratory Protection Program and their responsibilities under it. They will be trained on the proper selection and use, as well as the limitations of the respirator. Training also covers how to ensure a proper fit before use and how to determine when a respirator is no longer providing the protection intended.

The Company will also provide training to respirator wearers in the use, maintenance, capabilities, and limitations of the various types of respirators available for use at the Company. The training will be given initially upon assignment to tasks requiring the use of a respirator. Retraining is given annually thereafter or sooner as deemed necessary by the Program Administrator.

The training program will include the following:

- Nature and degree of respiratory hazard
- Respirator selection, based on the hazard and respirator capabilities and limitations
- Donning procedures and fit tests including hands-on practice
- Care of the respirator including need for cleaning, maintenance, storage, and/or replacement
- Use and limitations of respirator

Respirator training will be properly documented and will include the type and model of respirator for which the individual has been trained and fit-tested.

The respirator users' supervisors will receive an awareness training on the Respiratory Protection Program including their responsibilities under the Program.

1.7 RESPIRATOR FIT TESTING

A fit test shall be used to determine the ability of each individual respirator wearer to obtain a satisfactory fit with any air purifying respirator and supplied air respirator. Either quantitative or qualitative fit tests will be performed. Personnel must successfully pass the fit test before being issued a respirator.

Company employees will not be permitted to wear a respirator in a work situation until he or she has demonstrated that an acceptable fit can be obtained. Fit testing will be conducted initially upon assignment to a task requiring use of a respirator, and annually thereafter. Additional fit testing may also be required if the respirator wearer's facial features change (e.g. dental changes, weight gain or loss, facial scarring, etc.)

Fit testing will be conducted by the Program Administrator, his/her designee or an outside source and the test results will be the determining factor in selecting the type, model, and size of negative pressure respirator for use by each individual respirator wearer.

1.7.1 Fit Checking

Each time a respirator is donned, the user will perform positive and negative pressure fit checks. These checks are not a substitute for fit testing. Respirator users must be properly trained in the performance of these checks and understand their limitations.

A. Negative Pressure Check

Applicability/Limitations: This test cannot be carried out on all respirators; however, it can be used on facepieces of air purifying respirators equipped with tight-fitting respirator inlet covers and on atmosphere supplying respirators equipped with breathing tubes which can be squeezed or blocked at the inlet to prevent the passage of air.

Procedure: Close off the inlet opening of the respirator's canister(s), cartridge(s), or filter(s) with the palm of the hand, or squeeze the breathing air tube or block its inlet so that it will not allow the passage of air. Inhale gently and hold for at least 10 seconds. If the face piece collapses slightly and no inward leakage of air into the face piece is detected, it can be reasonably assumed that the respirator has been properly positioned and the exhalation valve and face piece are not leaking.

B. Positive Pressure Check

Applicability/Limitations: This test cannot be carried out on all respirators; however, respirators equipped with exhalation valves can be tested.

Procedure: Close off the exhalation valve or the breathing tube with the palm of the hand. Exhale gently. If the respirator has been properly positioned, a slight positive pressure will build up inside the face piece without detection of any outward air leak between the sealing surface of the face piece and the face.

1.7.2 Qualitative Fit Testing

Qualitative fit testing checks the respirator wearer's response to a chemical introduced outside the respirator face piece. This response is either voluntary or involuntary depending on the chemical used. Several methods may be used. The two most common are the irritant smoke test and the odorous vapor test.

A. Irritant Smoke

The irritant smoke is an irritant to the eyes, skin, and mucous membranes. It must not be introduced directly onto the skin. The test subject must keep his or her eyes closed when being fit tested for a half face respirator. The irritant smoke test is an involuntary response test. The air purifying respirator must be equipped with a P100 (HEPA) filter for this test. While the respirator wearer stands under a large plastic bag an irritant smoke, usually either stannic chloride or titanium tetrachloride, is directed from a smoke tube toward the respirator wearer. The respirator wearer performs the following exercises for one minute each:

- Normal breathing
- Deep breathing
- Side to side movement of the head
- Up and down movement of the head
- Read the Rainbow Passage
- Bending over or jogging in place
- Normal breathing

If the test subject does not respond (e.g. coughing, watery eyes) to the irritant smoke, a satisfactory fit is assumed to be achieved. Any response to the smoke indicates an unsatisfactory fit.

If the respirator wearer cannot smell the irritant smoke, the respirator will be momentarily pulled away from the subject's face. If the subject reacts to the irritant smoke, a satisfactory fit is assumed. If the subject does not react to the irritant smoke with the respirator pulled away from the face, this test is inappropriate for this subject.

