

NASSAU COUNTY  
DEPARTMENT OF PUBLIC WORKS

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HEALTH AND SAFETY PLAN  
FOR THE  
NASSAU COUNTY FIREMEN'S TRAINING CENTER  
TOWN OF OYSTER BAY, NEW YORK

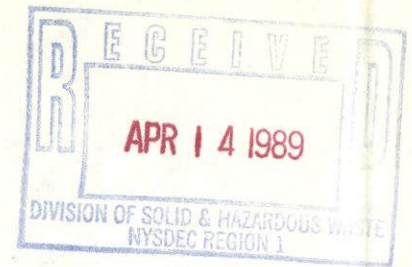
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MALCOLM PIRNIE, INC.  
100 Eisenhower Drive  
Paramus, New Jersey 07653

NASSAU COUNTY  
DEPARTMENT OF PUBLIC WORKS



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HEALTH AND SAFETY PLAN  
FOR THE  
NASSAU COUNTY FIREMAN'S TRAINING CENTER

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## HEALTH AND SAFETY PLAN

### 1.0 Introduction

In accordance with Malcolm Pirnie, Inc.'s corporate policies, this Health and Safety Plan was prepared to address the specific safety needs of the Nassau County Fireman's Training Center (FTC), Nassau County, New York. The plan has been in effect, with periodic revisions, since August 1987, and addresses RI/FS fieldwork at the site, conducted by Malcolm Pirnie employees. Additionally, it provides advisory information for other personnel engaged in these activities on-site. The plan was most recently updated in January 1989 and was reviewed in accordance with NYSDEC requirements at that time by Catherine Bobenhausen, (Senior Toxicologist with Malcolm Pirnie), a certified industrial hygienist (Certificate #3338) with the requisite minimum of six years of health and safety and two years of hazardous waste experience.

The basis for this document includes both available historical information and potential health hazards. Environmental monitoring will be performed as necessary during the course of field activities enabling the continual refinement of the Plan to address specific conditions and present corrective procedures.

All Malcolm Pirnie personnel and subcontractors involved with the FTC Site will be required to familiarize themselves and abide by this Health and Safety Plan. Compliance with this Plan is mandatory for all Malcolm Pirnie employees. The plan is intended to be advisory for all other personnel involved in on-site field activities. Enforcement and adherence to the FTC Health and Safety Plan will help prevent any potential for loss of life, injury or health hazards to the field investigators and the public. Malcolm Pirnie's Project Manager, Health and Safety Manager and the Site Health and Safety Officer identified below will determine and enforce compliance.

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This Plan addresses the requirements outlined in the following documents:

- Standard Operating Safety Guides, USEPA Emergency Response Team; November 1984;
- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; NIOSH, OSHA, USCG, USEPA; October 1985; and
- OSHA Health and Safety regulations contained in 29CFR 1910 and 1926.

Further, this Plan reflects the requirements of the Superfund Amendments and Reauthorization Act of 1986 including the interim final rules contained in 29 CFR 1910.120.

Compliance with the above referenced regulations is required for this plan to be in force. All personnel are expected to demonstrate completion of the training and experience requirements of OSHA and participation in an employer sponsored medical monitoring program.

## 2.0 Contaminant Characteristics and Toxicology

### 2.1 Hazardous Substances On-Site

The types of wastes present on site at the Firemen's Training Center Site include various flammable liquids (e.g., methyl ethyl ketone, acetone and fuel oils) which were possibly used in training activities at the Site. The FTC Site is located adjacent to and hydrogeologically downgradient of the Old Bethpage Solid Waste Disposal Complex which is owned and operated by the Town of Oyster Bay, New York. Although the landfill is presently closed to operations, the potential for methane buildup and explosions will warrant serious consideration during field activities to be conducted at the FTC. A Remedial Action Feasibility Study of the complex was recently completed in accordance with USEPA guidelines. The study identifies several halogenated and non-halogenated volatile organic compounds (VOCs) present in the ground water in the vicinity of the Firemen's Training Center. Halogenated VOCs detected include, 1,2-dichloroethene, 1,1-dichloroethane, vinyl chloride, methylene chloride, trichloroethene, chloroethane and tetrachloroethene. Non-

halogenated compounds detected at the site include benzene, toluene, ethyl benzene and xylenes.

Brief descriptions of the toxicology of the materials identified during the Remedial Action Feasibility Study and the sampling and analysis program and their related health and safety guidelines and criteria are provided below.

- Acetone is a colorless organic liquid with a fragrant, mint-like odor. No chronic health hazards have been associated with acetone exposure. Prolonged exposure may result in irritated eyes, nose and throat. Headaches and dizziness have been attributed to ingestion of acetone. The NIOSH recommended air standard for acetone is 250 ppm (593 mg/m<sup>3</sup>) Time Weighted Average (TWA). The ACGIH Threshold Limit Value (TLV) is 750 ppm (1,780 mg/m<sup>3</sup>) TWA and 1,000 ppm (2,375 mg/m<sup>3</sup>) Short Term Exposure Limit (STEL).
- Methyl ethyl ketone (MEK) exerts low toxicity following acute and chronic exposures. High concentrations in air may be irritating to the eyes, nose and throat, and prolonged exposure may result in central nervous system depression and narcosis. Prolonged skin contact may result in defatting of the skin and produce dermatitis. Eye contact may produce painful irritation and corneal injury. The OSHA PEL for MEK is 200 ppm (590 mg/m<sup>3</sup>) TWA.
- 1,2-Dichloroethene is a colorless liquid with an ether-like, slightly acrid odor like chloroform. The compound exists in two isomers, trans and cis. Chronic inhalation exposure of 1,2-trans-dichloroethene causes liver degeneration. Acute exposure to high levels has adverse effects on the central nervous system. Exposure to high vapor concentrations has been found to cause nausea, vomiting, weakness, tremors and cramps. Little exposure information on 1,2-cis-dichloroethene is available. OSHA has established a 200 ppm (790 mg/m<sup>3</sup>) TWA. The ACGIH TLV is 200 ppm (790 mg/m<sup>3</sup>) TWA.
- 1,1-Dichloroethane is a volatile colorless liquid with a chloroform-like odor. The compound is considered one of the least toxic of the chlorinated ethanes. It can cause central nervous system depression when inhaled at high concentration. The compound may be hepatotoxic in humans. The OSHA Air Standard for 1,1-dichloroethane is 100 ppm (400 mg/m<sup>3</sup>) TWA. The ACGIH Threshold Limit Value is 200 ppm (810 mg/m<sup>3</sup>) TWA and 250 ppm (1,010 mg/m<sup>3</sup>) STEL.
- Vinyl chloride is a Group A human carcinogen, via both oral and inhalation exposure. It has been shown to cause angiosarcomas of the liver and tumors of the brain, lung and hemolymphopoietic systems in humans. Vinyl chloride as a vapor and a liquid is mutagenic. Chromosomal aberrations have been found in workers occupationally exposed to vinyl chloride. OSHA standards are 1 ppm (2 mg/m<sup>3</sup>) TWA and 5 ppm (10 mg/m<sup>3</sup>) 15 min. ceiling value. The ACGIH TLV is 5 ppm (10 mg/m<sup>3</sup>).

