HEALTH AND SAFETY PLAN

~~CITRE~~ BLOCK
~~CRGA~~

Pfizer Inc
Williamsburg, New York

Appendix H

May 20, 1997

ROUX Associates, Inc.
ENVIRONMENTAL CONSULTING & MANAGEMENT

HEALTH AND SAFETY PLAN

~~CITRE~~ BLOCK.
~~ORGA~~

Pfizer Inc
Williamsburg, New York

Appendix H

May 20, 1997

Approvals:

Roux Associates, Inc. Project Principal	Douglas J. Swanson	5-20-97 Date
Roux Associates, Inc. Project Manager	Scott J. Glash	5-20-97 Date
Roux Associates, Inc. Health and Safety Manager	Linda M. Wilson	5-20-97 Date
Roux Associates, Inc. Site Health and Safety Officer	Jennifer Tyers	5-20-97 Date

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1.0 GENERAL

This site-specific Health and Safety Plan (HASP) has been prepared in accordance with 29 CFR 1910.120 Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations, and Roux Associates, Inc. (Roux Associates) Standard Operating Procedures (SOPs). It addresses all activities to be performed during the investigation at the Organics/Suciac Block at the Pfizer Inc Williamsburg Facility, Brooklyn, New York. The HASP will be implemented by the designated Site Health and Safety Officer (SHSO) during work at the Organics/Suciac Block.

Compliance with this HASP is required for all Roux Associates employees and third parties who enter this Organics/Suciac Block. Assistance in implementing this HASP can be obtained from Roux Associates' Health and Safety Manager (HSM). The content of this HASP may undergo revision based upon additional information made available. Any changes proposed must be reviewed and approved by Roux Associates' HSM or her designee.

Scope of Work

The Scope of Work for this investigation will include implementation of the following tasks:

- IRM Implementation.

This task is described in detail in Section 8.0 and Appendix F of the Work Plan.

2.0 EMERGENCY INFORMATION

Multiple emergency services may be obtained from 911. More specific numbers for local services are listed below.

Type	Name	Telephone Numbers
Police		(718) 963-5311
Fire		(718) 636-1700
Hospital	Woodhull Medical Center	(718) 963-8000
National Response Center		(800) 424-8802
Poison Control Center		(800) 526-8816
Roux Associates' Health and Safety Manager	Linda Wilson	(516) 232-2600

The route to Woodhull Medical Center is shown in Figure H-1.

3.0 HEALTH AND SAFETY PERSONNEL DESIGNATIONS

Roux Associates has designated health and safety personnel to be responsible for the implementation of this HASP for Roux Associates employees, and to provide assistance to the contractor for health and safety-related -issues.

Personnel Designation	Responsibilities
Health and Safety Manager (HSM)	Implementation and modification of the HASP. Will assign health and safety duties. Provides adequate resources for field health and safety personnel. Ensures that field personnel are trained and aware of Organics/Suciac Block conditions. Schedules adequate personnel and equipment to perform job safely.
Site Health and Safety Officer (SHSO)/ Organics/Suciac Block Emergency Coordinator	Conducts safety briefings and worker awareness meetings. Ensures compliance with HASP. Notifies HSM of accidents/ incidents. Coordinates health and safety activities. Makes contact with local emergency groups prior to beginning work on-site. Responsible for evacuation, emergency treatment, and emergency transport of personnel.
Field Crew Personnel	Report unsafe or hazardous conditions to SHSO. Understand the information contained in this HASP.

4.0 ORGANICS/SUCIAC BLOCK HISTORY AND PHYSICAL DESCRIPTION

This section provides a brief summary of the history and physical description of the Organics/Suciac Block, as documented in part by Camp, Dresser and McKee (CDM) in the Corrective Action Prior to Loss of Interim Status Final Report.

4.1 Location

The Williamsburg facility is located at 630 Flushing Avenue, in Brooklyn, New York (Figure 1 of the Work Plan). The Organics/Suciac Block is situated in the central portion of the facility. It is bounded on the north by Wallabout Street, on the east by Harrison Avenue, and on the south by Gerry Street and on the west by Union Avenue.

4.2 Organics/Suciac Block History

The Organics/Suciac Block was first developed for chemical manufacturing between 1854 and 1888, during that time Pfizer purchased 72 lots of land surrounding the original Pfizer building on Bartlett Street (Mines, 1979). It is unclear whether or not these lots were vacant at the time of purchase, nor are the exact locations of these lots known (i.e., whether or not some of these lots were located on the Organics/Suciac Block or the Citric Block Site). An 1887 Sanborn fire insurance map shows that Pfizer occupied at least half of the Organics/Suciac Block by that time. The westernmost portion of the block was owned by Moller & Schumann Varnish Manufacturer. According to the 1887 Sanborn map, the buildings/operations that existed on the Organics/Suciac Block were as follows:

- tenements were located along the eastern portion of the block adjacent to Harrison Avenue (not Pfizer property);
- light industry (i.e., a tailor, sash and blind facility) was located on the northeastern portion of the block (not Pfizer property);
- a crystallizing house occupied most of the Pfizer property; and
- a copper smoke house and retort/dry distilling operation existed, located on the eastern portion of the Pfizer property.

