HEALTH AND SAFETY PLAN FOR THE PERSON GENERATING STATION PUBLIC SERVICE COMPANY OF NEW MEXICO

RCRA PERMIT; NMT 360010342

Prepared For

PUBLIC SERVICE COMPANY OF NEW MEXICO

June 1994

ENGINEERING-SCIENCE, INC.

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HEALTH AND SAFETY PLAN
FOR
PERSON GENERATING STATION
PUBLIC SERVICE COMPANY OF NEW MEXICO
ALBUQUERQUE, NEW MEXICO

June 1994

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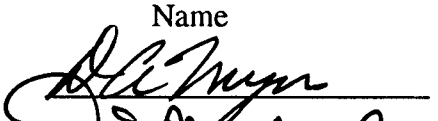
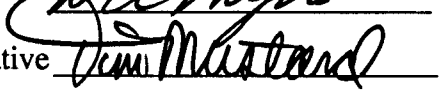
Project Manager		6/28/94
Office H & S Representative		6/28/94

SIGNATURE PAGE

By signing below I certify that I have read and understand the contents of this Health and Safety Plan, and that I agree to abide by all requirements contained herein.

Printed Name	Signature	Organization	Date

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SECTION 1

PURPOSE AND POLICY

The purpose of this health and safety plan is to establish personnel protection standards and mandatory safety practices for all Engineering-Science, Inc. (ES) personnel involved in the Person Generating Station project for the Public Service Company of New Mexico (PNM), in Albuquerque, New Mexico. The plan also provides for contingencies that may arise during field investigations and operations. The provisions of this plan are mandatory for all onsite investigations. All ES personnel shall abide by this plan. Any supplemental plans used by subcontractors will conform to this plan as a minimum. All personnel who engage in field activities will be familiar with this plan and will comply with its requirements.

A site description and scope of work summary for the project are provided in Section 2. Section 3 presents the project team organization, personnel responsibilities, and lines of authority. Site-specific training and medical monitoring requirements are contained in Section 4. Section 5 presents a safety and health risk analysis. Section 6 contains the site emergency response plan, a list of emergency contacts and a map showing the route from the facility to the nearest hospital. Site-specific requirements for levels of protection are included in Section 7. Air monitoring procedures, equipment, and instrument calibration are provided in Section 8. Site control measures, including designation of site work zones, are contained in Section 9, and Section 10 provides detailed site-specific decontamination procedures. Section 11 addresses air monitoring equipment. Appendix A contains a Plan Acceptance form, Site-Specific Training Record, Air Monitoring Data form, Accident Report form, Daily Health and Safety Report form, and Respirator Use forms. Standard operating guidelines for hazardous waste site investigations are contained in the ES corporate health and safety manual, which is incorporated by reference into this health and safety plan.

SECTION 2

SITE DESCRIPTION AND SCOPE OF WORK

2.1 BACKGROUND

Site Name:	Person Generating Station
Site Contact:	Mr. Ron Johnson/Mr. Steve Anderson
Site Phone Number:	(505)848-2998
Proposed Date(s) of Work:	March 1994 through September 1994

Overall Hazard is:

High:		Moderate:	
Low:	X	Unknown:	

2.2 SITE HISTORY AND DESCRIPTION

The Person Generating Station site, which was operated and maintained by the Public Service Company of New Mexico (PNM), is located in the Albuquerque Basin, a physiographic drainage basin in the middle part of the long Rio Grande Valley which extends northward through the length of New Mexico (Kelley, 1977). Interstate 25 is located approximately 1000 feet to the east.

The Person Generating Station included a maintenance area to support, among other activities, equipment cleaning efforts. The parts wash area included a sump and a below-grade, vertically-placed 3.5' x 10' cylindrical waste oil storage tank located on the north side of the site to collect wastes generated during equipment cleaning.

Liquid wastes collected in the sump were piped approximately nine feet to the below-grade waste oil tank. Historical records and interviews with retired personnel indicate that waste oils and greases, kerosene, a water-trisodium phosphate mixture used in steam cleaning, Stoddard Solvent, Dowclene EC, and other solvent mixtures generated during maintenance activities were piped into the tank for storage (METRIC, 1993). Dowclene EC is a generic solvent with two primary active ingredients: 1,1,1-trichloroethane (1,1,1-TCA) and tetrachloroethene (PCE). Records suggest that major

use of the Dowclene EC product began in 1979. Equipment repainting activities conducted in 1980 generated a new type of liquid effluent, including waste paint, paint thinners, and turpentine, that also was collected in the waste oil tank. Maintenance personnel noted when the tank appeared to be full and arranged for various waste oil reclaimers to remove the contents and recycle the material at other locations.

The tank was apparently in use from approximately July 1976 until October 13, 1983, when it was discovered that the tank lacked an impermeable bottom (i.e., the tank bottom was constructed of soil). Upon discovery of this information on October 13, 1983, PNM immediately emptied the tank and removed it from service. PNM notified the U.S. Environmental Protection Agency (USEPA), the New Mexico Environmental Improvement Division (the predecessor agency to the New Mexico Environment Department, NMED), and the National Response Center of the discovery. PNM arranged for the most highly contaminated source material to be removed from the bottom of the tank and placed in 55 gallon steel drums in 1983; this drummed material was ultimately transported offsite for disposal as hazardous waste in 1987.

Following removal of the tank from service, PNM installed a closure cap on the 25' x 35' source area to minimize infiltration. The cap was comprised of a minimum 6-inch thick concrete cap over a minimum 6-inch thick layer of compacted soil over two layers of 80 mil High Density Polyethylene (HDPE) plastic sheeting. The excavated material from the tank area was replaced with gravel overlain by compacted soil.

In an effort to assess the potential environmental contamination stemming from the use of this waste oil tank, PNM has conducted two assessment projects. The first assessment, initiated immediately after discovery, was completed in late 1985. Data from this assessment were used to develop the Closure Plan and the existing Post-Closure Care Resource Conservation and Recovery Act (RCRA) permit. The second assessment was conducted pursuant to the CAD, which was issued by the NMED in September 1991. The second assessment was designed to supplement the environmental monitoring data collected during the first assessment and to re-evaluate the potential extent and impact of groundwater contamination from the source waste oil tank. A series of new groundwater monitoring wells were installed and sampled between January 29, 1992, and May 17, 1993. PNM has documented the presence of several VOCs in the subsurface. The principal contaminants identified during monitoring activities as previously discussed are 1,1,1-TCA and PCE. Another VOC detected is 1,1-dichloroethene (DCE) which is believed to be associated with the transformation of 1,1,1-TCA via hydrolysis. The groundwater monitoring wells were installed to delineate both the horizontal and vertical extent of the contaminant plume. Data from this second assessment has been used to further define the probable nature and extent of contamination at the Person Generating Station site (e.g., METRIC, 1993).

2.3 SCOPE OF FIELD WORK

The field tasks to be performed onsite will include well installation, groundwater purging, and soil vapor extraction. Well installation will involve construction of a single 4-inch PVC vapor extraction/dewatering well near the center of the spill site.