- Methylene chloride can produce eye, respiratory passage and skin irritation when directly contacted by humans. Mild poisoning via inhalation exposure produces somnolence, lassitude, numbness, tingling of the limbs, anorexia and lightheadedness followed by rapid and complete recovery. More severe poisonings include greater disturbances of the central and peripheral nervous systems. OSHA Standards for air exposure are 500 ppm (1,737 mg/m<sup>3</sup>) TWA, 1000 ppm (3,474 mg/m<sup>3</sup>) ceiling level and 2000 ppm (6,948 mg/m<sup>3</sup>) peak concentration (5 min. in any 2 hours). ACGIH TLV is 50 ppm (175 mg/m<sup>3</sup>) TWA.
- Trichloroethylene is a colorless liquid with a sweet odor like chloroform. Trichloroethylene is classified as a Group B probable human carcinogen. Mild poisoning via inhalation exposure produces headache, vertigo and visual disturbance. More severe poisonings include greater disturbances to the respiratory and central nervous systems, heart, liver and kidneys. The NIOSH Recommended Standard in air is 25 ppm (135 mg/m<sup>3</sup>) TWA. OSHA standards include 100 ppm (540 mg/m<sup>3</sup>) TWA, 200 ppm (1,075 mg/m<sup>3</sup>) ceiling level (15 min.) and 300 ppm (1,620 mg/m<sup>3</sup>) for 5 min. every two hours peak concentration. The ACGIH TLV is 50 ppm (270 mg/m<sup>3</sup>) and the STEL, 200 ppm (1,080 mg/m<sup>3</sup>).
- Chloroethane is a volatile solvent, refrigerant and a raw material in the manufacture of tetraethyl lead. The compound caused minor neurological effects in workers exposed to high levels. Chloroethane is generally considered to be less toxic than 1,2-dichloroethane. OSHA has established an air standard of 1000 ppm (2,600 mg/m<sup>3</sup>) TWA. ACGIH has set the TLV at 1000 ppm (2,600 mg/m<sup>3</sup>) TWA.
- Tetrachloroethylene is a colorless liquid with an odor like ether or chloroform. Mild poisoning via inhalation exposure causes irritation of the eyes, nose and throat. More severe exposure can adversely affect the liver, kidneys, eyes, upper respiratory and central nervous systems. OSHA Air Standards include 100 ppm (670 mg/m<sup>3</sup>) TWA, 200 ppm (1,340 mg/m<sup>3</sup>) ceiling level and 300 ppm (2,010 mg/m<sup>3</sup>) for 5 min. every 3 hours peak levels. The ACGIH TLV is 50 ppm (335 mg/m<sup>3</sup>) and STEL is 200 ppm (1340 mg/m<sup>3</sup>).
- Benzene is a volatile industrial solvent and chemical intermediate. The compound is a Group A human carcinogen responsible for affects on the hematopoietic system including leukemia. Exposure to high concentrations of benzene in the air causes central nervous system depression and cardiovascular effects. Exposure may cause dermatitis. OSHA Standards are 1 ppm (3 mg/m<sup>3</sup>) TWA, and 5 ppm (7 mg/m<sup>3</sup>) STEL. The ACGIH TLV is 10 ppm (30 mg/m<sup>3</sup>) TWA.
- Ethyl benzene is a colorless aromatic liquid with an aromatic odor. The compound is a skin irritant and its vapor is irritating to the

eyes at a concentration of 200 ppm (890 mg/m<sup>3</sup>) and above. The OSHA standard is 100 ppm (435 mg/m<sup>3</sup>) TWA. The ACGIH TLVs are 100 ppm (435 mg/m<sup>3</sup>) TWA and 125 ppm (545 mg/m<sup>3</sup>) STEL.

- Xylenes are a group of colorless liquids with aromatic odors. Xylenes have three isomers (ortho, meta and para) that exhibit similar chemical properties. In humans, exposure to high concentrations adversely affects the central nervous system and irritates the mucous membranes. NIOSH standards in air are 100 ppm (435 mg/m<sup>3</sup>) TWA and 200 ppm (870 mg/m<sup>3</sup>) 10. min ceiling level. The OSHA air standard is 100 ppm (435 mg/m<sup>3</sup>) TWA and the ACGIH TLV is 100 ppm (435 mg/m<sup>3</sup>) and STEL 150 ppm (655 mg/m<sup>3</sup>).
- Toluene is an organic liquid derived from coal tar. Exposure to toluene may cause narcotic effects (impairment of coordination and reaction time), loss of appetite, headache, nausea and eye irritation. Generally, acute poisoning due to exposures to high concentrations are rare, and individuals recover easily when removed from the exposure. The OSHA time weighted average concentration standard for toluene is 200 ppm (750 mg/m<sup>3</sup>). The OSHA ceiling limit is 300 ppm (1125 mg/m<sup>3</sup>), and 500 ppm (1500 mg/m<sup>3</sup>) for a 10-minute peak concentration. The ACGIH TLV is 100 ppm (375 mg/m<sup>3</sup>).