In addition, the 1887 Sanborn map shows the varnish manufacturing facility buildings/operations, located on the western portion of the block. These Moller & Schumann buildings/operations were as follows:

- tenements were located in the northwestern corner of the block;
- the northeastern corner was occupied with a barrel and resin storage area; and
- the southern portion contained:
  - a copper shop;
  - a paint shop;
  - a mixing shop;
  - three 6,000-gallon turpentine tanks;
  - a churning and storage area;
  - a straining room; and
  - store rooms.

In the latter part of the nineteenth century and the early part of the twentieth century, Pfizer expanded its operations at the Organics/Suciac Block to include a cream of tartar works, and tannin and strychnine production (Mines, 1979). In addition, a 1904 Sanborn fire insurance map shows that Pfizer expanded operations at the Organics/Suciac Block by the addition of several buildings. However, it is unclear to the exact operation that occurred in each building. The 1904 Sanborn map shows the following buildings/operations at the Organics/Suciac Block.

- tenements were still located along the eastern portion of the block adjacent to Harrison Avenue (not Pfizer property);
- light industry (i.e., carpenter shop) was still located on the northeastern portion of the block (not Pfizer property). The tailor shop and sash and blind facility were no longer present;
- the Pfizer property began to expand its operations as follows:
  - a cream of tartar works occupied the western portion of the Pfizer property;
  - a tannin and strychnine building occupied the northeastern corner of the Pfizer property;

- a brick chimney was present in the central portion of the Pfizer property;
- the crystallizing house was no longer present;
- the retort/dry distilling operation was no longer present;

- the varnish manufacturing facility began to expand operations as follows:
  - tenements were still located in the northwestern corner of the block;
  - the barrel and resin storage area was no longer present; a warehouse containing straining and cutting and mill construction occupied this area;
  - the copper shop, mixing shop, three 6,000-gallon turpentine tanks and storage rooms were all still present in the southern portion of the property;
  - the paint shop was no longer present;
  - a boiler and pump room was now present in the central portion of the property; and
  - an office, storage room and laboratory were now present in the southwestern corner of the property.

As shown in the 1918 Sanborn map, the Pfizer operations at the Organics/Suciac Block further expanded as follows:

- a pyrogallic acid plant was now present in the north-central portion of the Pfizer property;
- a water softening plant was now present in the south-central portion of the Pfizer property;
- the cream of tartar works still occupied the western portion of the Pfizer property;
- the tannin and strychnine building was still present;
- a second strychnine building occupied the southwest portion of the Pfizer property; and
- two 4,000-gallon gasoline capacity USTs were located adjacent to the northern portion of the second strychnine building (neither of these USTs were encountered during the recent extensive soil boring work performed in the powerhouse UST area; therefore, these USTs are assumed to have been removed when buildings in this area were modified circa 1935).

The buildings/operations present at the varnish manufacturing facility (not Pfizer property) in 1918 remained the same except for the following additions:

- two 3,000-gallon capacity benzene USTs were located in the north-central portion of the property (these USTs were not encountered during the recent extensive soil boring investigations performed near USTs 301 through 309; therefore, these two USTs are assumed to have been removed when these buildings were demolished circa 1935 and new buildings constructed in 1941);
- the tenements were no longer present; a yard was now in its place; and
- a garage was present in the southeastern corner of the property.

By 1935, major changes to the Organics/Suciac Block occurred. The shape of the block itself was changed due to the addition of a subway, located adjacent to the western portion of the block. The buildings/operations at the Organics/Suciac Block in 1935 were as follows:

- Pfizer now occupied the eastern portion of the block where tenements and light industry formerly were present;
- three new buildings were constructed on the eastern portion of the block at the Pfizer property (the Sanborn maps only identify the use of the building in the northeastern corner as a warehouse);
- the pyrogallic acid plant was replaced with a laboratory at the Pfizer property;
- the remaining portions of the Pfizer facility did not appear to change;
- the varnish manufacturing facility was no longer present (previously located on the western portion of the block); and
- a lumberyard and office building were now present in place of the varnish manufacturing facility.