The well will be constructed to a depth of 145 feet. During Phase I testing, a blower will be connected to the well to extract soil vapor. Activated carbon canisters will be used at least initially to remove vapor prior to atmospheric discharge. The vapor extraction test will last 60 to 70 days.

This well, and existing monitoring well PSMW-16 will be used for Phase I groundwater pumping tests. The pumping test will be conducted for approximately 60 days. Groundwater samples will be collected regularly from each well discharge during the 60-day test. A skid-mounted air stripping unit will also be used during the test to treat discharge water.

The scope of Phase II operations, while not yet finalized, is expected to continue the above operations with possible placement of additional extraction wells.

SECTION 3

PROJECT TEAM ORGANIZATION

The ES project team assigned to the PNM project, their responsibilities, and lines of authority are outlined below.

Name	Task Assigned
Allan Udin	Principal in Charge
Dave Myers	Project Manager
Doug Downey	Technical Director
Mike Glade	Site Manager
Lee Dlug	Quality Assurance Officer
Timothy S. Mustard	Health and Safety Manager
William Perrin	Site Health and Safety Officer
Ron Johnson/Steve Anderson	Site Contact

Senior level management for the PNM project will be provided by Mr. Allan Udin. Mr. Udin, principal-in-charge for this task order, will be responsible for all contractual requirements and for allocating resources for the project.

Mr. Doug Downey will serve as technical director, providing expertise on project performance and data analysis. Mr. Downey will provide oversight on the technical aspects of the project. Mr. Lee Dlug will serve as the quality assurance (QA) manager, ensuring that appropriate quality control procedures are followed.

The project manager, Mr. Dave Myers, will report to Mr. Udin and will be responsible for overall conduct of the project. He will also be responsible for planning, staffing, coordinating with PNM, reporting, and for ensuring the efficient execution of the project.

Mr. Mike Glade, site manager, will report to Mr. Myers and will be responsible for daily site activities of the project. He will also be responsible for enforcing the requirements of the project health and safety plan.

Mr. Tim Mustard is the ES Rocky Mountain region health and safety manager and will be responsible for updating and revising the project health and safety plan, as necessary. He will perform periodic field audits to ensure that the provisions of the health and safety plan are being enforced. Mr. Mustard will also be responsible for

assuring that field team members have the necessary hazardous waste site training and will coordinate the staff medical monitoring program.

Mr. William Perrin has been designated the site health and safety officer (SHSO). The SHSO, Mr. Perrin, along with the Project Manager, will be responsible for assuring that the day-to-day project activities are performed in strict conformance with the project health and safety plan. The SHSO has the authority to stop work at the site if actions or conditions are judged unsafe or not in conformance with the project health and safety plan. Other ES engineers and scientists will provide technical support for the tasks, as needed.

All field team members and subcontractors are responsible for reading and conforming to the project health and safety plan. No employee will perform a project activity that he or she believes may endanger his or her health and safety or the health and safety of others.

SECTION 4

SITE-SPECIFIC EMPLOYEE TRAINING AND MEDICAL MONITORING REQUIREMENTS

The ES corporate health and safety manual, incorporated by reference, presents general requirements for ES employee training and medical monitoring. All field team members will have the 40-hour Occupational Safety and Health Administration (OSHA) training as specified in 29 CFR 1910.120, a current 8-hour annual refresher course, and site-specific training. Field team members will also have first aid and CPR training. All field team members will be on appropriate and current medical monitoring programs. Listed below are additional health and safety training and medical monitoring requirements for this project.

4.1 ADDITIONAL SAFETY TRAINING REQUIREMENTS

All ES personnel engaged in site supervisory positions will have completed the 8-hour OSHA supervisory training as specified in 29 CFR 1910.120(e). Additional training may be required for personnel involved in Level B (supplied air) respiratory protection, should that level of protection be necessary. Weekly safety briefings will be conducted if necessary.

4.2 ADDITIONAL MEDICAL MONITORING REQUIREMENTS

None

SECTION 5

SAFETY AND HEALTH RISK ANALYSIS

5.1 CHEMICAL HAZARDS

The chemicals of primary concern at this site will be those associated with a former waste oil tank which also was used for disposal of kerosene, stoddard solvent, Dowclene EC (which contains 1,1,1-TCA and PCE), waste paint, paint thinners, and turpentine. Site workers could be exposed to vapors, although vapor concentrations are expected to be low. The health hazard properties of these chemicals are summarized in Table 5.1. If other compounds are discovered at this site, the health and safety plan shall be amended, pertinent information about the compounds shall be provided in Table 5.1, and an appropriate risk analysis of the compound's hazards shall be communicated to the onsite employees.

Construction and operation of the vapor extraction system should result in minimal releases of emissions due to the very low concentration of volatile organic compounds in groundwater. Overall risks to site workers are considered minimal.

5.2 PHYSICAL HAZARDS

Heat Stress: If work on this project is conducted in the warm months, or protective equipment is used, heat stress may be a concern. Monitoring of personnel wearing personal protective clothing should commence when ambient temperature is 70°F or above. Monitoring frequency should increase as the ambient temperature increases or as slow recovery rates are observed. A more detailed explanation of heat stress monitoring is discussed in Section 7 - Levels of Protection and Personal Protective Equipment Requirements.

Cold-Related Illness: If work on this project is conducted in the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure, including hypothermia and frostbite, should be monitored for when exposed to the cold for extended periods of time. Cold exposure monitoring is discussed in further detail in Section 7 - Levels of Protection and Personal Protective Equipment Requirements.

TABLE 5.1

HEALTH HAZARD QUALITIES OF HAZARDOUS SUBSTANCES OF CONCERN

Compound	PEL (ppm) [a/]	TLV (ppm) [b/]	IDLH (ppm) [c/]	Odor Threshold (ppm) [d/]	Ionization Potential (eV) [e/]	Physical Description/Health Effect/Symptoms
1,1-Dichloroethene (DCE) (Vinylidene Chloride)	1	5	NA	NA	9.46	Colorless liquid with a sweet chloroform-like odor. Experimental mutagen. Carcinogen.
Kerosene	400[f/]	300[f/]	10,000[f/]	0.08	MA	Pale yellow or water-white oily liquid. Characteristic fuel oil odor. Inhalation of vapors can cause transient euphoria, burning sensation in chest, headache, ringing in the ears, nausea, irritating to skin and eyes.
Stoddard Solvent	100	100	29,500 mg/m^3	NA	NA	Colorless liquid with a kerosene-like odor. Irritates eyes, nose, and throat. Causes dizziness and dermatitis.
Tetrachloroethene (PCE)	25	50	500	5-50	9.3	Colorless liquid with mild chloroform odor. Eye, nose, and throat irritant. Cumulative liver, kidney, and CNS damage. Carcinogen and suspected mutagen.
1,1,1-Trichloroethane (TCA) (Methyl Chloroform)	350 [g/]	350	1,000	20-500	11.0	Colorless liquid with a light chloroform-like odor. Irritates eyes and skin. Causes CNS depression and cardiac arrhythmia.
Turpentine	100	100	1,500	200	NA	Colorless liquid with a characteristic odor. Irritates eyes, nose, throat.

a/ PEL=Permissible Exposure Limit. OSHA-enforced average air concentration to which a worker may be exposed for an 8-hour workday without harm. PELs published in 29 CFR 1910.000, 1989. Expressed as parts per million (ppm) unless noted otherwise. Some states (such as California) may have more restrictive PELs. Check state regulations.

b/ TLV=Threshold Limit Value - Time - Weighted Average. Average air concentration (same definition as PEL, above) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH), 1992-1993.

c/ IDLH=Immediately Dangerous to Life of Health. Air concentration at which an unprotected worker can escape without debilitating injury or health effects. Expressed as ppm unless noted otherwise.

d/ When a range is given, use the highest concentration.

e/ Ionization Potential, measured in electron volts (eV), necessary to determine if field air monitoring equipment can detect substance.

f/ Based on exposure limits for petroleum distillates (naptha).

g/ NIOSH recommends reducing exposure to lowest feasible concentration.