## 2.2 Summary of Projected Risks

Due to the chemical use activities, disposal practices and the variety of potential contaminants at the Firemen's Training Center, the potential exists that during construction and field activities, workers will be exposed to hazardous substances. In addition, the use of heavy equipment on-site (e.g., drill rigs, backhoes, etc.) also presents conditions for potential physical injury to workers. Further, the fact that the Remedial Investigation and construction work may be carried out during the Summer/Fall makes heat stress for workers wearing protective equipment and clothing a distinct possibility.

Although no work at a site containing chemical contamination can be considered completely risk-free, logical and reasonable precautions can be implemented to provide an adequate level of protection for workers. The integration of medical evaluations, worker training relative to chemical hazards, safe work practices, proper personal protection, environmental monitoring, work zones and site control, appropriate decontamination procedures and contingency planning into the project approach minimizes the chances for

unnecessary exposures and physical injuries, thereby ensuring the health and welfare of on-site workers.

### 3.0 Responsibilities of Safety Personnel

The following roles have been identified for the project personnel:

Project Manager - The Project Manager has full responsibility for implementing and executing an effective program of employee protection and accident prevention. The Project Manager may delegate authority to expedite and facilitate any application of the program.

Health and Safety Manager - The Health and Safety Manager serves as the administrator of the corporation's health and safety program. The Health and Safety Manager is responsible for ensuring that Malcolm Pirnie field personnel are properly trained, that they have obtained medical clearance to wear respiratory protection (per 29 CFR Part 1910.134(b)(10)), and that they are properly trained in the selection, use and maintenance of personal protective equipment, including qualitative respirator fit testing.

The Health and Safety Manager will also serve as scientific advisor for the duration of the project, providing guidance on data interpretation and the determination of appropriate levels of worker protection.

Site Health and Safety Officer - The Site Health and Safety Officer is knowledgeable in safety and worker protection techniques as they relate to the project. Responsibilities include ensuring the day to day compliance of work to this Health and Safety Plan, balanced by the ability to adapt quickly to needed changes or additions to the plan. This individual will provide technical assistance to project management on problems relating to industrial hygiene and work site safety.

The Site Health and Safety Officer will conduct regular health and safety briefings on topical issues such as accident prevention, heat stress, etc. The frequency of safety briefings will be based upon the potential hazards specific to the designated work tasks.



The Site Health and Safety Officer will also be responsible for performing workplace air sampling such as organic vapor monitoring, as well as the interpretation and documentation of all generated data. As data are received and evaluated, the Site Health and Safety Officer will adapt this Health and Safety Plan to fit the current worker protection needs at the site. Employees will be informed of the air sampling results.

The Site Health and Safety Officer is responsible for the development and set up of emergency procedures and personal decontamination procedures. He shall complete a daily diary of activities with health and safety relevance.

Should unsafe work conditions ever be determined, the Site Health and Safety Officer is authorized to stop work. Resolution of all on-site health and safety problems will be coordinated through the Project Manager with assistance from the Health and Safety Manager.

#### 4.0 Medical Surveillance

Medical surveillance is as integral a part of a health and safety program as safety equipment, protective clothing, respiratory protection and training programs. The establishment and use of a medical surveillance program in conjunction with personal monitoring is essential to assess and monitor workers' health and fitness both prior to field activities and during the course of work.

Medical monitoring, including initial employment, annual and employment termination examinations will be provided to Malcolm Pirnie employees whose work may result in potential chemical exposure or present unusual physical demands. Medical evaluations will be performed by an occupational physician designated by Malcolm Pirnie, Inc. The medical evaluations will be conducted according to the Malcolm Pirnie, Inc. Medical Monitoring Program and include an evaluation of the workers' ability to use respirator protective equipment (as per 29CFR 1910). The examination will include:

- Occupational history;
- Medical history;
- Medical review;

- Medical surveillance examination with emphasis on organ systems potentially affected by toxic substances identified in the work environment;
- Medical certification of physical requirements (sight, hearing, musculoskeletal, cardiovascular) for safe job performance; and
- Laboratory testing to include a complete blood count, white cell differential count, serum multiphasic screening and urinalysis.

The purposes of the medical evaluation are to: (1) determine fitness for duty on hazardous waste sites; and (2) establish baseline medical data.

Supplemental examinations may be performed whenever there is an actual or suspected exposure to chemical contaminants, upon experience of exposure symptoms, or following injuries or temperature stress.

In conformance with OSHA regulations, Malcolm Pirnie will maintain and preserve medical records for a period of 30 years following termination of employment. Employees have access to the results of medical testing and to full medical records and analyses.

All Malcolm Pirnie subcontractor personnel involved in site activities will undergo a baseline medical examination at the expense of the subcontractor. Contents of the examination must be determined by the subcontractor's medical consultants, who will have been provided with adequate information on the site hazards contained in this Health and Safety Plan to enable an evaluation of fitness to be made. The examination must include an OSHA-type evaluation of the workers' ability to use respiratory protective equipment. A medical approval is required prior to the start of work from the subcontractor's medical consultant to the Project Manager certifying the medical fitness of each person to perform his duties and to wear a respirator.

#### 5.0 Employee Training Program

Prior to any site activities, the Malcolm Pirnie field investigation team (including subcontractor personnel) will participate in a site-specific health and safety orientation program developed by Malcolm Pirnie's Health and Safety Manager. At a minimum, the orientation training will cover:

- Emergency and routine communications;

- First aid (recognition of conditions requiring emergency or medical care and simple steps to take until help arrives);
- Decontamination procedures;
- Special chemical and physical hazards and potential health effects;
- Personnel protective equipment use, maintenance, fit and limitations;
- Site evaluation;
- Work zone designations.

All Malcolm Pirnie personnel and subcontractors assigned to the field investigation team will undergo the safety indoctrination program to:

- Ensure that regard for the health and safety of fellow employees, the public and the environment is maximized;
- Comply with all laws, rules and regulations to safeguard the health and safety of all employees, the public, and the environment;
- Increase the ability of employees to react responsibly and to handle emergency situations in a safe manner under normal conditions and when physiological and psychological stresses occur; and
- Educate the field investigation team of potential hazards at the FTC site, potential adverse health effects and the importance of safety and industrial hygiene practices.