B. Odorous Vapor

The odorous vapor test is a voluntary response test. It relies on the subject's ability to detect an odorous chemical while wearing the respirator. Air purifying respirators must be equipped with an organic cartridge or canister for this test. Isoamyl acetate (banana oil) is the usual test. An isoamyl acetate saturated gauze pad is placed near the face piece of the respirator without touching the skin. If the test subject is unable to smell the chemical, then a satisfactory fit is assumed to be achieved. If the subject smells the chemical, the fit is unsatisfactory.

If the respirator wearer cannot smell the chemical, the respirator will be momentarily pulled away from the subject's face. If the subject is then able to smell the chemical, a satisfactory fit is assumed. If the subject cannot smell the chemical with the respirator pulled away from the face, this test is inappropriate for this subject.

This test is limited by the wide variation of odor thresholds among individuals and the possibility of olfactory fatigue. Since it is a voluntary response test it depends upon an honest response.

1.7.3 Quantitative Fit Testing

Quantitative fit testing, using a Porta Count Plus fit test system, or equivalent, is performed on both full face and half face negative pressure air purifying respirators. A fit factor is determined by comparing the particle concentration of the atmosphere outside the respirator with the concentration inside the respirator face piece. The respirator wearer performs the following exercises for one minute each except the grimace which is performed for 40 seconds:

- Normal breathing
- Deep breathing
- Side to side movement of the head
- Up and down movement of the head
- Read the Rainbow Passage
- Grimace
- Bending over or jogging in place
- Normal breathing

An acceptable fit is achieved when the respirator wearer successfully completes exercises and achieves a fit factor of 100 or more for a half face respirator and 1000 or more for a full face respirator.

1.7.4 Special Problems

A. Contact Lenses

Contact lenses are **NOT** allowed to be worn when wearing a respiratory protective device.

B. Facial Hair

No attempt will be made to fit test an employee who has facial hair which interferes with the seal of the respirator to the face, or if facial hair interferes with normal functioning of the exhalation valve of the respirator.

Respirators may **NOT** be worn at any time, and the employee shall not conduct work requiring the wearing of a respirator, if the respirator wearer has any facial hair that interferes with the seal of the respirator to the face, or if facial hair interferes with normal functioning of the exhalation valve of the respirator.

C. Glasses and Eye/Face Protective Devices

Proper fitting of a respiratory protective device face piece for individuals wearing corrective eyeglasses or goggles may not be established if temple bars or straps extend through the sealing edge of the face piece. If eyeglasses, goggles, face shield or welding helmet must be worn with a respirator, they must be worn so as not to adversely affect the seal of the face piece. If a full-face piece respirator is used, special prescription glasses inserts are available if needed. If the employee has a current prescription, the Company will reimburse the employee for the lenses for the inserts.

1.7.5 Respirator User Cards

Respirator User Cards will be issued by the Program Administrator or his designee to Company employees who have been trained, passed fit testing and been qualified medically fit to use a respirator. A Respirator User Card will include:

- Name and identification number of the worker.
- Name of person performing the fit test.
- The statement: "(name) has been trained, fitted and medically evaluated to use the respirator(s) indicated."
- The type(s), model(s) and size(s) of respirator(s) that the cardholder was issued.
- The Expiration date of card.

1.7.6 Recordkeeping

Respirator fit-testing shall be documented and shall include the type of respirator, brand name and model, including the NIOSH approval number, method of test and test results,

test date and the name of the instructor/tester. The original records will be on file in the Program Administrator's office.

1.8 MAINTENANCE AND ISSUANCE OF RESPIRATORS

1.8.1 Maintenance

The maintenance of respiratory protective devices involves a thorough visual inspection as per the manufacturer's recommendations for cleanliness and defects (i.e., cracking or disfigured rubber, cracking or deterioration of straps, defective or missing exhalation and/or inhalation valves, broken, cracked or scratched lenses, cracked cartridge receptacles, deteriorated or missing cartridge gaskets, etc.) prior to each time it is used or issued. Worn or deteriorated parts shall be replaced prior to use or issue. Replacement parts are available through the Program Administrator. No respirator with a known defect shall be used or issued. No attempt shall be made to replace components, make adjustments or make repairs on any respirator beyond those recommended by the manufacturer. Under no circumstances shall parts be substituted as such substitutions shall invalidate the approval of the respirator. Any repair to reducing or admission valves, regulators, or alarms shall be conducted by either the manufacturer or a qualified trained technician. Respirators issued to Company employees shall be inspected by the instructor/fit tester at the users fit test.