By 1947, Pfizer occupied the entire Organics/Suciac Block. The buildings/operations at the Organics/Suciac Block in 1947 were as follows:

- the lumberyard and office building, located on the southwestern portion of the block, were no longer present;
- manufacturing of Vitamin C and ascorbic acids began, located on the southwestern portion of the Organics/Suciac Block;

- underground solvent tanks were present beneath the Vitamin C building (please note that these solvent tanks are assumed to be the former USTs 301 through 309, which were removed during the UST Removal Investigation);
- a mercury boiler was present located in the southeastern corner of Building 12A (i.e., immediately east of the Vitamin C building);
- a second brick chimney was present in the south-central portion of the Pfizer property; and
- the remaining portion of the Pfizer property did not appear to change.

According to the 1950 Sanborn map, the Pfizer property on the Organics/Suciac Block appeared to not change from 1947. The Organics/Suciac Block remained fully occupied by buildings housing various facility operations until 1989, when operations ceased. All buildings at the Organics/Suciac Block were demolished by March 1995.

5.0 HAZARD ASSESSMENT

The potential hazards associated with the anticipated investigation activities include chemical and physical hazards. There is little potential for encountering biological hazards due to the nature of the work location and the activities to be conducted.

5.1 Chemical Hazards

Previous investigations have shown the presence of various organic compounds and metals at the Organics/Suciac Block. The toxicological, physical, and chemical properties of these potential contaminants are presented in Table H-1. This table includes action levels (permissible exposure levels) which will establish the level of protection. The potential for encountering these contaminants exists during intrusive activities such as drilling.

5.2 Physical Hazards

A variety of physical hazards may be present during Organics/Suciac Block activities. These hazards are similar to those associated with any construction-type project. These physical hazards are due to motor vehicle and heavy equipment operation, the use of power and hand tools, hazardous working surfaces, and handling and storage of fuels. These hazards are not unique and are generally familiar to most field personnel. Additional task-specific requirements will be covered during safety briefings.

5.2.1 Noise

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps, and generators. High noise operations will be evaluated at the discretion of the SHSO. Personnel with 8-hour time-weighted-average exposures exceeding 85 dBA must be included in a hearing conservation program in accordance with 29 CFR 1910.95.

5.2.2 Heat Stress

Heat stress is a significant potential hazard and can be associated with heavy physical activity and/or the use of personal protective equipment (PPE) in hot weather environments.

Heat cramps are brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body resulting in painful muscle cramps. The signs and symptoms of heat cramps are as follows:

- severe muscle cramps, usually in the legs and abdomen;
- exhaustion, often to the point of collapse; and
- dizziness or periods of faintness.

First aid treatment includes shade, rest and electrolyte fluid replacement therapy. Normally, the individual should recover within one-half hour. If the individual has not recovered within 30 minutes and the temperature has not decreased, the individual should be transported to a hospital for medical attention.

Heat exhaustion may occur in a healthy individual who has been exposed to excessive heat while working. The circulatory system of the individual fails as blood collects near the skin in an effort to rid the body of excess heat. The signs and symptoms of heat exhaustion are as follows:

- rapid and shallow breathing;
- weak pulse;
- cold and clammy skin with heavy perspiration;
- skin appears pale;
- fatigue and weakness;
- dizziness; and
- elevated body temperature.

First aid treatment includes cooling the victim, elevating the feet, and replacing fluids and electrolytes. If the individual has not recovered within 30 minutes and the temperature has not decreased, the individual should be transported to the hospital for medical attention.

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a **MEDICAL EMERGENCY**, requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- dry, hot, red skin;
- body temperature approaching or above 105°F;
- large (dilated) pupils; and
- loss of consciousness - the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility.

Heat stress (heat cramps, heat exhaustion, and heat stroke) is a significant hazard if any type of PPE (semipermeable or impermeable) which prevents evaporative cooling is worn in hot weather environments. Local weather conditions may require restricted work schedules in order to adequately protect personnel. The use of work/rest cycles (including working in the cooler periods of the day or evening) and training on the signs and symptoms of heat stress should help prevent heat-related illnesses from occurring. Work/rest cycles will depend on the work load required to perform each task, type of protective equipment, temperature, and humidity. In general, when the temperature exceeds 88°F, a 15 minute rest cycle will be initiated once every two hours. In addition, potable water and fluids containing electrolytes (e.g., Gatorade) will be available to replace lost body fluids.

5.2.3 Cold Stress

Cold stress is a danger at low temperatures and when the wind-chill factor is low. Prevention of cold-related illnesses is a function of whole-body protection. Adequate insulating clothing must be used when the air temperature is below 40°F. In addition, reduced work periods followed by rest in a warm area may be necessary in extreme conditions. Training on the signs and symptoms of cold stress should prevent cold-related illnesses from occurring. The signs and symptoms of cold stress include the following:

- severe shivering;
- abnormal behavior;

- slowing;
- weakness;
- stumbling or repeated falling;
- inability to walk;
- collapse; and/or
- unconsciousness.