Periodic health and safety briefings will be conducted in the field by the Site Health and Safety Officer for Malcolm Pirnie project employees and subcontractor personnel on an as-needed basis. Problems relative to respiratory protection, inclement weather, heat stress or the interpretation of newly-available site specific environmental monitoring data are examples of topics which might be covered during these briefings.

#### 6.0 Safe Work Practices

The understanding of basic, precautionary concepts regarding personal health and safety is essential for workers assigned to sites such as the FTC site where chemical contamination is known or suspected to be present. These concepts deserve emphasis here:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice which increases the probability of hand-to-mouth transfer of contaminated material is strictly prohibited;

- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above. Each individual should shower as soon as possible after the removal of protective clothing and equipment upon completion of the daily field activities. Wash area and shower facilities inside the FTC building may be made available upon request to serve the on-site workers;
- Any required respiratory protective equipment and clothing must be worn by designated on-site personnel. Excessive facial hair (i.e., beards, long mustaches or sideburns), which interferes with the satisfactory respirator-to-face seal is prohibited;
- When it is necessary for a visitor to observe the field work, that person will be issued appropriate personal protective equipment, briefed on potential hazards, safety practices, decontamination procedures and site communications. Visitors will be denied access past the exclusion zone or "hot line."
- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, cross-contamination and need for decontamination;
- Medicine and alcohol can potentiate the effects of exposure to toxic chemicals. Due to possible contraindications, use of prescribed drugs should be reviewed with the Malcolm Pirnie occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during site work activities;
- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this Health and Safety Plan;
- On-site personnel shall use the "buddy" system. No one may work alone, i.e., out of earshot or visual contact with other workers;
- Personnel and equipment in the contaminated area shall be minimized, consistent with effective site operations;
- All employees have the obligation to correct or report unsafe work conditions; and
- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for Malcolm Pirnie employees, as required.

## 7.0 Personal Protective Equipment

### 7.1 Protection Levels

Personnel must wear protective equipment when work activities involve known or suspected atmospheric contamination; when vapors, gases, or

particulates may be generated; or when direct contact with dermally active substances may occur. Respirators can protect the lungs, the gastro-intestinal tract and the eyes against air toxicants. Chemical-resistant clothing can protect the skin from contact with skin-destructive and skin-absorbable chemicals. Good personal hygiene and appropriate work practices limit or prevent the ingestion of materials.

Each contractor engaged in field activities at the FTC will be responsible for outfitting their own personnel with the required protective clothing and respiratory equipment. Malcolm Pirnie can provide a list of required protective apparatus to the County which can be distributed to the various contractors.

Equipment designed to protect the body against contact with known or anticipated chemical hazards have been divided into four categories according to the degree of protection afforded:

- Level A: Should be selected when the highest level of respiratory, skin and eye protection is needed;
- Level B: Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required; Level B protection is the minimum level recommended on initial site entries until the hazards have been further defined by on-site studies;
- Level C: Should be selected when the types of airborne substances are known, the concentrations have been measured and the criteria for using air-purifying respirators are met; and
- Level D: Should not be worn on any site with respiratory or skin hazards. This is primarily a work uniform providing minimal protection.

The selected level of protection is based primarily on:

- Types and measured concentrations of the chemical substances in the ambient atmosphere and their associated toxicity; and
- Potential or measured exposure to substances in air, splashes of liquids or other indirect contact with material due to the task being performed.

In situations where the types of chemicals, concentrations, and possibilities of contact are not known, the appropriate level of protection must be selected based on professional experience and judgement until the hazards may

be further characterized. The individual components of clothing and equipment must be assembled into a full protective ensemble to protect the worker from site-specific hazards, while at the same time minimizing hazards and drawbacks of the personal protective gear itself. Ensemble components based on the widely used USEPA Levels of Protection are detailed below for levels B, C, and D protection.

## 7.2 Level B Protection Ensemble

### Recommended

- Pressure-demand, full-facepiece self-contained breathing apparatus (MSHA/NIOSH approved) or pressure-demand supplied-air respirator with escape SCBA;
- Chemical-resistant clothing (coveralls and long-sleeved jacket; hooded one- or two-piece chemical splash suit; disposable chemical-resistant one piece suit);
- Inner and outer chemical resistant gloves;
- Chemical-resistant safety boots/shoes; and
- Hard hat.

### Optional

- Coveralls
- Disposable boot covers
- Face shield
- Long underwear

Meeting any one of the following criteria warrants the use of Level B protection:

The types and atmospheric concentrations of toxic substances have been identified and require the highest level of respiratory protection, but a lower level of skin and eye protection. These would be atmospheres:

- with concentrations Immediately Dangerous to Life and Health (IDLH);
- exceeding limits of protection afforded by a full-face air-purifying mask;
- containing substances for which air-purifying canisters do not exist or have low removal efficiency;

- containing substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard;
- containing less than 19.5% oxygen; or
- with evidence of incompletely identified vapors or gases as indicated by direct reading organic vapor detection instrument, but those vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

Level B equipment provides a high level of protection to the respiratory tract, but a somewhat lower level of protection to skin. The chemical-resistant clothing required in Level B is available in a wide variety of styles, materials, construction detail and permeability. These factors all affect the degree of protection afforded. Therefore, a specialist should select the most effective, chemical-resistant clothing based on the known or anticipated hazards and task. Level B skin protection is selected by:

- Comparing the concentrations of identified substances in the air with skin toxicity data;
- Assessing the effect of the substance (at its measured air concentrations or splash potential) on the small area of the head and neck unprotected by chemical-resistant clothing.

### 7.3 Level C Protection Ensemble

#### Recommended

- Full-facepiece, air-purifying respirator equipped with MSHA and NIOSH approved cartridges.
- Chemical-resistant clothing (overalls and long-sleeved jacket, hooded, one- or two-piece chemical splash suit or disposable chemical-resistant one-piece suit);
- Inner and outer chemical-resistant gloves;
- Chemical-resistant safety boots/shoes; and
- Hardhat.