Self Contained Breathing Apparatuses, Supplied Air Breathing Apparatuses and Emergency Escape Packs shall be inspected monthly according to the manufacturer's recommendations by a qualified, trained technician. The regulators must be inspected and tested every six months to make sure the regulators are mechanically sound and the flow of air to the user is per manufacturer's recommendations. The air tanks must be hydrostatically tested to verify soundness. Aluminum cylinders wound in fiberglass must be tested every three years and steel cylinders every five years. Inspection logs will be maintained by the technician with a copy of the logs forwarded to the Program Administrator monthly.

The user will perform an inspection prior to use of either type of air supplied respirator. The respirator will be inspected for cleanliness and defects (i.e., cracking or disfigured rubber, cracking or deterioration of straps, defective or leaking valves, deteriorating airlines/hoses, broken, cracked or scratched lenses, deteriorated or missing gaskets or o-rings, etc.). The inspection will also include the quantity of air in the air cylinder(s) (at least 90% full for Self Contained Breathing Apparatus and Supplied Air Breathing Apparatus and 100% full for Emergency Escape Packs) and the low pressure alarms.

1.8.2 Cleaning of Respirators

All respirators in routine use shall be cleaned and sanitized daily. Respirators used non-routinely shall be cleaned and sanitized after each use and filters and cartridges also replaced. Routinely used respirators are maintained individually by the respirator wearer. Replacement cartridges and filters are obtained through the Program Administrator.

Cleaning and disinfection of respirators must be done frequently to ensure that skin-penetrating and dermatitis-causing contaminants are removed from the respirator surface. Respirators maintained for emergency use or those used by more than one person must be cleaned after each use by the user.

The following procedure is recommended for cleaning and disinfecting respirators:

- Remove and discard all used filters, cartridges, or canisters.
- Wash face piece and breathing tube in a cleaner-disinfectant solution. A hand brush may be used to remove dirt. Cleaning solvents shall not be used.
- Rinse completely in clean, warm water.
- Air dry in a clean area in such a way as to prevent distortion.
- Clean other respirator parts as recommended by the manufacturer.
- Inspect valves, head straps, and other parts to ensure proper working condition.
- Reassemble respirator and replace any defective parts.
- Place in a clean, dry plastic bag or other suitable container for storage after each cleaning and disinfection.

1.8.3 Issuance of Respirators

Respiratory protective equipment shall not be ordered, purchased, or issued to personnel unless the respirator wearer has been medically qualified and successfully completed respirator training and passed a fit test. New employees who require respiratory protective equipment, must be placed into the respirator program before being issued equipment.

Company will provide the following types of air purifying respirators:

- MSA Comfo II (half face)
- MSA Ultra-Twin (full face)
- Survivair half mask
- Survivair full face
- North half face
- North full face

These respirators have a variety of cartridges and canisters that may be worn with them. Therefore, the cartridges and canisters and facepieces are packaged separately. The appropriate cartridge or canister is determined, based on the user's needs (see Section 1.5.2), and is issued with the appropriate face piece. In addition, disposable respirators with filter ratings N-95 and N-100 are available for use under appropriate conditions.

1.8.4 Storage

After inspection, cleaning, and any necessary minor repairs, respirators will be stored to protect against sunlight, heat, extreme cold, excessive moisture, damaging chemicals or other contaminants. Routinely used respirators, such as half mask or full face air purifying

respirators, shall be placed in sealable plastic bags. Respirators may be stored in such places as lockers or tool boxes only if they are first placed in carrying cases or cartons. Respirators shall be packed or stored so that the face piece and exhalation valves will rest in a normal position and not be crushed. The strap on all full face respirators will be in the normal position, not over the front of the face piece, during storage.

1.9 PROGRAM SURVEILLANCE

The Respirator Protection Program will be continuously critiqued and evaluated by the Program Administrator and reviewed at least annually.

The evaluation of the Respirator Program will include investigating wearer acceptance of respirators, inspecting respirator program operation and appraising protection provided by the respirator. Evidence of excessive exposure of respirator wearers to respiratory hazards will be followed up by an investigation to determine why inadequate respiratory protection was provided. The findings of the respirator program evaluation will be documented, and this documentation will list plans to correct faults in the program and set target dates for the implementation of the plans.