Construction Hazards

Employees must implement safe work practices in accordance with OSHA regulations while working onsite. In addition to the hazardous substances and environments present onsite other physical hazards may exist from extraction well installation and the testing process, including risk of injury while working in or around heavy equipment. Work areas should be kept clear of stockpiled materials. Additional information concerning construction hazards is presented in Section 9.4 - Safe Work Practices.

SECTION 6

EMERGENCY RESPONSE PLAN

All remedial construction activities present a degree of risk to onsite personnel. During routine operations, risk is minimized by establishing good work practices, staying alert, and using proper personal protective equipment (PPE). Unpredictable events such as physical injury, chemical exposure, or fire may occur and must be anticipated. Employees will participate in Red Cross or equivalent first aid and cardiopulmonary resuscitation (CPR) courses in order to more effectively handle physical and medical emergencies that may arise in the field.

6.1 GUIDELINES FOR PRE-EMERGENCY PLANNING AND TRAINING

Employees must read the site health and safety plan, and must familiarize themselves with the information in this chapter. Prior to project initiation, the office or site health and safety officer will conduct a meeting with the field team members to review the provisions of the health and safety plan and to review the emergency response plan. Employees will be required to have a copy of the emergency contacts and phone numbers immediately accessible onsite and to know the route to the nearest emergency medical services.

6.2 EMERGENCY RECOGNITION AND PREVENTION

Emergency conditions are considered to exist if:

- Any member of the field crew is involved in an accident or experiences any adverse effects or symptoms of exposure while onsite.
- A condition is discovered that suggests the existence of a situation more hazardous than anticipated.
- Concentrations of combustible vapors exceed 20 percent of the lower explosive limit (LEL).

Some ways of preventing emergency situations are listed below.

- Visual contact must be maintained between pairs onsite and safety personnel. Entry team members should remain close together to assist each other during emergencies.
- During continual operations, onsite workers act as safety backup to each other. Offsite personnel provide emergency assistance.

- All field crew members should make use of all of their senses to alert themselves to potentially dangerous situations which they should avoid (e.g., the presence of strong and irritating or nauseating odors).
- Personnel will practice unfamiliar operations prior to doing the actual procedure in the field.
- Field crew members will be familiar with the physical characteristics of investigations, including:
  - Wind direction in relation to contamination zones;
  - Accessibility to associates, equipment, and vehicles;
  - Communications;
  - Hot zone (areas of known or suspected contamination);
  - Site access; and
  - Nearest water sources.
- Personnel and equipment in the work area enclosure should be minimized, consistent with effective site operations.
- Work areas for various operational activities must be established.

In the event that any member of the field crew experiences any adverse effects or symptoms of exposure while on the scene, or that organic vapors and combustible vapors exceed the action limits, the entire field crew will immediately halt work and act according to the instructions provided by the site health and safety officer.

The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated will result in the evacuation of the field team and reevaluation of the hazard and the level of protection required.

In the event an accident occurs, the field supervisor is to complete an Accident Report Form. Follow-up action should be taken to correct the situation that caused the accident.

General emergency procedures, and specific procedures for handling personal injury and chemical exposure, are described in the following sections.

6.3 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATION PROCEDURES DURING AN EMERGENCY

When an emergency occurs, decisive action is required. Rapidly made choices may have far-reaching, long-term consequences. Delays of minutes can create or exacerbate life-threatening situations. Personnel must be ready to respond to emergency situations immediately. All personnel should know their own responsibilities during an emergency, know who is in charge during an emergency, and the extent of that person's authority. This section outlines personnel roles, lines of authority, and communication procedures during emergencies.

In the event of an emergency situation at the site, the site health and safety officer will assume total control and will be responsible for onsite decision making. In this absence, the designated alternate for the health and safety officer will assume these responsibilities. These individuals have the authority to resolve all disputes about health and safety requirements and precautions. They will also be responsible for coordinating all activities until emergency response teams (ambulance, fire department, etc.) arrive onsite.

The health and safety officer will ensure that the necessary PNM personnel, ES personnel, and agencies are contacted as soon as possible after the emergency occurs. All onsite personnel must know the location of the nearest the phone and the location of the emergency telephone number list.

6.4 EVACUATION ROUTES AND PROCEDURES, SAFE DISTANCES, AND PLACES OF REFUGE

In the event of emergency conditions, employees will evacuate the area as instructed, transport decontaminated injured personnel, or take other measures to ameliorate the situation. Evacuation routes and safe distances will be decided upon and posted by the field team prior to initiating work.

6.5 DECONTAMINATION OF PERSONNEL DURING AN EMERGENCY

Procedures for leaving a contaminated area must be planned and implemented prior to going onsite. Work areas and decontamination procedures must be established based on expected site conditions. If a member of the field crew is exposed to chemicals, the emergency procedures outlined below should be followed:

- Another team member (buddy) should remove the individual from the immediate area of contamination to an upwind location.
- Precautions should be taken to avoid exposure of other individuals to the chemical.
- If the chemical is on the individual's clothing, the clothing should be removed if it is safe to do so.
- Administer first aid and transport the victim to the nearest medical facility, if necessary.

If uninjured employees are required to evacuate a contaminated area in an emergency situation, emergency decontamination procedures should be followed. At a minimum these would involve moving into a safe area and removing protective equipment. Care should be taken to minimize contamination of the safe area and personnel. Contaminated clothing should be placed in plastic garbage bags or other suitable containers. Employees should wash or shower as soon as possible.

6.6 EMERGENCY SITE SECURITY AND CONTROL

For this project, the field team leader (or designated representative) must know who is on site and who is in the work area. Personnel access into the work area should be

controlled. In an emergency situation, only necessary rescue and response personnel should be allowed into the exclusion zone.

6.7 PROCEDURES FOR EMERGENCY MEDICAL TREATMENT AND FIRST AID

6.7.1 Chemical Exposure

In the event of chemical exposure (skin contact, inhalation, ingestion) the following procedures should be implemented:

- Another team member (buddy) should remove the individual from the immediate area of contamination to an upwind location.
- Precautions should be taken to avoid exposure of other individuals to the chemical.
- If the chemical is on the individual's clothing, the clothing should be removed if it is safe to do so.
- If the chemical has contacted the skin, the skin should be washed with copious amounts of water, preferably under a shower.
- In case of eye contact, an emergency eye wash should be used. Eyes should be washed for at least 15 minutes.
- If necessary, the victim should be transported to the nearest hospital or medical center. If necessary, an ambulance should be called to transport the victim.