#### Optional

- Coveralls
- Disposal boot covers
- Face shield

- Escape mask
- Long underwear

The use of Level C protection is permissible upon satisfaction of these criteria:

- Measured air concentrations of identified substances will be reduced by the respirator to below the substance's permissible exposure limit (PEL), threshold limit value (TLV), and/or the concentration is within the service limit of the cartridge;
- Atmospheric contaminant concentrations do not exceed IDLH levels; and
- Atmospheric contaminants, liquid splashes or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing air-purifying devices.

The device must be an air purifying respirator (MSHA/NIOSH approved) equipped with filter cartridges. Cartridges must be able to remove the substances encountered. Respiratory protection shall be used only with proper fitting, training and the approval of a qualified individual.

An air monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

#### 7.4 Level D Protection Ensemble

##### Recommended

- Coveralls
- Safety boots/shoes
- Safety glasses or chemical splash goggles
- Hardhat

##### Optional

- Gloves
- Escape mask
- Face shield



The use of Level D protection is permissible upon satisfaction of these criteria:

- No hazardous air pollutants have been measured; and
- Work functions preclude splashes, immersion or the potential for unexpected inhalation of any chemicals.

Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, or where there are no inhalable toxic substances.

#### 7.5 Recommended Levels of Protection

Based upon current information regarding the contaminants suspected to be present at the Nassau County Firemen's Training Center Site, the following Levels of Protection are recommended during the monitoring well installation activities to be undertaken as part of the initial work scope.

Additional task-specific recommended levels of protection will be made part of this interim FTC Health and Safety Plan as more tasks are defined and added to the project scope of work.

#### RECOMMENDED LEVELS OF PROTECTION: MONITORING WELL INSTALLATION

	<u>Respiratory*</u>	<u>Clothing</u>	<u>Gloves</u>	<u>Over Boots</u>	<u>Other; Modifications</u>
Field Management	D			L	
Health & Safety Surveillance	D/C/B	T	L/N	L	Safety Glasses, Hardhat
Monitoring Well Installation	D/C/B	T	L/N	L	Safety Glasses, Hardhat
Sample Collection	D/C/B	T	L/N	L	Safety Glasses, Hardhat
Decontamination	D/C/B	T	L/N	L	Safety Glasses

\* Level of protection based on air monitoring in the breathing zone.  
 Level C requirement is an air purifying cartridge respirator equipped with Organic Compound/Acid Gases/Dust cartridges.  
 Level B requirement is a supplied air respirator or self-contained breathing apparatus in pressure-demand mode. See Section 8.2 for decision logic.

T = Tyvek  
 L = Latex  
 N = Nitrile

## 7.6 Heat Stress

Personal protective equipment may place a worker at considerable risk of developing heat stress, probably one of the most common (and potentially serious) illnesses encountered at hazardous waste disposal sites. The potential for heat stress is dependent on a number of factors, including environmental conditions, clothing, workload, physical conditioning and age. Personal protective equipment may severely reduce the body's normal ability to maintain equilibrium (via evaporation, convection and radiation), and by its bulk and weight increases energy expenditure. Therefore, in the selection of outer protective clothing, the intent of protecting against chemical splashes or other potential skin exposure must be carefully weighed against the added heat stress that may be associated with the impermeability of the suit.

No material protects against all chemicals and combinations of chemicals. No currently available material is an effective barrier to prolonged chemical exposure. For work at this location, Tyvek suits will be worn. Because heat stress may be a serious concern for work at this site, and the potential for immersion or chemical splashing is minor and can be minimized through the institution of proper operating procedures, Tyvek is the material of choice. Although Tyvek offers little or no protection against hazardous liquid or vapor contaminants, it does protect against particulate contaminants and other nuisances and limits the amount of direct contamination of inner garments. Soiled Tyvek is to be immediately discarded and replaced.

## 8.0 Environmental Monitoring

### 8.1 General Approach

Whenever feasible, the level of protection established for on-site workers engaged in construction and field activities at the FTC Site will be based upon qualitative and quantitative determinations of the chemical agents present in the work environment. Documentation of the chemicals suspected at the Firemen's Training Site will be used to determine appropriate levels of personal protection. Based upon the existing data base, minor concentrations of organic vapors are anticipated. Levels are anticipated to be below the permissible exposure limits (PEL) established by OSHA, NIOSH and ACGIH for the individual compounds. Site respiratory and dermal protection requirements may

be modified (upgraded or downgraded) based upon the results of field monitoring data obtained once field activities are initiated.

The field monitoring program will include measurement of volatile organic contaminant levels, by either a HNU or Foxboro Organic Vapor Analyzer (OVA) detector, when the soil is physically disturbed by excavating, drilling and sampling equipment employed during the monitoring well installation activities. The necessary level of respiratory protection will be based upon these sampling results.

A combustible gas and oxygen meter will also be utilized during the field activities. All monitoring instruments will be protected from surface contamination during use to allow for easy decontamination. Additional monitoring instruments may be added if the situations or field conditions change.

Prior to surface penetration during well drilling and sampling activities, background instrumentation measurements will be established and recorded to complement the existing data base. All of these field measurements will be obtained and documented on the appropriate forms by the Site Health and Safety Officer. In addition, all field measurement values generated will be subjected to immediate interpretation as a means of ensuring the effectiveness of the existing level of protection.

Upon surface penetration, initial characterization of the cuttings will be obtained using a Photovac TIP or similar organic vapor monitoring device. Observed values will then be recorded and maintained as part of the permanent field record. Breathing zone values will also be periodically determined, the frequency of which will be dependent primarily upon values generated by the cuttings and the proximity of the worker's breathing zones to the source of contamination. Contaminant values which are in excess of established action levels appropriate for the prescribed level of protection will be immediately addressed. These action levels are described below.

The ends of the core samples will be surveyed with the Photovac TIP (or similar equipment) as each sample is retrieved. These values will be recorded with the respective sample number and will be used to determine the adequacy of employee personal protection equipment.