1.10 RECORD KEEPING/DESIGNATED PERSONNEL

The following records shall be developed and maintained for the Company Respiratory Protection Program and the personnel listed are designated to fulfill the responsibilities of the Program Administrator and Medical Review Officer as described in Section 1.3:

Record	Designee/Location
Medical Evaluations	Medical Review Officer - Dr. Charles Haverstick, WorkNet, Hummelstown, PA (717) 566-8400
Respiratory Protection Program	Office of Program Administrator Thomas W. Gingrich - Corporate Safety Manager (717) 763-7211 - Extension 2087 Gannett Fleming's Harrisburg Office East Building, Room 370, Safety Manual for Field Operations
Hazard Evaluations (Air sampling results, surveys, respirator selection records)	Project Managers, Business Unit Manager, Organization Manager
Training Records, Fit Test Records, Program Evaluations	Office of Program Administrator Thomas W. Gingrich - Corporate Safety Manager (717) 763-7211 - Extension 2087 Gannett Fleming's Harrisburg Office East Building, Room 370

STANDARD OPERATING PROCEDURE NUMBER 10

CONFINED SPACE ENTRY PROGRAM

GANNETT FLEMING, INC.

10.0 PURPOSE

This document sets forth general confined space entry procedures for Gannett Fleming, Inc. (GFI) personnel. No personnel shall be permitted to enter a confined space until the provisions of these procedures, in accordance with the following standards and regulations, have been met.

10.1 KEY ELEMENTS

- Designation and definition of confined space entry personnel: Confined Space Supervisor, Authorized Entrant, Attendant and Rescue Team
- Identification and evaluation of confined spaces
- Confined space entry permits
- Training of personnel
- Duties of confined space entry personnel
- Lockout/tagout requirements
- Ventilation
- Electrical equipment requirements
- Compressed gas cylinders restrictions
- Specific requirements
- Emergency response

10.2 REFERENCES

- 29 CFR Part 1910.146, Permit Required Confined Spaces
- 29 CFR 1910.38, Employee Emergency and Fire Prevention Plans
- 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout)

- American National Standard Safety Requirements for Confined Spaces, American National Standards Institute (ANSI) Z117.1-1989
- Gannett Fleming Safety Manual for Field Operations, Confined Space Entry

10.3 CONFINED SPACE ENTRY PERSONNEL

10.3.1 Confined Space Supervisor

The designated individual responsible for evaluating health and safety issues for confined spaces and the procedures to be performed within the confined space prior to any entry.

10.3.2 Attendant

The designated individual(s) assigned to be present at all times at the confined space entry point, to remain immediately outside the confined space, to monitor confined space conditions and to render assistance if needed, to entrants from outside of the confined space. Attendant shall not enter the confined space unless replaced by an individual equally trained in the performance of these duties.

10.3.3 Authorized Entrant

The designated individual(s) assigned to enter a confined space who has(have) been authorized by the Confined Space Supervisor.

10.3.4 Rescue Team

Those persons designated by the Confined Space Supervisor to perform rescues from confined spaces. The Rescue Team may be composed of an on-site rescue team of GFI workers or off-site emergency rescue personnel from the supporting local Fire Department or Rescue Service.

10.4 CONFINED SPACE IDENTIFICATION AND EVALUATION

10.4.1 Confined Space Identification

The Confined Space Supervisor will identify confined spaces using the following definition: A confined space is an enclosed space which has all of the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, manholes, storage bins, hoppers, vaults, pits and diked areas); and
- Is not designed for continuous employee occupancy.

A permit-required confined space meets the definition of a confined space and has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material with the potential to engulf an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross section; or
- Contains any other known serious safety or health hazard.

A non-permit required confined space is a confined space that does not contain or have the potential to contain any hazard capable of causing death or serious physical harm.

10.4.2 Confined Space Evaluation

Confined spaces shall be evaluated by the Confined Space Supervisor prior to each entry. The Confined Space Supervisor shall evaluate these confined spaces for potential hazards which may be involved and specify entry requirements. Evaluation will include, as a minimum, atmospheric testing for oxygen level, combustible gases and vapors, and toxic gases and vapors which are known to exist or may potentially exist in the confined space. Potential Mechanical/Electrical Hazards must also be evaluated.

The atmosphere shall be tested in the following chronological order: Oxygen Level, Combustible Gases, Toxic Gases. The atmosphere shall be tested at the lower level, middle level and upper level of the confined space. Initial test results shall be recorded on the permit.

Entry into a confined space shall only be permitted when atmospheric testing indicates the following results, except as subsequently stated:

- Oxygen levels are > 19.5 percent and < 23.5 percent
- Combustible Gas Flammability/Explosivity levels are < 10 percent of Lower Explosive Limit (LEL)
- An atmospheric concentration of a specific substance is below the listed OSHA Permissible Exposure Limit (PEL) or ACGIH Threshold Limit Value (TLV)

An Authorized Entrant may enter a confined space when the oxygen level is less than 19.5 percent or when the atmospheric concentration of a specific substance exceeds the listed OSHA PEL or ACGIH TLV ONLY IF the entrant is respirator qualified, the appropriate respirator or breathing apparatus is worn, and the entry under these conditions is specifically authorized by the Confined Space Supervisor.