6.7.2 Personal Injury

In the event of personal injury:

- Field team members trained in first aid can administer treatment to an injured worker.
- The victim should be transported to the nearest hospital or medical center. If necessary, an ambulance should be called to transport the victim.
- The field supervisor is responsible for the completion of an Accident Report Form.

6.7.3 Fire or Explosion

In the event of fire or explosion, personnel will evacuate the area immediately. Administer necessary first aid to injured employees. Personnel will proceed to a safe area and phone the emergency support services. Upon contacting the emergency support services, state your name, nature of the hazard (fire, high combustible vapor levels), the location of the incident, and whether there were any physical injuries requiring an ambulance. Do not hang up until emergency support services has all of the additional information they may require.

6.7.4 Emergency Contact

In the event of any situation or unplanned occurrence requiring assistance, the appropriate contact(s) should be made from the list below. For emergency situations, telephone or radio contact should be made with the site point of contact or site emergency personnel who will then contact the appropriate response teams.

Contingency Contacts	Phone Number
Fire Department	911
Rocky Mountain Poison Control Center	1-800-332-3073
Site Contact	Ron Johnson 505-848-2998
Site Medical Services	911
Site Emergency Number	911
State Police	505-841-9256

6.7.5 Medical Emergency

Hospital Name	Presbyterian
Hospital Phone Number	505-841-1111
Ambulance Service	911
Airlife helicopter	911

The route to Presbyterian Hospital from the Person Generating Station site is as follows:

Leave site through the southwest gate, take Rio Bravo Road east to Interstate-25. Travel north on Interstate 25 to Central Street. Turn right (east) on Central Street and proceed to Presbyterian Medical Center located on the south side of Central Street.

SECTION 7

LEVELS OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT REQUIRED FOR SITE ACTIVITIES

7.1 PERSONAL PROTECTIVE EQUIPMENT

The personal protection level prescribed for the PNM project is OSHA Level D (no respiratory or chemical protective clothing), with a contingency for the use of OSHA Level C or B as site conditions require (Figure 7.1). Unless certain compounds are ruled out through use of appropriate air monitoring techniques such as Dräger® tubes, portable sampling pumps, or an onsite gas chromatograph (GC), Level C respiratory protection [air-purifying respirator (APR)] cannot be used. Level C protection may only be used on this project when vapors in air are adequately identified and quantified and Level C respirator-use criteria are met. Level B (supplied air) respiratory protection must be used on this project in the presence of unknown vapor constituents or if DCE is detected at or above 1 ppmv. This is based on the toxicity and inadequate warning properties for DCE. Air monitoring must be conducted in the worker breathing zone when the potential occurrence of this compound exists.

Ambient air monitoring of organic gases/vapors (using photoionization detectors such as an HNu® or Photovac® TIP or by colorimetric analysis with Dräger® tubes) will be used to select the appropriate level of personal protection. The flow chart presented in Figure 7.1 will be used to select respiratory protection. If organic readings are detected on the portable air monitoring equipment, PID, or FID, the field team should attempt to identify the constituents. The volatile compound having the lowest exposure limit at the PNM site is 1,1-Dichloroethene (DCE). During soil vapor extraction methods, a vapor-phase carbon unit may be used (if VOCs present a health risk) to capture volatile contaminants. In the event VOCs constitute a health risk and extracted soil gas is discharged directly to the atmosphere, the worst case air emission scenario released from the air stripper would translate into 0.03 ppmv of VOCs. Level C protection may only be used on this project to mitigate the hazard associated with contaminated dust, or if stack vapors in air are adequately identified and quantified and Level C respirator use criteria are met.

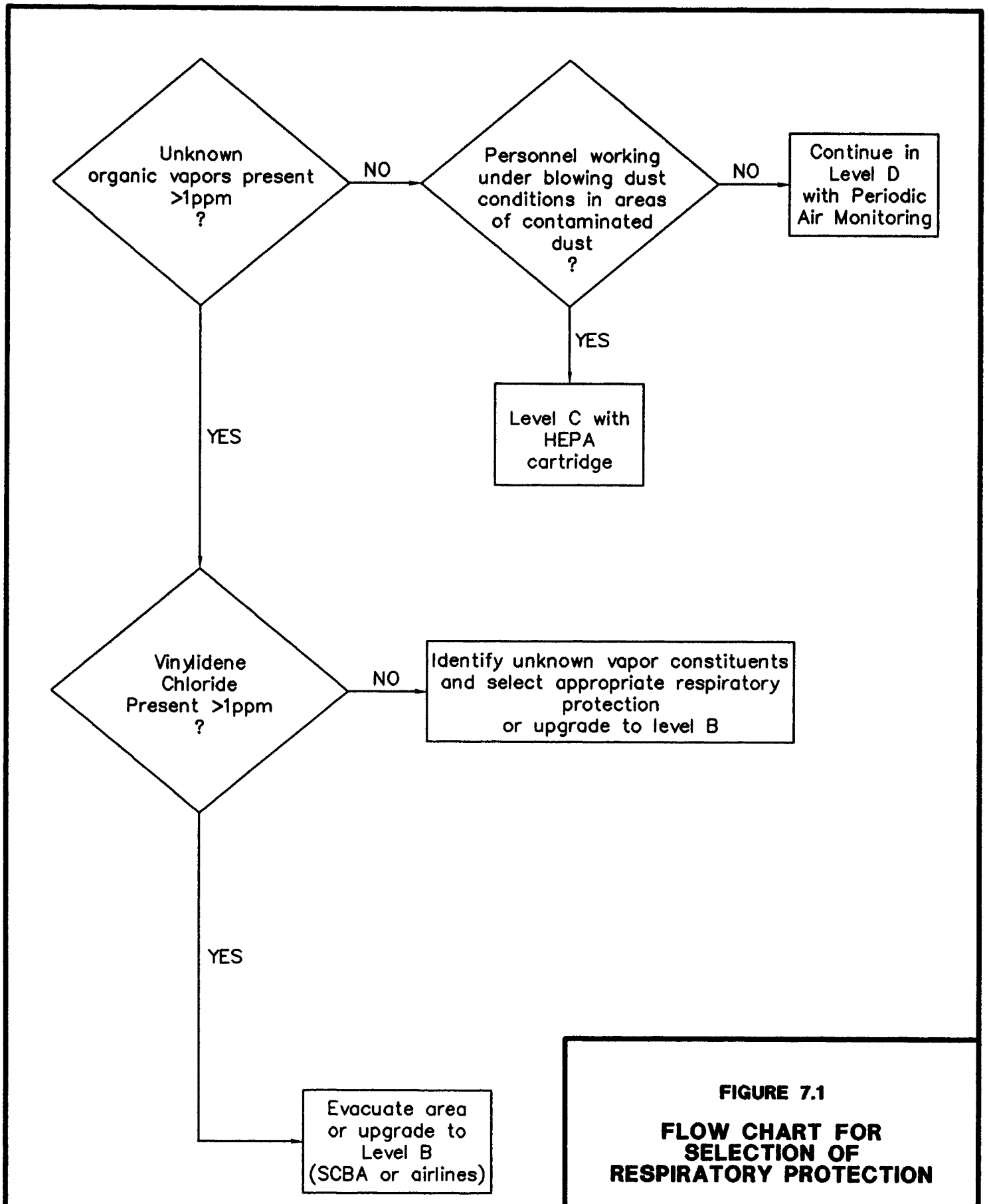

FIGURE 7.1

FLOW CHART FOR SELECTION OF RESPIRATORY PROTECTION

ENGINEERING-SCIENCE, INC.
Denver, Colorado

CHART, 6/27/94 at 9:45

Before work can be performed in Level B respiratory protection, the project manager must be notified. Activities at the site may be stopped since Level B operations require approval from corporate health and safety. The site health and safety officer will determine whether it is safe to continue activities without respiratory protection or assign an upgrade to Level C protection.