Atmospheric conditions will be routinely monitored for organic vapors during the on-site activities. This will assist in work zone demarcations.

### 8.2 Monitoring Action Levels

General guidelines associated with readings obtained in the breathing zone via organic vapor analyzers must be considered with regard to other site conditions as follows:

- Level B - Total atmospheric concentrations of unidentified vapors or gases ranging from 5 to 50 ppm on the instrument (vapors not suspected of containing high levels of chemicals toxic to the skin);
- Level C - Total vapor readings register between background and 5 units above background on monitoring instruments; and
- Level D - No detectable inhalable toxic substances.

To date (1/16/89), no organic vapors have been detected, as a result of periodic monitoring within the breathing zone. However, readings ranging from 3 to 60 ppm have been recorded in subsurface soils collected at depths of 30' to 46' below ground surface. The procedures for continued operation at the site are described in greater detail below.

Of the aromatic and halogenated organic compounds detected in ground water at the site, two, vinyl chloride and methylene chloride, are chemicals for which cartridge respirators should not be used for respiratory protection. Vinyl chloride has the most stringent OSHA permissible exposure limits of the two: its 15-minute ceiling limit is 5 ppm and its 8-hour guideline is 1 ppm. Therefore, it appears appropriate that Level C respiratory protection (i.e. combination organic vapor/acid gases/dust cartridges) be specified for intermittent breathing zone measurements from background levels up to 5 ppm, as protection from the other organic vapors. If measurements are persistent (i.e., expected to exceed a 15-minute exposure interval over the 8-hour work day), however, or if levels exceed 5 ppm for any amount of time, Level B (supplied air or self-contained breathing apparatus) respiratory equipment is mandated.

The explosimeter will be used to monitor levels of both combustible gases and oxygen during drilling and excavation activities. The results from this instrument may be interpreted as follows:

- Less than 10% LEL - Continue operations with caution;
- 10-25% LEL - Continuous monitoring with extreme caution;
- Greater than 25% LEL - Explosion hazard, shut-down operations and evaluate source;
- Less than 19.5% oxygen - wear SCBA;
- 19.5-25% oxygen - Continue investigation with caution; and
- Greater than 25% oxygen - Discontinue operations, fire hazard potential.

## 9.0 Temperature Stress

### 9.1 Hypothermia

Hypothermia is defined as a decrease in a person's body core temperature to 95°F (35°C). A freezing or rapidly dropping temperature is not needed to produce hypothermia. A person's ability to maintain normal body temperature may be affected by medications/drugs, alcohol, wind or becoming wet. As discussed in Section 6, the use of prescribed drugs during site activities should be reviewed with the occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during site work activities.

Although protective clothing provides protection from many sources of external wetting, perspiration is often increased while working, causing the skin and clothing to become moist or wet. Wet clothes and skin can conduct body heat at a rapid rate. In addition, the effects of wind and water are more than additive, creating a condition for extreme loss of body heat. Exposed skin should not be permitted when the wind chill factor results in a relative temperature of -25°F or below, wet clothes should be replaced at temperatures below 35.6°F.

Dehydration, or the loss of body fluids, occurs insidiously in the cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. Warm sweet drinks and soups should be provided for caloric intake and fluid. The intake of coffee should be limited because of its diuretic and circulatory effects.

Shielding the work area from the wind or wearing a windbreaker will reduce wind chill effect. A water-repellant outer garment with good ventilation should be worn. Older workers or workers with circulatory problems require special precautionary protection against cold injury. The

use of extra insulating clothing and/or a reduction in the duration of exposure period are among the special precautions which should be considered. If the available clothing does not give adequate protection to prevent hypothermia or frostbite, work shall be modified or suspended until adequate clothing is made available or until weather conditions improve.

With proper surveillance, hypothermia can be identified in its earliest stage, thus preventing a potential hazard to the worker.

The single most important sign of hypothermia is a change in behavior, often subtle and best recognized by a co-worker. Other changes include:

- a decrease in usual efficiency;
- forgetfulness and a decreased level of communication;
- decline in manual dexterity;
- poor motor skills or repetitive behavior;
- poor judgement; and
- lack of concern for physical needs.

Physical signs of hypothermia include a cold, pale skin appearance, shivering and "goose flesh". Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 95°F. This must be taken as a sign of danger to workers and exposure to cold should be immediately terminated.

Mild hypothermia is treated by rewarming the affected person by:

- moving him to a protected area;
- removing wet or damp clothing;
- providing hot fluids, and
- wrapping in dry blankets.

More severe cases of hypothermia require prompt intervention by medical personnel in addition to the above activities.

Frostbite is a local cold injury which rarely occurs unless environmental temperatures are less than freezing and usually less than 20°F (-6.7°C). Frostbite commonly occurs on the exposed portions of flesh (e.g., ears, nose, hands) and is recognized by a whitened area which, in mild cases, is slightly burning or painful.

Frostbite can be prevented by:

- covering exposed flesh with loose, dry clothing;
- avoiding skin contact with bare metal, gasoline or other hydrocarbons;
- avoiding tobacco and drug use; and
- maintaining dry clothing.

Field personnel should frequently (e.g., every 15 minutes) inspect each other for signs of frostbite under very cold-weather conditions.

Mild cases of frostbite, where the affected area is still painful, may be treated in the field by rewarming. More serious cases of frostbite should be treated at a medical facility since attempting to thaw the frozen area can cause severe damage. A victim of serious frostbite should be protected from the environment and further heat loss prevented, but the skin should not be rubbed or thawed with warm water or dry heat.

## 9.2 Heat Stress

Since some of the field activity at the Firemen's Training Center Site may be scheduled for the late summer months, measures will be taken to minimize heat stress to workers. The Site Health and Safety Officer will be cognizant of the symptoms of heat stress and will be responsible for monitoring worker exposure and working conditions. The signs and symptoms of heat stress are as follows:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:
  - muscle spasms
  - pain in the hands, feet and abdomen

- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:
  - pale, cool, moist skin
  - heavy sweating
  - dizziness
  - nausea
  - fainting
  
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are:
  - red, hot, usually dry skin
  - lack of or reduced perspiration
  - nausea
  - dizziness and confusion
  - strong, rapid pulse
  - coma

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 110 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be further shortened by 33%.
  