Following the evaluation of the confined space, the Confined Space Supervisor shall classify the confined space as either a permit-required confined space or a non-permit-required confined space, and specify confined space entry requirements. Entry requirements shall be recorded on the permit. A non-permit-required confined space does not require the use of an entry permit.

All confined spaces shall be continuously tested for oxygen level, flammable/explosive gases, toxic materials and other serious safety or health hazards identified by the Confined Space Supervisor throughout the duration of the confined space entry. Periodic test results shall be recorded on the permit.

10.5 CONFINED SPACE ENTRY PERMIT SYSTEM

A Confined Space Entry Permit (CSEP) system will be used by the Confined Space Supervisor to control employee entry into the permit-required confined space. Prior to each entry into any permit-required confined space, a written CSEP is required and shall be issued by the Confined Space Supervisor. Standard GFI format permits shall be used so that basic elements of information are documented.

10.5.1 Validity Period of Confined Space Entry Permit

A permit is valid for the duration of one work shift. In the event that additional time is needed, a new permit must be issued by the Confined Space Supervisor, pending reevaluation of the confined space certification for acceptable entry conditions.

10.5.2 Confined Space Entry Permit Form

The CSEP form will be completed by the Confined Space Supervisor for each permit-required confined space entry and will be specific to each entry situation. A copy of GFI's standard CSEP form is attached to this Standard Operating Procedure.

10.5.3 Posting, Maintenance, Cancellation and Filing of Confined Space Entry Permits

The CSEP shall be conspicuously posted at each confined space entry point, maintained until the entry has been completed and then canceled. Canceled CSEP forms shall be transferred to the GFI project file and maintained for a minimum period of one year.

10.6 TRAINING

10.6.1 Confined Space Supervisor

The Confined Space Supervisor shall have completed GFI's 16-hour course in Confined Space Operations, or equivalent.

10.6.2 Authorized Entrants

The Authorized Entrant(s) shall have completed GFI's 8-hour course in Confined Space Entry, or equivalent, as a minimum.

10.6.3 Attendants

The Attendant(s) shall have completed GFI's 16-hour course in Confined Space Operations, or equivalent.

10.6.3 Rescue Team

Prior to any confined space entry, the Confined Space Supervisor shall designate a rescue team comprised of on-site GFI personnel or an off-site local Rescue Team. The training of GFI rescue team personnel shall include, as a minimum:

- Use of the equipment needed to perform rescue functions
- Emergency and rescue methods and procedures
- Additionally, at least one member of the rescue team shall hold current certification in Red Cross first aid and Red Cross CPR

10.7 DUTIES

10.7.1 Confined Space Supervisor

The duties of the Confined Space Supervisor shall be as follows:

- Know space hazards including information on the mode of exposure, signs, or symptoms and consequences of exposure
- Identify confined spaces that must be entered as part of the work
- Evaluate confined spaces for potential hazards
- Verify emergency plans and specify entry conditions such as permits, tests, procedures, and equipment before allowing entry
- Verify that equipment specified for confined space entry is available and operational
- Designate a rescue team comprised of on-site GFI personnel or an off-site local Rescue Team and designate means of contacting the rescue team
- Verify training of authorized entrants, attendants and GFI rescue team
- Complete and sign permit form prior to initial entry

- Terminate entry and cancel permits when entry operations are completed or if a new condition exists that may cause death or serious physical harm
- Support Attendants in removal of unauthorized entrants
- Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained

10.7.2 Authorized Entrants

The duties of the Authorized Entrant(s) shall be as follow:

- Know space hazards, including information on the mode of exposure (e.g., inhalation or dermal absorption), signs or symptoms, and consequences of the exposure
- Use appropriate personal protective equipment properly
- Maintain communication with Attendants as necessary to enable the Attendant to monitor the Authorized Entrant's status as well as to alert the Authorized Entrant to evacuate
- Exit from permit space as soon as possible when ordered by an Attendant or other authorized person, when the Authorized Entrant recognizes the warning signs or symptoms of exposure exist, when a prohibited condition exists, or when an automatic alarm is activated
- Alert the Attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist

10.7.3 Attendants

The duties of the Attendant(s) shall be as follow:

- Remain outside permit space during entry operations and maintain communications with Authorized Entrants unless relieved by another authorized Attendant
- Perform non-entry rescues when specified by employer's rescue procedure
- Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences of the exposure, and their physiological effects
- Keep an accurate account of those workers entering the permit-required space
- Periodically check the status of conditions in the confined space via the methods used by the Confined Space Supervisor to perform initial evaluation of the confined space
- Order evacuation of the permit space when a prohibited condition exists, when an Authorized Entrant shows signs of physiological effects of hazard exposure, when an emergency outside the confined space exists, and when the Attendant cannot effectively and safely perform required duties

- Summon rescue and other services during an emergency
- Instruct unauthorized persons to stay away from permit spaces or to exit immediately if they have entered the permit space
- Inform Authorized Entrants and Entry Supervisor of entry by unauthorized persons
- Perform no other duties that interfere with the Attendant's primary duties

10.7.4 Rescue Team

The duties of the Rescue Team shall be as follow:

- Report immediately to the confined space, when summoned
- Don the appropriate Personal Protective Equipment (PPE)
- Attempt rescue

10.8 LOCKOUT/TAGOUT

Prior to entry into any confined space, the Confined Space Supervisor shall verify that all mechanical and electrical energy sources (pipes, valves, machinery, etc.) that may pose a hazard due to accidental startup, engulfment or electrocution, have been de-energized and/or rendered in the zero mechanical state through the following methods:

- Lockout/tagout
- Blanking or blinding
- Double block and bleed
- Disconnection

10.9 VENTILATION

Adequately sized mechanical ventilation equipment should be available for confined spaces prior to initial entry and for the duration of the CSEP. The use of mechanical ventilation shall be determined by the Confined Space Supervisor. However, care should be taken to ensure that the mechanical ventilation will not pose a hazard of its own such as carbon monoxide accumulation or ignition source in the confined space or spreading contamination outside of the enclosed area.

10.10 ELECTRICAL EQUIPMENT REQUIREMENTS

When electrical or battery powered equipment is used in a confined space, it shall meet the following requirements:

- Electrical or battery powered equipment must be intrinsically safe when a flammable or potentially explosive atmosphere is present.
- Ground fault electrical circuit interrupters for electrical equipment

10.11 COMPRESSED GAS CYLINDERS

Compressed gas cylinders, except cylinders used for Self-contained Breathing Apparatus (SCBA), shall not be taken into confined spaces.

10.12 CONFINED SPACE ENTRY SPECIFIC REQUIREMENTS

Prior to entry, the Confined Space Supervisor, shall specify the air monitoring requirements and equipment requirements for the confined space entry.

10.13 EMERGENCY RESPONSE

10.13.1 Authorized Entrants

In the event that the Authorized Entrants experience an emergency situation, they shall:

- Notify Attendant of emergency situation
- Help fellow entrant, if incapacitated, and proceed immediately to the nearest escape hatch; if an emergency retrieval system is used to support entry and exit, proceed to the hatch where the emergency retrieval system is located and attach lifeline to harness of incapacitated worker first
- Exit the confined space

10.13.2 Attendant

In the event of an emergency, the Attendant shall:

- Notify the on-site GFI Rescue Team or the off-site local Rescue Team by designated means of communication
- At no time is the Attendant to enter the confined space or leave the entrance unmanned
- The Attendant shall attempt rescue utilizing an emergency retrieval system without entering the space
- Upon arrival of the Rescue Team, the Attendant shall provide them with appropriate information requested to perform the rescue

10.13.3 Rescue Team

In the event of an emergency, the Rescue Team shall:

- Report immediately to the confined space.
- Don the appropriate PPE
- Attempt rescue

CONFINED SPACE ENTRY PERMIT

Entry Date:

Entry Time:

Expiration Time:

CS Location:

Description of task(s):

Confined Space Classification* (Circle) A (Do Not Enter) B (Caution) C

Personnel Assigned

Name: _____ Duties: _____

Training**: (Circle) 1 2 3

Name: _____ Duties: _____

Training**: (Circle) 1 2 3

Name: _____ Duties: _____

Training**: (Circle) 1 2 3

Name: _____ Duties: Attendant (Required)

Training**: (Circle) 1 2 3

Name: _____ Duties: CS Supervisor

Training**: (Circle) 1 2 3

Equipment/PPE Required: (Circle) 1 2 3 4 5 6 7 8 9 10

- | | |
|-------------------------|----------------------------|
| 1. Gloves | 6. Hearing Protection |
| 2. Hard Hat | 7. Other_____ |
| 3. Eye Protection | 8. Other_____ |
| 4. Coveralls | 9. Other_____ |
| 5. Steel Toe Shoes | 10. Other_____ |

Safety Requirements/Procedures: (Circle) 1 2 3 4 5 6

- | | |
|-----------------------------|------------------------------------|
| 1. Constant Monitoring | 4. Tripod and Retrieval Winch |
| 2. Buddy System | 5. Other_____ |
| 3. Safety Harness | 6. Other_____ |