First aid requires removing the victim from the cold environment and seeking medical attention immediately. Also, prevent further body heat loss by covering the victim lightly with blankets. Do not cover the victim's face. If the victim is still conscious, administer hot drinks, and encourage activity, such as walking wrapped in a blanket.

6.0 TRAINING REQUIREMENTS

The Hazardous Waste Operations and Emergency Response Rule (29 CFR 1910.120) requires that all personnel be trained to recognize on-site hazards, understand the provisions of this HASP, and be made aware of the responsible health and safety personnel. This section discusses the means to meet these requirements.

6.1 Basic Training

All Organics/Suciac Block personnel who will perform work in areas where the potential for toxic exposure exists will be health and safety-trained prior to performing work on-site, per OSHA 29 CFR 1910.120(e). Training records will be submitted to and maintained by the SHSO on-site, as described in Section 6.4.

6.2 Organics/Suciac Block-Specific Training

Health and safety-related training that will specifically address the activities, procedures, monitoring and equipment for the Organics/Suciac Block operations will be provided to all Organics/Suciac Block personnel and visitors by the SHSO. It will include Organics/Suciac Block and facility layout, hazards, emergency services at the Organics/Suciac Block and will detail all provisions contained within this HASP. This training will also allow field workers to clarify anything they do not understand, and to reinforce their responsibilities regarding safety and operations for their particular activity. Organics/Suciac Block-specific training will be documented and kept as part of the project records.

6.3 Safety Briefings

Project personnel will be given briefings by the SHSO on an as-needed basis to further assist them in conducting their activities safely. Safety briefings will be held when new operations are to be conducted, whenever changes in work practices must be implemented, before work is begun at each location, and each Monday morning. Records of safety briefings will be kept as part of the project records.

6.4 Record Keeping Requirements

All record keeping requirements mandated by OSHA 29 CFR 1910.120 will be strictly followed. Specifically, all personnel training records, injury/incident reports, medical examination records and exposure monitoring records will be maintained by Roux Associates and each contractor for a period of at least thirty years after the employment termination date of each employee. Pertinent health and safety training and medical certifications will be kept onsite during the field operations. The SHSO shall maintain a daily written log of all health and safety monitoring activities, and monitoring results shall become part of the project records.

7.0 MONITORING PROCEDURES FOR ORGANICS/SUCIAC BLOCK OPERATIONS

The SHSO will record wind direction and temperature during monitoring in the logbook. All monitoring equipment will be calibrated per the owner's manual which will be kept onsite, or at least monthly according to Organics/Suciac Block inspection rules.

7.1 Intrusive Operations

Data from previous investigations have identified the presence of organic compounds in soil. Air monitoring will be performed to establish the concentrations of these constituents during intrusive activities (e.g., drilling) using a photoionization detector (PID), and Dräeger tubes (for benzene).

Quantitative analyses of benzene have been performed during intrusive activities using tenax tubes, and the benzene concentrations (0.001 ppm) detected were well below the action level (0.5 ppm).

The SHSO will monitor the breathing zone with the PID in continuous operating mode and with the alarm activated. The alarm will be set at 5 parts per million (ppm), which is below the permissible exposure level (PEL) for all constituents of concern (except benzene). If the PID indicates that total vapor exceeds the 5 ppm level, the SHSO will order cessation of the activity until all personnel within the work zone have donned a full face air purifying respirator, or until the nature of the hazard has been more thoroughly evaluated.

Dräeger tubes will be used to provide direct readings to establish the levels of benzene if the PID indicates that total vapor exceeds the 5 ppm level, to determine that personal protection is adequate. The Dräeger tubes will be chemical-specific to benzene, but will be conservatively biased high, and the readings will enable the SHSO to make an immediate decision on the level of protection. If any detections of benzene are noted based upon the Dräeger tube readings, the SHSO will order cessation of the activity until:

- all potentially exposed personnel have donned Level C respiratory protection (full-face, dual organic vapor/particulate cartridge respirator);
- the benzene levels are not detectable by the Dräeger tubes; or

- the nature of the hazard has been more thoroughly evaluated and it has been determined that the measured compound(s) was not benzene.

In addition to continuous monitoring, the excavation surfaces will be misted with a mixture of potable water and a vapor suppressant.