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the following work cycle may be further shortened by 33%. Oral temperature should be measured again at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No worker may be permitted to continue wearing semipermeable or impermeable garments when his/her oral temperature exceeds 100.6° Fahrenheit.



Conversely, information on cold weather stress will be appended as appropriate to this health and safety plan relative to project schedule regarding initiation of field activities during the winter months.

#### 10.0 Work Zones and Site Control

Work zones around the areas designated for drilling or sampling will be established and communicated to all Malcolm Pirnie employees and associated subcontractor personnel by the Site Health and Safety Officer. The zones include:

- Exclusion Zone ("Hot Zone") - the area where contamination may be present. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment. The hotline would be initially defined as an area 25 feet in radius originating at the proposed drilling or sampling point;
- Support Zone - outermost part of the site which is considered non-contaminated or "clean". This area should be located upwind from the Hot Zones with regard to prevailing winds. Support equipment is located in this zone, and personnel may wear normal work clothes within this zone. Any potentially contaminated clothing, equipment and samples must remain in the Contamination Reduction Zone until decontaminated;
- Contamination Reduction Zone - the transition zone between the Exclusion and Support Zones. The zone where decontamination of personnel and equipment takes place.

Once designated, the Exclusion Zone will be conspicuously identified through the use of ropes or colored tape. The decontamination of personnel and equipment will be performed as described before the Support Zone is entered. Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled. Only personnel who are essential to the completion of the task will be allowed access to these areas and only if they are wearing the prescribed level of protection. Entrance of personnel not affiliated with Malcolm Pirnie or its associated contractors must be approved by the Site Health and Safety Officer.

A log containing the names of employees and their level of protection will be maintained.

## 11.0 Decontamination Procedures

### 11.1 Personal Decontamination

The degree of decontamination required is a function of both a particular project task and the physical environment within which it takes place. The following decontamination procedure will remain flexible, thereby allowing the decontamination crew to respond appropriately to the changing environmental and sampling conditions which may arise during performance of field activities at the FTC Site.

Upon leaving the exclusion zone for lunch or at the end of the day, personnel will be required to remove all contaminated protective clothing/equipment. Upon completion of field activities, the work crew will proceed towards the contamination reduction corridor. Field equipment (i.e, shovels, tools, etc.) will remain in the Exclusion Zone. Boot covers and outer gloves will be washed with a soap and water solution, rinsed with fresh water, and removed within the Exclusion Zone.

The workers will then enter the Contamination Reduction Zone. Personal protection equipment will be washed with a soap and water solution and rinsed with fresh water. Respirator cartridges and other personal protective equipment can be replaced or removed in the corridor.

Following the removal of all personal protective equipment, workers will enter the Support Zone. Contaminated personal protective equipment (i.e., suits, inner gloves, respirator cartridges, etc.) will be considered contaminated and placed into barrels and prepared for disposal along with the soil cuttings generated during the soil boring activities. Malcolm Pirnie can help coordinate the removal of these barrels by a licensed removal contractor should analytical results identify the wastes to be hazardous. All wash and rinse waters will be directed to the on-site oil/water separator and then discharged to the sewer system.

### 11.2 Decontamination for Medical Emergencies

In the event of a minor, non-life threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid.

In the event of a major injury or other serious medical concern (i.e., heat stroke), immediate first-aid is to be administered in lieu of further decontamination efforts unless the environmental conditions would be considered "Immediately Dangerous to Life or Health."

### 11.3 Decontamination of Field Equipment

Decontamination efforts will be conducted in the Contamination Reduction Zone. Soap and water and mechanical cleaning with a brush will be used to remove all obvious contamination from the tools. The tools will then be rinsed with water. This procedure will be repeated twice.

It is expected that all tools will be constructed of non-porous, non-absorbent materials (i.e., metal) which will aid in the decontamination effort. Any tool or part of a tool which is made of porous, absorbent material (i.e., wood) will be placed into barrels and prepared for disposal.

All decontamination wash and rinse waters will be directed to the on-site oil/water separator and then discharged to the sewer system.

The decontamination of heavy equipment will be undertaken when all on-site activities have been completed. A high temperature, high pressure spray device will be used to wash the potentially contaminated areas of the equipment. This will continue until all visible signs of contamination are removed. All decontamination waters will be directed to the on-site oil/water separator and then discharged to the sewer system.

## 12.0 Fire Prevention and Protection

### 12.1 General Approach

Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations will be followed in the development and application of Project Fire Protection Programs. When required by the client or regulatory authorities, the project management will prepare and submit a Fire Protection Plan for the approval of the contracting officers, authorized representative or other designated official. Essential considerations for the Fire Protection Plan will include:

- Proper site preparation and safe storage of combustible and flammable materials;

- Availability of coordination with private and public fire authorities;
- Adequate job-site fire protection and inspections for fire prevention; and
- Adequate indoctrination and training of employees.

#### 12.2 Equipment and Requirements

- Fire extinguishers will be provided by the excavators and drillers;
- Fire extinguishers will be inspected, serviced, and maintained in accordance with the manufacturer's instructions. As a minimum, all extinguishers shall be checked monthly and weighed semi-annually, and recharged if necessary; and
- Immediately after each use, fire extinguishers will be either recharged or replaced.

#### 12.3 Flammable and Combustible Substances

- All storage, handling or use of flammable and combustible substances will be under the supervision of qualified persons; and
- All tanks, containers and pumping equipment, whether portable or stationary, which are used for the storage and handling of flammable and combustible liquids, will meet the recommendations of the NFPA.

### 13.0 Emergency Information

#### 13.1 Personnel Exposure

- Skin contact: Use copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention. Eyewash stations will be provided on site. If necessary, transport to the nearest hospital.
- Inhalation: Move to fresh air and, if necessary, transport to the nearest hospital.
- Ingestion: Decontaminate and transport to the nearest hospital.