The following personal protective ensemble is required only when handling contaminated samples or equipment.

Mandatory Equipment	Optional Equipment
• Vinyl or latex inner gloves	• Air-purifying respirator [equipped with organic vapor/high-efficiency particulate air (HEPA) cartridges]
• Neoprene or Silver Shield® outer gloves	
• Hard hat	Self-contained breathing apparatus (SCBA) or air-line respirator in pressure-demand mode
• Steel toed, steel shank work boots	• Leather or rubber safety boots
• Safety glasses	• Saranex® suits
• Disposable Tyvek® coveralls	• Chemical goggles
• Outer disposable boot covers	

The following items are suggested for all activities:

- Either an OVA®, HNu®, or MicroTIP®;
- Explosimeter;
- Dräger® tubes (DCE)
- Full size trash bags for decontamination; and
- Plastic drop cloth for decontamination

7.2 EQUIPMENT NEEDS

Each field team shall have the following items readily available:

- Copy of site health and safety plan including a separate list of emergency contacts;
- First aid kit;
- Eye wash bottle;
- Paper towels;

- Duct tape;
- Water; and
- Plastic garbage bags.

7.3 HEAT STRESS

Adverse weather conditions are important considerations in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Of particular importance is heat stress resulting when protective clothing decreases natural body ventilation. Heat stress can occur even when temperatures are moderate when employees are wearing impermeable protective clothing. One or more of the following recommendations will help reduce heat stress:

- Provide plenty of liquids. To replace body fluids (water and electrolytes) lost due to sweating, use a 0.1 percent salt water solution, more heavily salted foods, or commercial mixes. The commercial mixes may be preferable for those employees on a low-sodium diet.
- Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency.
- Wear long cotton underwear, which acts as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.
- Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.
- In extremely hot weather, conduct nonemergency response operations in the early morning or evening.
- Ensure that adequate shelter is available to protect personnel against heat, or other adverse weather conditions which decrease physical efficiency and increase the probability of accidents.
- In hot weather, rotate workers wearing protective clothing.
- Maintain good hygienic standards by frequent changing of clothing and daily showering. Clothing should be permitted to dry during rest periods. Workers who notice skin problems should immediately consult medical personnel.

7.3.1 Effects of Heat Stress

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur. These reactions can range from mild symptoms such as fatigue, irritability, anxiety, decreased concentration, dexterity, or movement to death. Specific first-aid treatment for mild cases of heat stress is provided in the American Red Cross first aid book. The location of this book should be known at all times by the site manager and the book should be readily available for reference in the field. Medical help must be obtained for the more serious cases of heat stress.

7.3.2 Heat-Related problems include:

- Heat rash: Caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat and is a nuisance.
- Heat cramps: Caused by profuse perspiration with inadequate fluid intake and chemical replacement, especially salts. Signs include muscle spasm and pain in the extremities and abdomen.
- Heat exhaustion: Caused by increased stress on various organs to meet increased demands to cool the body. Signs include shallow breathing; pale, cool, moist skin; profuse sweating; and dizziness and lassitude.
- Heat stroke: The most severe form of heat stress. Body must be cooled immediately to prevent severe injury and/or death. Signs include red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; and possibly coma. Medical help must be obtained immediately.

7.3.3 Heat Stress Monitoring

Monitoring of personnel wearing impervious clothing will begin when the ambient temperature is 70°F or above. Table 7.1 presents the suggested frequency for such monitoring. Monitoring frequency will increase as the ambient temperature increases or as slow recovery rates are observed. Heat-stress monitoring will be performed by a person with a current first-aid certification, who is trained to recognize heat-stress symptoms. For monitoring the body's recuperative abilities from excess heat, one or more of the techniques listed below will be used.

To monitor the worker, measure:

- Heart rate: Count the radial pulse during a 30-second period as early as possible during the rest period.
  - If the heart rate exceeds 110 beats per minute at the beginning of the rest period, the next work cycle will be shortened by one-third and the rest period will remain the same.
  - If the heart rate still exceeds 110 beats per minute at the next rest period, the following work cycle will be reduced by one third.
- Oral temperature: Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).
  - If oral temperature exceeds 99.6°F (37.6°C) the next work cycle will be reduced by one-third without changing the rest period.

TABLE 7.1

SUGGESTED FREQUENCY OF PHYSIOLOGICAL MONITORING FOR FIT AND ACCLIMATIZED WORKERS[a/]

Adjusted Temperature[b/]	Normal Work Ensemble[c/]	Impermeable Ensemble
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°-90°F (30.8°-32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 minutes of work	After each 120 minutes of work

a/ For work levels of 250 kilocalories per hour, i.e., moderate work that includes working with the body in lifting, using arms and legs, using hand tools, some lifting or pushing.

b/ Calculate the adjusted air temperature (ta adj) by using this equation: ta adj °F = ta °F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass tahermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

c/ A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

- If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period the following cycle will be reduced by one-third.
- No worker will be permitted to wear a semipermeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).

7.4 COLD EXPOSURE

Persons working outdoors in temperatures at or below freezing may suffer from cold exposure. During prolonged outdoor periods with inadequate clothing, effects of cold exposure may even occur at temperatures well above freezing. Cold exposure may cause severe injury by freezing exposed body surfaces (frostbite) or result in profound generalized cooling (hypothermia), possibly causing death. Areas of the body which have high surface area-to-volume ratios such as fingers, toes, and ears are the most susceptible to frostbite.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- Frost nip or incipient frostbite: characterized by suddenly blanching or whitening of skin.
- Superficial frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep frostbite: tissues are cold, pale, and solid; extremely serious injury.

Systematic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages: (1) shivering and incoordination; (2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95°F; (3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate; (4) freezing of the extremities; and (5) death.