Metals have also been identified at the Organics/Suciac Block, therefore, particulate monitoring will be performed during intrusive activities. In addition to particulate monitoring, the following techniques may be employed to mitigate the generation and migration of dust during construction activities:

- misting equipment and excavation faces;
- covering excavated areas and material after excavation activity ceases;
- hauling materials in tarped or watertight containers; and
- applying water to haul roads.

Particulate monitoring will be performed downwind of the intrusive activity with a portable particulate monitor that will have the alarm set at 150 micrograms per cubic meter ($\mu g/m^3$). If the downwind particulate levels exceed 120 $\mu g/m^3$ over 15 minutes, the particulate levels upwind of the activity will be measured. If the downwind level is more than 80 $\mu g/m^3$ greater than the upwind particulate level, work will be stopped and corrective action will be taken (i.e., misting).

7.2 Non-Intrusive Operations

Based on the current understanding of Organics/Suciac Block conditions, monitoring may be performed using Dräeger tubes on the first day of non-intrusive operations, and periodically thereafter if the PID readings indicate a more accurate assessment is warranted.

8.0 MEDICAL SURVEILLANCE REQUIREMENTS

Medical surveillance specifies any special medical monitoring and examination requirements as well as stipulates that all Roux Associates personnel and contractors are required to pass the medical surveillance examination or equivalent for hazardous waste work required by 29 CFR 1910.120. As a minimum, the examination will include:

- complete medical and work histories;
- EKG;
- urinalysis;
- physical exam;
- eye exam;
- blood chemistry;
- pulmonary function test; and
- audiometry.

The examination will be taken annually, at a minimum, and upon termination of employment with the company. Additional medical testing may be required by the HSM in consultation with the company physician and the SHSO if an overt exposure or accident occurs, or if other Organics/Suciac Block conditions warrant further medical surveillance.

9.0 ZONES, PROTECTION AND COMMUNICATIONS

Work zones, levels of personal protection, and means of communication are described below.

9.1 Organics/Suciac Block Zones

Roux Associates employs the following three zone approach to Organics/Suciac Block operations.

- the Work Zone;
- the Contamination Reduction Zone; and
- the Support Zone.

9.1.1 Work Zone

The Work Zone is the area where work will be conducted. The Work Zone will be designated by a temporary barrier consisting of red barricade tape. No personnel shall work in the Work Zone without a buddy. All workers within the Work Zone shall wear the proper PPE (see Section 9.2). No unauthorized persons will be allowed in the Work Zone during Organics/Suciac Block activities.

No personnel are allowed in the Work Zone without:

- a buddy;
- the proper PPE;
- medical authorization; and
- training certification.

9.1.2 Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) will be established between the Work Zone and the Support Zone. The CRZ will provide for full personnel and portable equipment decontamination (Section 9.3). The CRZ will also contain safety and emergency equipment such as first aid equipment (bandages, blankets, eye wash) and containment equipment (adsorbent, fire extinguisher).

9.1.3 Support Zone

The Support Zone is considered the uncontaminated area and will provide for team communications and emergency response. Appropriate safety and support equipment will be located in this zone. The Support Zone will be located upwind of Organics/Suciac Block operations, if possible and may be used as a potential evacuation point. No potentially contaminated personnel or materials are allowed in this zone except appropriately packaged/ decontaminated and labeled samples, and drummed wastes.

9.2 Personal Protection

This section describes the levels of protection which will be required by on-site personnel during the remediation activities.

9.2.1 General

The level of protection to be worn by field personnel and visitors will be defined and controlled by the SHSO with approval of the HSM. Where more than one hazard area is indicated, further definition shall be provided by review of Organics/Suciac Block hazards, conditions, and operational requirements and by monitoring at the particular operation being conducted.

During intrusive activities, continuous monitoring will be performed using the PID. Dräeger tubes will also be used for initial and periodic real-time measurements of benzene. The use of Dräeger tubes for benzene will allow the SHSO to make an immediate decision on the adequacy of protection against this compound. Should the PID or Dräeger tubes indicate that the PEL for benzene has been exceeded, work will cease in this area until:

- workers have donned a full face air purifying respirator; or
- the concentration levels for benzene are below the Dräeger tube detection levels.

Protection may be upgraded or downgraded by the SHSO in conjunction with the HSM based upon the PID instrument and Dräeger tube results.

9.2.2 Respiratory Protection and Clothing

Three levels of protective equipment are discussed below including Level D, Level C, and Level B.

Level D Protection

1. PPE:
   - Cotton coveralls
   - Cotton gloves
   - Boots/shoes, leather or chemical-resistant, steel toe and shank
   - Boots (outer), chemical-resistant (disposable)
   - Safety glasses or chemical splash goggles
   - Hard hat
   - Escape mask

2. Criteria for selection

   PID readings in the breathing zone are less than 5 ppm, and benzene is not detected using Dräeger tubes. Work functions preclude splashes, immersion, or potential for unexpected inhalation of any chemicals.