* A -- Immediately Dangerous to Life and Health
 B -- Dangerous but not Immediately Dangerous to Life and Health
 C -- Requires no modification to standard procedures

** 1 -- CPR/Fist Aid
 2 -- Confined Space Entry
 3 -- Respirator Qualified

Emergency Phone Nos. _____
EMS _____

FIRE

OTHER

Monitor No. _____ Calibrated By _____ Date _____

Monitor No. _____ Calibrated By _____ Date _____

Atmospheric Monitoring Results:

<u>Activity</u>	<u>Time</u>	<u>Oxy%</u>	<u>LEL%</u>	<u>H₂S (ppm)</u>	<u>Acceptable Limits</u>	
					<u>CO (ppm)</u>	<u>Other</u>
			19.5-23.5	0-10	0-10	0-35

Pre-Entry

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Level of protection	_____	Rescue Equipment
Adeq. PPE Supply	_____	Ventilation
Isolation Complete	_____	Approved Tools & Equipment
Tagging	_____	Approved Lighting & Elec.
Lockout	_____	Communication

Comments:

Permit Prepared by:

Confined Space Supervisor

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

APPENDIX B

Initial HASP Training Log

INITIAL HASP TRAINING LOG

NASSAU UNIFORM SERVICES

[illegible]

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

APPENDIX C

Hospital Directions

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

HOSPITAL LOCATIONS AND DIRECTIONS

Hospital Location, Phone Numbers and Directions

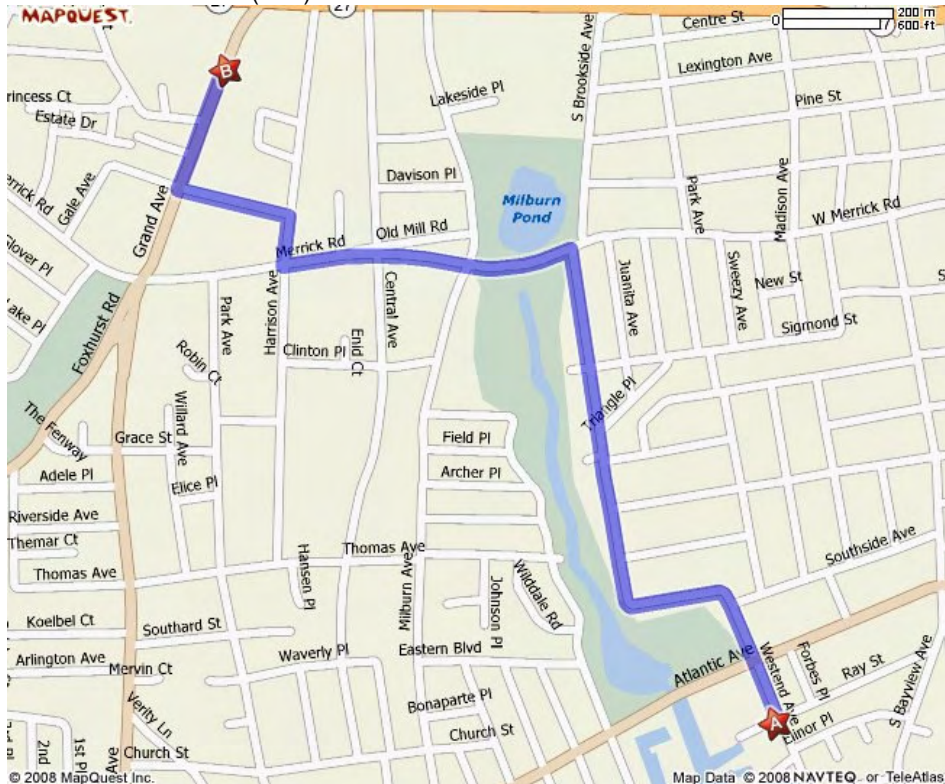
Start

Nassau Uniform Services
525 Ray Street
Freeport, NY 11520

Directions to Hospital: (see map)

1. Start out going NORTHEAST on RAY ST toward WESTEND AVE. (go 0.0 miles)
2. Turn LEFT onto WESTEND AVE. (go 0.2 miles)
3. WESTEND AVE becomes SOUTHSIDE AVE. (go 0.1 miles)
4. SOUTHSIDE AVE becomes S BROOKSIDE AVE. (go 0.5 miles)
5. Turn LEFT onto W MERRICK RD. (go 0.4 miles)
6. Turn RIGHT onto HARRISON AVE. (go 0.1 miles)
7. Turn LEFT onto PROSPECT ST. (go 0.1 miles)
8. Turn RIGHT onto GRAND AVE. (go 0.2 miles)
9. End at 2277 Grand Ave Baldwin, NY 11510