SECTION 8

FREQUENCY AND TYPES OF AIR MONITORING

The ES Construction Site Manager will have a qualified designated staff member perform air monitoring and maintain calibration and maintenance records for the direct-reading instruments. Air monitoring using direct-reading instruments will be used prior to initiation of each field task to establish respiratory protection levels and periodically thereafter at the frequencies established below. The types of monitoring equipment that may be used and the frequency of sampling is as follows:

Type of Equipment	Minimum Calibration Frequency	Parameter(s) to be Measured	Minimum Sampling Frequency	Sampling Locations
Photoionization Detector	1/day	Organic vapors	2/day for general site activities	. Breathing zone
Explosivity Meter	1/day	Combustible gases	2/day	. Around Excavations
Dräger® Tubes	None (Check manufacturers requirements)	. DCE . PCE	Upon detection of unknown compounds with photo-ionization detector	. Breathing Zone . Soil Borings . Monitoring Wells
Portable air sampling pumps or dosimeter badges	Prior to and after each use	. Organic vapors . DCE . PCE . 1,1,1-TCA	As needed on workers w/greatest chance of exposure to contamination.	. Breathing zone
Dosimeter Badges	None	DCE	As needed on workers w/greatest chance of exposure to contamination.	. Breathing zone

During onsite operations at the work area, a photoionization detector (HNu® or MicroTIP®) or a flame ionization detector (OVA) should be used to measure ambient air concentrations in the ES worker breathing zone. Any detectable concentration above background concentrations in the breathing zone will necessitate screening for DCE with a Dräger® tube. If DCE is ruled out then proceed to sample for compounds with the next highest PEL/TLV (PCE at 25 ppm).

Worker exposure monitoring for workers who will be in direct contact with potentially contaminated materials or who will be working in potentially contaminated atmospheres will be conducted to document any exposures of ES personnel to organic vapors received on site. Portable air sampling pumps will be used for personal exposure monitoring, if necessary. The following general protocols will be followed:

- The portable pump will be calibrated to the required flow rate (in liters per minute) following specific manufacturer's calibration procedures;
- The pump will be equipped with the appropriate sorbant tube for the particular organic compounds to be monitored (e.g., charcoal for volatile organics);
- A personal air monitoring data sheet (Appendix A) listing pump flow rates, start and stop times, sorbant tube used, will be completed etc;
- The pump will undergo post calibration to determine the final flow rate;
- The laboratory analytical results will be disclosed to the employee(s) monitored; and
- The analytical results will be placed in the employee's permanent medical file for documentation of any exposures received.

An organic vapor monitoring badge may be worn to document exposures as an alternate to the use of portable pumps. Instructions on use of badges will be provided with the badges.

SECTION 9

SITE CONTROL MEASURES

The following site control measures shall be followed in order to minimize potential contamination of workers, protect the public from potential site hazards, and to control access to the sites. Site control involves the physical arrangement and control of the operation zones and the methods for removing contaminants from workers and equipment. The first aspect, site organization, is discussed in this section. The second aspect, decontamination, is considered in the next section.

9.1 SITE ORGANIZATION-OPERATION ZONES

Any time respirators are worn, the following operation zones shall be established on the site or around the tanks.

1. Exclusion Zone (Contamination Zone)
2. Contamination Reduction Zone
3. Support Zone

If protective clothing, such as gloves and/or Tyvek® suits are worn but respirators are not worn (Level D-modified), the field crew shall establish a decontamination area to avoid spreading contaminants off-site. The field team leader and/or site health and safety officer shall be responsible for establishing the size and distance between zones at the site or around the site feature. Considerable judgment is required to assure safe working distances for each zone are balanced against practical work considerations.

9.1.1 Exclusion Zone (Contamination Zone)

The exclusion zone constitutes the place where active investigation or cleanup operations take place. Within the exclusion zone, prescribed levels of protection must be worn by all personnel. The hotline, or exclusion zone boundary, is initially established based upon the presence of actual wastes or apparent spilled material, or through air monitoring, and is placed around all physical indicators of hazardous substances (i.e., drums, tanks, ponds, liquid runoff, defoliated areas). The hotline may be readjusted based upon subsequent observations and measurements. This boundary should be physically secure and posted or well-defined by physical and geographic boundaries.

Under some circumstances, the exclusion zone may be subdivided into zones based upon environmental measurements or expected onsite work conditions.

9.1.2 Contamination Reduction Zone

Between the exclusion zone and the support zone is the contamination reduction zone. This zone provides an area to prevent or reduce the transfer of hazardous materials which may have been picked up by personnel or equipment leaving the exclusion area. All decontamination activities occur in this area. The organization of the contamination reduction zone, and the control or decontamination operations, are described in Section 10.

9.1.3 Support Zone

The support zone is the outermost area of the site and is considered a non-contaminated or clean area. The support zone contains the command post for field operations, first aid stations, and other investigation and cleanup support. Normal work clothes are appropriate apparel within this zone; potentially contaminated personnel clothing, equipment, etc., are not permitted.

9.2 SITE SECURITY

Site security will be enforced by the site health and safety officer or a designated alternate who will ensure that only authorized personnel are allowed in the work area and that personnel have the required level of personal protective equipment.

Site security is necessary to prevent exposure of unauthorized, unprotected individuals in the work area.

9.3 SITE COMMUNICATION

Internal site communication is necessary to alert field team members in the exclusion zone and contamination reduction zone of emergency conditions, to convey safety information, and to communicate changes or clarification in the work to be performed. For internal site communication, the field team members will use prearranged hand signals (and responses). Radios and/or compressed air horns may also be used for communication.

9.4 SAFE WORK PRACTICES

To ensure a strong safety awareness program during the tank removal operations, personnel will have adequate training, this health and safety plan must be communicated to the employees, and standing work orders developed and communicated to the employees. Sample standing orders for personnel entering the exclusion zone are as follows:

- No smoking, eating, drinking or chewing of tobacco or gum;
- No matches/lighters in the zones;
- No personal vehicles allowed in the exclusion zone or contamination reduction zone;
- Check in/check out at access control points;
- Use buddy system;

- Wear appropriate PPE;
- Avoid walking through puddles or stained soil; and
- Discovery of unusual or unexpected conditions will result in immediate evaluation and reassessment of site conditions and health and safety practices.

The following guidelines will be followed while working onsite:

- Conduct safety briefings prior to onsite work.
- Conduct daily/weekly safety meetings as necessary.
- Take precautions to reduce injuries from heavy equipment and other tools.
- Heavy Equipment - Only qualified operators will be allowed to operate heavy equipment. Subcontractors will be required to use the safe work guidelines included in the OSHA General Industry (29 CFR 1910) and Construction Industry (29 CFR 1926) Standards.
- Trench Shoring - Any trenches for human entry will be shored or have the sides laid back in accordance with 29 CFR 1926 Subpart P. All trenching and shoring will be inspected on a daily basis by the site health and safety officer.
- Power Lines - When operating heavy equipment, such as drilling or excavation rigs near power lines, workers will take care to ensure that the boom or rigging always maintains the safe distance from power lines (20 ft. minimum). Any underground utility lines must also be located, and appropriate measures taken before any excavation work or drilling is done.
- Swing Radius - All swing equipment, such as cranes or backhoes, will have the swing radius guarded to prevent workers from being struck by the rotating machinery.
- Electrical Equipment - All electrical equipment will be properly grounded and class-approved for the location.
- Machine Guarding - All machinery onsite will be properly guarded to prevent contact with rotating shafts, blades, or gears.
- Flammable Materials - When work involves flammable materials, adequate ventilating and control of all ignition sources will be maintained. This may include:
  - Nonsparking tools.
  - Explosion proof equipment (intrinsically safe).
  - Class-approved electrical equipment.
  - Grounding and bonding of static electricity sources.
  - No smoking or open lights.
  - No welding.