### 13.2 Personal Injury

Emergency first-aid will be applied on-site as deemed necessary. Several individuals trained in first-aid should be on-site during all work activities. Decontaminate and transport the individual to the nearest Hospital if needed. The On-site Health and Safety Officer will supply available chemical-specific information to appropriate medical personnel as requested.

First Aid kits will conform to Red Cross and other applicable good health standards, and shall consist of a weatherproof container with individually-sealed packages for each type of item. First aid kits will be fully equipped before being sent out on each job and will be checked weekly by the On-Site Health and Safety Officer to ensure that the expended items are replaced.

### 13.3 Adverse Weather Conditions

In the event of adverse weather conditions, the Site Health and Safety Officer will determine if work can continue without sacrificing the health and safety of on-site personnel. Items to be considered in making this determination should include:

- Potential for heat or cold stress;
- Inclement weather - related working conditions;
- Limited visibility; and
- Potential for electrical or dust storms.

### 13.4 Emergency Telephone Numbers

Nassau County Project Manager:  
Peter Witkowski (516) 997-8282 (W)  
(212) 362-5820 (H)

Nassau County Site Representative:  
Michael Flaherty (516) 997-8282 (W)  
(516) 581-3833 (H)

Malcolm Pirnie Project Manager:  
John Isbister (201) 845-0400 (W)  
(914) 834-8961 (H)

Malcolm Pirnie Alternate Project Manager:  
James K. Schaefer (201) 845-0400 (W)  
(201) 391-0982 (H)

Malcolm Pirnie Health and Safety Manager:  
Richard J. Califano (914) 694-2100 (W)  
(914) 964-9372 (H)

Malcolm Pirnie Site Health and Safety:  
Donald K. Cohen (201) 845-0400 (W)  
(914) 723-1570 (H)

Nearest Hospital - Plainview Medical Center  
700 Old Country  
Plainview, Long Island (516) 931-5010

Hospital with Medical Records of County Personnel -  
Nassau County Medical Center  
East Meadow, Long Island (516) 542-0123

Fire - Oyster Bay 911  
Ambulance - Oyster Bay 911  
Police - Oyster Bay 911

All telephone numbers listed above will be conspicuously posted in the command post during the entire field effort at the FTC site.

#### 13.5 Records and Reporting

It shall be the responsibility of the project management to establish and assure adequate records of all:

- Occupational injuries and illnesses;
- Accident investigations;
- Reports to insurance carrier or state compensation agencies;
- Reports required by the client;
- Records and reports required by local, state, federal and/or international agencies;
- Property or equipment damage;
- Third party injury or damage claims;
- Environmental testing logs;
- Explosive and hazardous substances inventories and records;
- Records of inspections and citations;
- Related correspondence; and
- Safety training.

## 14.0 Explosive Gases

### 14.1 Background

Elevated explosive gas concentrations were detected venting from monitoring wells installed on the Nassau County Firemen's Training Center. Explosive gas was detected following installation and during the development of the wells. Methane is the presumed gas based on the nondetectable readings on the HNu photoionization detector and the positive explosimeter readings. This section presents additional information regarding the measurement and interpretation of explosive gas concentrations.

The LEL (lower explosive limit) of a combustible gas or vapor is the lowest concentration by volume in air which will explode, ignite or burn when there is an ignition source. The upper explosive limit (UEL) is the maximum concentration. Above the UEL insufficient oxygen is available to support combustion so ignition is impossible; below the LEL insufficient fuel is available to support ignition.

### 14.2 Meter Readings and Action Levels

The combustible gas indicator measures the concentration of a flammable vapor or gas in air, indicating the results as a percentage of the LEL of the calibration gas (methane). For example, if the meter reads 50, this means that 50 percent of the concentration of combustible gas needed to reach an unstable flammable or combustible situation is present. Thus, for methane with an LEL of 5.3 percent, a meter reading of 0.5 indicates that 2.6 percent methane is present.

If a concentration greater than the LEL and lower than the UEL is present, than the meter needle will stay beyond the 100 level; this indicates a readily combustible ambient atmosphere. When the atmosphere has a gas concentration above the UEL, the meter needle will rise above the 100 level and then return to 0; this occurs because the gas mixture is too rich to burn.

Action levels for each range of combustible gas readings were presented in Section 8 of the Interim Health and Safety Plan, with additional explanation as follows:

<10% LEL	Continue operation with caution.
10-25% LEL	Continuous monitoring with extreme caution as higher levels are encountered.

>25% LEL

Explosion hazard; shutdown operations and withdraw personnel immediately; evaluate source; before resuming any on-site activities, personnel, in consultation with experts in fire or explosion prevention, must develop procedures for continuing activities.

## 15.0 Construction Activities

### 15.1 Existing Conditions

Ongoing construction of drainage improvements at the Nassau County Firemen's Training Center include the following:

- Completion of the holding basin, pump station and oil-water separator.
- Installation of underground drainage pipes.

During soil excavation for the installation of the holding basin, visibly stained soil was encountered. Excavated soil was segregated on-site based on visual observation. The more visibly contaminated soil was piled adjacent to the construction site, partially covered with liner material and left for eventual disposal. Visibly clean soil was removed to a remote corner of the site for eventual use as backfill. Representative sampling of both soil types will be conducted to differentiate soil that requires disposal from soil that may be backfilled.

### 15.2 Contractor Responsibilities

The construction contractor will be responsible for ensuring that all construction activities are in conformance with the standards and requirements of the Nassau County Department of Public Works Standard Specifications and Occupational Health and Safety Administration contained in 29 CFR Parts 1910 and 1926. In addition, the construction contractor will demonstrate in writing that all workers are medically fit to work in a potentially hazardous environment and to wear respiratory protection, as required. The construction contractor will supply all necessary personal protective supplies and equipment and decontamination supplies and equipment and an on-site health and safety officer.

The contractor also will provide necessary site-specific health and safety training including: appropriate orientation training, respiratory protection training; and periodic health and safety briefings.



The Health and Safety specification for Phase II construction activities for the oil/water separator and drainage improvements sets forth general requirements for the contractors engaged in that activity.