NOTE: Modifications of Level D will be used to increase the level of skin protection during activities which increase the degree of contact with chemical hazards. These modifications include the use of chemical/corrosion resistant coveralls (e.g., tyveks), and chemical resistant gloves.

Level C Protection

1. PPE:
   - Full face, air purifying, cartridge-equipped respirator (Mine Safety and Health Administration [MSHA]/National Institute for Occupational Safety and Health [NIOSH] approved)
   - Chemical-resistant clothing (coverall; hooded, two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls)

- Cotton or synthetic coveralls*
- Gloves (inner), chemical-resistant - latex
- Gloves (outer), chemical-resistant - nitriles
- Boots (inner), chemical-resistant, steel toe and shank
- Boots (outer), chemical-resistant (disposable)
- Hard hat (face shield)
- Escape mask
- 2-Way radio communications (intrinsically safe)*

*Optional

2. Criteria for selection
   - Continuous total vapor readings register between 5 ppm and 25 ppm on PID and benzene is detected at concentrations less than 50 ppm.
   - Measured air concentrations of identified substances (organic vapors) will be reduced by the respirator to at or below the substance's exposure limit, and the concentration is within the service limit of the canister.
   - Atmospheric contaminant concentrations do not exceed Immediately Dangerous to Life and Health (IDLH) levels.
   - Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.
   - Job functions have been determined not to require self-contained breathing apparatus.

Level B Protection

1. PPE:
   - Pressure-demand, self-contained breathing apparatus (MSHA/NIOSH approved)
   - Chemical-resistant clothing (overall and long-sleeved jacket; coveralls; hooded, one or two-piece chemical-splash suit; disposable chemical-resistant coveralls)
   - Coveralls
   - Gloves (inner), chemical-resistant - latex
   - Gloves (outer), chemical-resistant - nitriles
   - Boots (inner), chemical-resistant, steel toe and shank
   - Boots (outer), chemical-resistant (disposable)
   - Hard hat (face shield)
   - 2-way radio communications (intrinsically safe)

2. Criteria for Selection

   Meeting any one of these criteria warrants use of Level B protection:
   - PID readings in the breathing zone are greater than 25 ppm and less than 500 ppm, but less than 100 ppm benzene utilizing Dräeger tubes.
   - The type(s) and atmospheric concentration(s) of toxic substance(s) 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 IDLH concentrations

     or

     -- exceeding limits of protection afforded by a full face, air purifying mask

     or

     -- containing substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard.
   - The atmosphere contains less than 19.5% oxygen.
   - Operations at the Site make it highly unlikely that the small, unprotected arc of the head or neck will be contacted by splashes of extremely hazardous substances.
   - If work is performed in an enclosed space.

9.3 Decontamination Procedures

A steam cleaner will be utilized to decontaminate heavy equipment used in drilling. Personnel should exercise caution when using a steam cleaner. The high pressure steam can cause burns. Protective gloves, face shields, hard hats, steel-toed boots, and Tyvek suits or rain gear will be worn when using steam cleaners.

9.3.1 Contamination Prevention

Adequate contamination prevention should minimize worker exposure and help ensure valid sample results by precluding cross-contamination. Procedures for contamination avoidance include the following.

Personnel

- Do not walk through areas of obvious or known contamination;
- Do not handle contaminated materials directly;
- Make sure all PPE has no cuts or tears prior to donning;
- Fasten all closures on suits, covering with tape, if necessary;
- Take particular care to protect any skin injuries;
- Stay upwind of airborne contaminants;
- Do not carry cigarettes, gum, etc., into contaminated areas; and
- Use disposables to cover nondisposable equipment when contact is probable.

Sampling/Monitoring

- When required by the SHSO, cover instruments with clear plastic, leaving opening for sampling and exhaust ports; and
- Bag sample containers prior to the placement of sample material.

Heavy Equipment

- Care should be taken to limit the amount of contamination that comes in contact with heavy equipment;
- If contaminated tools are to be placed on non-contaminated equipment for transport to the decontamination pad, plastic should be used to keep the equipment clean; and
- Excavated soils should be contained and kept out of the way of workers.

9.3.2 Decontamination

All personnel and equipment exiting the Work Zone shall be thoroughly decontaminated. Figures H-2, H-3 and H-4 illustrate decontamination procedures for Levels D, C and B, respectively. Safety briefings shall explain the decontamination procedures for personnel and portable equipment for the various levels of protection. Heavy equipment will be decontaminated with a steam cleaner.