SECTION 10

SITE SPECIFIC DECONTAMINATION PROCEDURES

10.1 PERSONNEL DECONTAMINATION PROCEDURES

An exclusion zone, contamination reduction zone and support zone will be established whenever field personnel are using PPE. Defined access and egress points will be established and personnel will enter and exit only through these points.

A guideline for personnel decontamination is presented in Figure 10.1. This procedure may be modified somewhat by the site health and safety officer if necessary.

A portable decontamination station will be carried with the ES field team, and will be set up at the site actively under investigation during field activities in which personal protective equipment (such as tyvek suits, gloves, etc.) are being used. The decontamination station will include provisions for collecting disposable protective equipment; washing boots, gloves, respirators (if used), field instruments, and tools; and washing hands, face, and other exposed body parts. Onsite personnel will shower at the end of the work day. Refuse from decontamination will be properly disposed of in accordance with facility protocols.

Decontamination equipment will include as necessary:

- Plastic buckets and pails;
- Scrub brushes and long-handle brushes;
- Detergent;
- Distilled water;
- Paper towels;
- Plastic garbage bags; and
- Potable water

10.2 DECONTAMINATION OF EQUIPMENT

Decontamination of drilling rigs and heavy equipment will be conducted at a location onsite where rinseate can be collected. High-pressure stream cleaning of drilling rigs will be necessary prior to the beginning of the drilling operation, between borehole locations, and before the drill rig leaves the project site. Heavy equipment will also be steam cleaned prior to the beginning of earth-moving activities, between

locations, and before the equipment leaves the project site. All sampling equipment will be decontaminated prior to use, between samples, and between sampling locations.

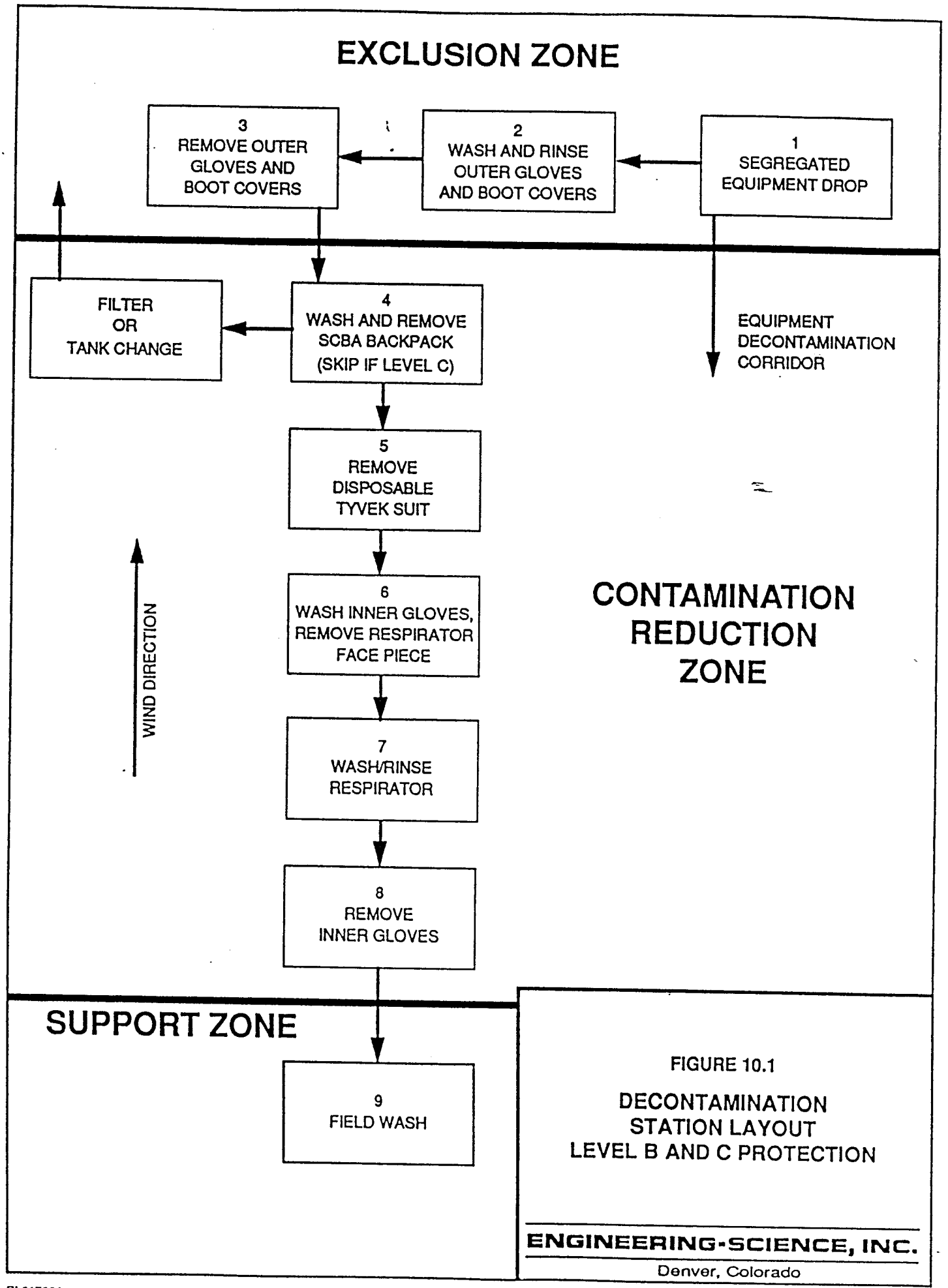

FIGURE 10.1

DECONTAMINATION STATION LAYOUT
LEVEL B AND C PROTECTION

ENGINEERING-SCIENCE, INC.
Denver, Colorado

RL01709A

SECTION 11

AIR MONITORING EQUIPMENT USE AND CALIBRATION PROCEDURES

PHOTOVAC MICROTIP® AIR ANALYZER

To use the MicroTIP®, press the power switch and wait for the instrument to display the date, time, event number, current detected concentration and instrument status "ready". The minimum, maximum and average concentrations measured in each 15-second period are automatically recorded in memory. The keyboard also allows for direct numeric entry.

The MicroTIP® is a direct-reading instrument in conjunction with the span gas kit. In order to calibrate your MicroTIP®, press the power switch. Allow the MicroTIP® to warm up, display will read "Ready". Press the calibration switch; display will read "Connect zero gas then press enter". Connect bag of zero gas to the MicroTIP® inlet (or allow the MicroTIP® to sample clean air) and press enter; display will read "Calibrating now please wait". Display will read "Span Conc.?". Enter span concentration. Connect bag of span gas to the tip inlet and press enter; display will read "Connect span gas then press enter". MicroTIP® will then calibrate. When display reads "Ready", the MicroTIP® has completed the calibration and is ready for use.