South Nassau Communities Hospital
2277 Grand Ave
Baldwin, NY 11510
General Information:(516) 546-1370



APPENDIX D

Project Contacts

NASSAU UNIFORM SERVICES

Owner

David Zinn
Tel: 516-378-0018
e-mail: dzinn@aol.com

Prime Consultant

Gannett Fleming Engineers and Architects
480 Forest Avenue
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Locust Valley, NY 11560
Tel: 516-671-8440
Fax: 516-671-3349

GF Project Manager

Jessica L. Ferngren
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Cell: 516-669-1504

GF Environmental Scientist

Kim Simone
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Fax: 516-671-3349
Cell: 516-578-9422

Subcontractors

Chemtech Laboratories

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Mountainside, NJ 07092
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e-mail: jdockery@chemtech.net
Cell: 732-688-2642
Fax: 908-789-8514

Naik Prasad (Surveyor)

William Easterbrook
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NYC, NY 10018
Tel: 212-575-2701
e-mail: weasterbrook@naikinc.com
Fax: 212-575-2702

Aquifer Drilling and Testing, Inc.

William Poupis
(Driller)

150 Nassau Terminal Road

New Hyde Park, NY 11040

Tel: 516-616-6026

e-mail: wpoupis@aquiferdrilling.com

Fax: 516-616-6194

Prime Environmental Incorporated
(Waste Disposal)

Howard Zimmerman

28 East Hanover Avenue

Morris Plains, NJ 07950

Tel: 973-326-8800

e-mail: hzimmerman@primeenvironmental.com

Cell: 973-610-1049

Fax: 973-326-1660

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

APPENDIX E

Accident / Incident Report

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

ACCIDENT / INCIDENT REPORT

	Report No. _____	
Site: _____	Project No. _____	
Location: _____		
Date of Report: _____	Preparer's Name: _____	
Name of Injured: _____		
Address of Injured: _____		

SSN: _____	Sex: _____ Age _____	
Years of Service: _____	Time on Present Job: _____	
Job Title/Classification: _____		
Division/Section: _____		
Date of Incident: _____	Time: _____	
Incident Category:	Motor Vehicle _____	Property Damage _____
	Fire _____	Chemical Exp. _____
	Near Miss _____	Other _____
Severity of Injury or Illness:		
	First-Aid Treatment _____	
	Lost Time _____	
	Physician Treatment _____	
	Fatality _____	
Describe property damage: _____		
Estimated amount of property damage: _____		
Estimated Number of Days Away from Job: _____		
Nature of Injury or Illness: _____		

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NASSAU UNIFORM SERVICES

Classification of Injury:

Fractures _____	Heat Burns _____	Cold Exposure _____
Dislocation _____	Chemical Burns _____	Frostbite _____
Sprains _____	Radiation Burns _____	Heat Stroke _____
Abrasions _____	Bruises _____	Heat Exhaustion _____
Lacerations _____	Blisters _____	Concussion _____
Punctures _____	Toxic Respiratory Exposure _____	Faint/Dizziness _____
Bites _____	Respiratory Allergy _____	Toxic Ingestion _____
Dermal Allergy _____		

Part of body affected: _____

Degree of disability: _____

Date medical care was received: _____

Location where medical care was received: _____

Address where medical care was received: _____

Incident Location

Detailed narrative description (how did accident occur, why: object, equipment tools used, circumstances, assigned duties). Be specific:

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

Causative agent most directly related to accident (object, substance, material, machinery, equipment, condition):

Was weather a factor? _____

Unsafe mechanical/physical environmental condition at time of accident (be specific):

Unsafe act by injured and/or others contributing to the accident (be specific, must be answered):

Personal factors (improper attitude, lack of knowledge or skill, slow reaction, fatigue):

Level of personal protective equipment required in Site Safety and Health Plan:

Was injured using required equipment: _____

If not, how did actual equipment use differ from plan?

What can be done to prevent a recurrence of this type of accident (modification or machine; mechanical guards; correct environment; training)?

HEALTH AND SAFETY PLAN
NASSAU UNIFORM SERVICES

Names of witnesses to accident:

Signature of Site Safety and Health Supervisor: _____

Signature of Project Manager: _____

APPENDIX B

NEW YORK STATE DEPARTMENT OF HEALTH

GENERIC COMMUNITY AIR MONITORING PROGRAM

New York State Department of Health Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially

exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m³) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is

observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000