9.3.3 Disposal Procedures

All discarded materials, waste materials, or other objects shall be handled in such a way as to preclude the potential for spreading contamination, creating a sanitary hazard, or causing litter to be left at the Organics/Suciac Block. All potentially contaminated materials (e.g., soil, clothing, gloves, etc.) will be bagged or drummed, as necessary, and segregated for disposal. All contaminated materials shall be disposed of in accordance with appropriate regulations. All non-contaminated materials shall be collected and bagged for appropriate disposal as normal domestic waste. All waste disposal operations conducted by Roux Associates will be monitored by the SHSO and carried out under the appropriate level of personal protection.

9.4 Standard Operating Procedures/Safe Work Practices

This section discusses safe work practices to be used during all activities. In addition, non-monitoring safety-related procedures are described.

9.4.1 Communications

- Telephones -- A telephone will be available for communication with emergency support services/facilities.

- Hand Signals -- To be employed by personnel required to have Level C protection. They shall be known by the entire field team before operations commence and covered during Organics/Suciac Block-specific training.

The following hand signals will be used, if needed:

Signal	Meaning
Hand gripping throat	Out of air, can't breath
Grip partner's wrist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	I'm all right, okay
Thumbs down	No, negative

9.4.2 General Safe Work Practices

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth contact and ingestion of material is prohibited onsite except in lunch room or designated office areas.

- Hands must be washed thoroughly upon leaving the Work Zone or before eating, drinking, or any other activities.

- Contaminated protective equipment shall not be removed from the Organics/Suciac Block until it has been decontaminated and properly packaged and labeled.

- Portable eyewash stations shall be located in the decontamination staging area in the Support Zone.

- No facial hair, which interferes with a satisfactory fit of respiratory equipment, will be allowed on personnel that may be required to wear respiratory protective equipment.

- An emergency first aid kit and fire extinguisher shall be onsite in the Support Zone at all times.

- All respiratory protection selected to be used onsite shall meet MSHA/NIOSH requirements for the existing contaminants.

- Any skin contact with surface and ground water shall be avoided.
- No contact lenses may be worn.

9.4.3 Waste Disposal

All waste disposal operations shall be monitored by the SHSO and performed using the appropriate level of personal protection. Personnel shall wear the prescribed clothing, especially eye protection and chemical resistant gloves, when handling or drumming waste materials. Contamination avoidance shall be practiced at all times.

9.4.4 Heavy Equipment and Drill Rig Safety

Typical machinery to be found at this site may include pumps, compressors, generators, portable lighting systems, fork lifts, trucks, dozers, backhoes, and drill rigs. From a safety standpoint, it is important for all site workers to be continually aware of the equipment around them. It poses a serious hazard if not operated properly, or if personnel near machinery cannot be seen by operators.

Drilling crews are confronted with all of these heavy equipment hazards. They must be responsible for housekeeping around the rig because of the rods, auger sections, rope, and hand tools cluttering the operation. Maintenance is a constant requirement. Overhead and buried utilities require special precautions because of electrical and natural gas hazards. Electrical storms may seek out a standing derrick. The hoist or cathead rope poses specific hazards that must be respected. A clean, dry, sound rope should always be used. Hands should be kept away from the test hammer. Hearing loss, while not an immediate danger, is considerable over time. Hearing protection must be worn.

9.4.5 Confined Space Entry

The scope of work does not require personnel to enter any confined space during the conduct of this project. Confined space is defined as having limited or restricted means of entry or exit, is large enough for an employee to enter and perform assigned work, and is not designed for continuous occupancy by the employee. These spaces include, but are not limited to, underground vaults, tanks, storage bins, pits and diked areas, vessels, and silos.

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

- contains or has the potential to contain a hazardous atmosphere;
- contains a material that has the potential for engulfing an entrant;
- has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section; and/or
- contains any other recognized serious safety or health hazards.

10.0 EMERGENCY PLAN

As a result of the hazards onsite and the conditions under which operations are conducted, the possibility of an emergency exists. An emergency plan is required by OSHA 29 CFR 1910.120 to be available for use and is included below. A copy of this plan shall be posted in the Support Zone at each work site.

10.1 Organics/Suciac Block Emergency Coordinator(s)

The SHSO shall act as the Organics/Suciac Block Emergency Coordinator to make contact with the local fire, police and other emergency units prior to beginning work onsite. In these contacts, the SHSO will inform the emergency units about the nature and duration of work expected at the Organics/Suciac Block and the type of contaminants and possible health or safety effects of emergencies involving these contaminants.

The SHSO or his designee shall implement this emergency plan whenever conditions at the Organics/Suciac Block warrant such action. The coordinator(s) will be responsible for assuring the evacuation, emergency treatment, emergency transport of Organics/Suciac Block personnel as necessary, and notification of emergency response units and the appropriate management staff.