HNU® PHOTOIONIZATION DETECTOR

To use the HNu® analog PID connect the probe to the instrument by matching the alignment key in the probe connector to the 12 pin connector on the control panel, and twist the probe connector until a distinct snap and lock is felt. Turn the function switch to battery check position. The needle should read within or above the green battery arc on the scaleplate. If the needle is in the lower position of the battery arc, the instrument should be recharged. If the red light comes on, the battery should be recharged.

To calibrate the HNu® turn the function switch to standby mode and use the zero control to zero the instrument. Connect a bag of span gas (usually 100 ppm isobutylene). Turn the function switch to the 0-200 range position and adjust the span setting to read the ppm concentration of the standard. Recheck the zero setting as previously described. If readjustment is needed, repeat the calibration step. This gives

a two-point calibration; zero and the gas standard point. If the span setting from calibration is 0.0 or if calibration cannot be achieved, then the lamp must be cleaned.

DRÄGER® TUBES

Dräger® tubes can be used to give an instantaneous reading of various organic compounds. Their aim is to determine very small concentrations of a compound in the shortest amount of time. To sample with a Dräger® Tube, use the Dräger® Bellows Pump, select the appropriate tube (for example a tube marked vinylidene chloride to look for DCE) and break off both ends on the pump's break-off plate. Insert the tube into the pump head (the tube should be inserted with the arrow pointing towards the pump). There is a given number of suction strokes for each tube/compound. Each box of tubes will have instructions for how many suction strokes are required for that compound.

EXPLOSIVITY METER

An explosivity meter is used to measure oxygen and combustible gas levels. The instrument provides characteristic warning signals when deficient oxygen conditions or unacceptable levels of combustible gas are detected.

To use the explosivity meter, turn the unit on and wait a few seconds for the readings to stabilize. Check the battery charge and the alarms before using the instrument. Set the LEL indicator to zero and the oxygen indicator to 20.9 percent.

To calibrate the instrument, attach a bag, bulb or balloon of span gas and wait for the readings to stabilize. Adjust the instrument to read the LEL percent of the calibration gas. Remove the span gas and allow the instrument to exhaust. The combustible sensor should read 000% LEL in clean air.

PORTABLE AIR SAMPLING PUMPS

To calibrate the portable air sampling pump, attach the appropriate sorbent tube or filter cassette to the pump and to the calibrator. Place a small amount of bubble solution in the air inlet boss of the calibrator. Lubricate the calibrator tube by pressing the bubble initiate button until a bubble will travel the entire length of the tube. Adjust the flow rate on the pump until the reading on the calibrator (obtained after a bubble is generated) closely approximates the desired flow rate. Take three readings and obtain the average flow rate by pressing the average button. This average is the flow rate of the pump.

To use the air sampling pump, attach an appropriate sorbent tube or filter cassette to the pump and fasten the tube/cassette to the worker within the worker's breathing zone. Note the start and stop times for the pump.

When the sampling is done, perform a final flow-rate check by duplicating the calibration set-up (with the calibration sorbent tube/filter cassette) and obtaining a flow rate. No adjustments are made to the pump flow rate in this procedure. The actual flow rate of the pump is the average of the initial and final flow rates.

APPENDIX A

FORMS

PLAN ACCEPTANCE FORM

PROJECT HEALTH AND SAFETY PLAN

Instructions: This form is to be completed by each person to work on the subject project work site and returned to the safety manager.

I have read and agree to abide by the contents of the Health and Safety Plan for the following project:

_____

_____

_____
Signed

_____
Date

RETURN TO:

Office Health and
Safety Representative
Engineering-Science, Inc.
1700 Broadway, Suite 900
Denver, CO 80290

SITE SPECIFIC TRAINING RECORD

Project:_____
Project No.:_____
Date:_____
Trainer:_____

On this date, the following individuals were provided site-specific training in accordance with OSHA regulations contained in 29CFR1910.120(e):

Name (Print)	Employee No.	Employee Signature

Forward this form to:

Office Health and Safety Representative
Engineering-Science, Inc.
1700 Broadway, Suite 900
Denver, Colorado 80290

ENGINEERING-SCIENCE, INC.
AIR MONITORING DATA FORM

Project: _____ Date: _____

Project No.: _____ Name(s): _____

Sample No.	Pump No.	Sorbant/ Cartridge	Initial Flow Rate	Final Flow Rate	Ave. Flow Rate	Start Time	Stop Time	Total Elapsed Time	Total Volume Air	Analyses Performed	Notes

F1-2-23

ACCIDENT REPORT FORM

Project: _____

EMPLOYER

1. Name _____

2. Mail Address _____
(No. and Street) (City or Town) (State)

3. Location, if different from mail address _____

_____

INJURED OR ILL EMPLOYEE

4. Name _____ Social Security Number_
(First) (Middle) (Last)

5. Home address _____
(No. and Street) (City or Town) (State)

6. Age _____ 7. Sex: Male_____Female_____(Check one)

8. Occupation _____
(Specific job title, not the specific activity he was performing at time of injury)

9. Department _____
(Enter name of department in which injured persons is employed, even though he may have been temporarily working in another department at the time of injury)

THE ACCIDENT OR EXPOSURE TO OCCUPATIONAL ILLNESS

10. Place of accident or exposure__
(No. and Street) (City or Town) (State)

ACCIDENT REPORT FORM
(Continued)

11. Was place of accident or exposure on employer's premises? (Yes/No)

12. What was the employee doing when injured?_____
(Be specific - If he was
_____
using tools or equipment or handling material, name and tell what he was
_____
doing.)

13. How did the accident occur? _____
(Describe fully the events which resulted
_____
in the injury or occupational illness. Tell what happened and how. Name
_____
any objects or substances involved. Give details on all factors which led
_____
to accident. Use separate sheet for additional space.)

14. Time of accident:_____

15. WITNESSES TO _____ _____ _____
(Name) (Affiliation) (Phone No.)

ACCIDENT _____ _____ _____
(Name) (Affiliation) (Phone No.)

_____ _____ _____
(Name) (Affiliation) (Phone No.)

OCCUPATIONAL INJURY OR OCCUPATIONAL ILLNESS

16. Describe the injury or illness in detail and indicate the part of body affected. _____
_____

17. Name the object or substance which directly injured the employee. (For example, the machine or thing or struck against or which struck him; the vapor or poison he inhaled or swallowed; the chemical or radiation which irritated his skin; or in cases of strains, hernias, etc., the thing he was lifting, pulling, etc.

_____

_____

ACCIDENT REPORT FORM
(Continued)

18. Date of injury or initial diagnosis of occupational illness_____
(Date)

19. Did employee die?_ (Yes or No)

OTHER

20. Name and address of physician _____

21. If hospitalized, name and address of hospital _____

_____

Date of report _____ Prepared by _____

Official position _____

AIR PURIFYING RESPIRATOR LOG

SITE:

LOCATION:

DATES OF INVESTIGATION:

User	Date of Use	Cleaned and Inspected Prior To Use (Initials)	Cartridges Changed Prior to Use (Yes, No, N/A)	Total Hours on Cartridge

Project H&S Officer
or
ES Project Manager

Date

Return to the Office Health and Safety Representative
at the Completion of field activities.