10.2 Evacuation

In the event of an emergency situation, such as fire, explosion, significant release of particulates, etc., an air horn or other appropriate device will be sounded by the SHSO for approximately ten seconds indicating the initiation of evacuation procedures. All persons in both the restricted and non-restricted areas will evacuate and assemble near the Support Zone or other safe area as identified in advance by the SHSO. Under no circumstances will incoming personnel or visitors be allowed to proceed into the evacuated area once the emergency signal has been given. The SHSO must see that access for emergency equipment is provided and that all combustible apparatus has been shutdown once the alarm has been sounded. Once the safety of all personnel is established, the fire department and other emergency response groups will be notified by telephone of the emergency. The hospital route will be posted onsite (Figure H-1). Any other excavation routes will be specified by the appropriate emergency personnel.

10.3 Potential or Actual Fire or Explosion

If the potential for a fire exists or if an actual fire or explosion occurs, the following procedure will be implemented:

- immediately evacuate the Work Zone as described above (Section 10.2); and
- notify fire department and security.

10.4 Environmental Incident (Release or Spread of Contamination)

The SHSO shall instruct a person onsite to immediately contact police and fire authorities to inform them of the possible or immediate need for nearby evacuation. If a significant release (above the reportable quantity as described in 40 CFR 302) has occurred, the National Response Center and other appropriate groups should be contacted. Those groups will alert National or Regional Response Teams as necessary. The personnel listed below shall be notified as necessary.

Name	Type	Telephone #
Fire Department		(718) 636-1700
Hazardous Material Emergency Response		911
Police Department		(718) 963-5311
Ambulance		911
Poison Control Center		(800) 526-8816
Hospital	Woodhull Medical Center	(718) 963-8000
National Response Center (Release or Spill)		(800) 424-8802
Site Health and Safety Officer		On-Site (718) 218-8428
Health and Safety Manager	Linda Wilson	(516) 232-2600
Project Manager	Scott Glash	(516) 232-2600

10.5 Personal Injury

Emergency first aid shall be applied onsite as deemed necessary to stabilize the patient. Notify the emergency units as deemed necessary.

10.6 Overt Personnel Exposure

If an overt exposure to toxic materials should occur, the exposed person shall be treated onsite as follows:

Skin Contact:	Wash/rinse affected area thoroughly with copious amounts of soap and water, then provide appropriate medical attention. An eyewash and/or emergency shower or drench system will be provided onsite at the CRZ and/or support zone, as appropriate. Eyes should be rinsed for at least fifteen (15) minutes upon chemical contamination.
Inhalation:	Move to fresh air and/or if necessary, decontaminate and transport to the hospital.
Ingestion:	Decontaminate and transport to emergency medical facility.
Puncture Wound or Laceration	Decontaminate and transport to emergency medical facility. SHSO will provide medical data sheets to medical personnel as requested.

10.7 Adverse Weather Conditions

In the event of adverse weather conditions, the SHSO will determine if work can continue without sacrificing the health and safety of field workers. Some of the items to be considered prior to determining if work should continue are:

- heavy rainfall;
- potential for heat stress;
- potential for cold stress and cold-related injuries;
- limited visibility;
- potential for electrical storms;
- potential for malfunction of health and safety monitoring equipment or gear; and
- potential for accidents.

11.0 AUTHORIZATIONS

Personnel authorized to enter the Organics/Suciac Block while operations are being conducted must be approved by the SHSO and the Project Manager. This document will be completed when the subcontractors have assigned trained personnel for the Organics/Suciac Block. Authorization will require completion of appropriate training courses, medical examination requirements as specified by OSHA 29 CFR 1910.120, and review and sign-off of this HASP.

The following Roux Associates personnel are authorized to perform work onsite:

1. Scott Glash
2. Linda Wilson
3. Omar Ramotar
4. Jeffrey Makowski
5. Jennifer Tyers
6. Susan Weber
7. Peter Barczak
8. Peter Gerbasi
9. Andrew McVicker
10.

Pfizer Inc personnel authorized to enter the Organics/Suciac Block are:

1. Tom Kline
2. John Keith
3. Steve Kemp
4. Anthony Carcich
5. Tom Snee
6. Nathan Edeson
7. Harold Carter
8. John Greenthal
9. Douglas Swanson
10.

12.0 FIELD TEAM REVIEW

Each person entering the Organics/Suciac Block and each field member shall sign this section after site-specific training is completed and before being permitted to work onsite.

I have read and understand this Organics/Suciac Block-Specific Health and Safety Plan. I will comply with the provision contained therein.

Organics/Suciac Block/Task: _____

Name Printed	Signature	Date