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March 20, 2014

Sondra Martinkat
New York State Department of Environmental Conservation
Division of Environmental Remediation
47-40 21st Street
Long Island City, New York

Re: Vacuum Extraction Interim Remedial Measure Work Plan
Paragon Paint and Varnish Corp. (Site)
5-49 46th Avenue
Long Island City, NY 11101
NYSDEC Site No. C241108

Dear Ms. Martinkat:

As per the New York State Department of Environmental Conservation (NYSDEC) approved Supplemental Revised Interim Remedial Measure (IRM) Work Plan, dated November 17, 2011, manual gauge and bail events are ongoing at the above listed Site. As noted in the 2011 IRM Work Plan the manual gauge and bail events were to proceed until larger diameter wells more suitable for light non-aqueous phase liquid (LNAPL) recovery were installed and an alternative method for LNAPL recovery could be evaluated. As you are aware, larger diameter wells were installed during the remedial investigation recently completed at the Site; therefore, Remedial Engineering, P.C. and Roux Associates, on behalf of Vernon 4540 Realty LLC have prepared this Vacuum Extraction IRM Work Plan which proposes to temporarily discontinue the manual gauge and bail events and initiate vacuum enhanced recovery (VER) at the Site.

Manual LNAPL IRM recovery events were initiated at the Site on December 22, 2011. Beginning December 21, 2012, with NYSDEC approval, the frequency of the IRM recovery visits was reduced from weekly to bi-weekly (twice a month). Bi-weekly IRM recovery events continue at the Site. In total, 75 manual LNAPL recovery IRM events have been completed at the Site. During each event, all monitoring wells are gauged using an electronic interface probe capable of detecting LNAPL thicknesses of 0.01 feet. Following gauging, those monitoring wells that exhibited LNAPL are manually bailed using a 3, 1.6, or .75-inch bailer as appropriate, depending on well diameter. Recovered LNAPL is transferred to labeled 55-gallon drums that are being temporarily stored onsite awaiting proper disposal. The most recent manual LNAPL recovery IRM events occurred on February 14th and 27th, 2014.

In total, approximately 1,571 gallons of LNAPL has been recovered since initiation of the manual LNAPL Recovery IRM, with an average of approximately 21-gallons of LNAPL recovered during each of the 75 events. Approximately 1,211 gallons of LNAPL has been recovered from MW-8

alone accounting for approximately 77% of the total. Note however, that significant LNAPL recovery has occurred during the last two events at monitoring wells MW-17 and MW-23; both wells are four-inch monitoring wells that were recently installed during the RI.

VER is a remediation technology performed by applying a high vacuum (i.e., vacuum truck capable of 20 inches of mercury) to withdraw LNAPL from impacted groundwater wells. VER provides a method to improve the performance of conventional (i.e., manual bailing) in situations involving low permeability formations. Increased recovery of LNAPL by VER is accomplished in several ways as discussed below.

- VER increases the hydraulic gradient and effective drawdown that allows for a greater volume of LNAPL to be drawn into a well and subsequently recovered.
- VER establishes a cone of reduced pressure (similar to a cone of depression in conventional pumping systems) around the well, LNAPL then flows across the pressure-induced gradient from a region of higher pressure outside the well to a lower pressure zone inside the well.
- Through the application of VER, capillary pressures that immobilize water in soil pore spaces can be overcome. By removing this pore water, the relative permeability of the residual free product increases its mobility and potential for recovery.

At this time, high vacuum extraction is a viable candidate technology as the permanent remedy for LNAPL recovery at the Site. VER utilizes a process similar to high vacuum extraction and should provide useful data that will aid in the evaluation and design of a full scale high vacuum extraction remediation system.

Scope of Work

An initial round of groundwater gauging data will be collected in the existing monitoring wells to determine which wells exhibit LNAPL and to establish static water level elevations prior to performing any VER events. VER events will occur on those wells that exhibit measurable LNAPL on the day of the event and that are accessible to the vacuum truck.

A vacuum truck equipped with a pressure/vacuum pump capable of drawing a minimum of 20 inches of mercury vacuum at 300 cubic feet per minute will be used for the VER events. A 1-inch diameter plastic drop tube will be sealed within the monitoring well and extend to just above the LNAPL interface. The vacuum truck will be connected to the drop tube with a 2-inch diameter cam-lock hose connection. The vacuum truck hose will have a flow regulation valve to adjust the vacuum and a transparent sight tube so that the liquid being recovered can be observed.

To evaluate the effectiveness of the VER events, the radius of influence will be determined (on a per well basis) by the effective area of groundwater capture and vacuum influences in the adjacent monitoring wells. The groundwater capture will be estimated by measuring the water table drawdown in adjacent monitoring wells. The vacuum influence will be estimated by measuring the subsurface vacuum. The subsurface vacuum will be measured using Magnehelic™ gauges

Sondra Martinkat

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with ranges varying from 0.01 to 100 inches of water column. The well yield data will be approximated by monitoring the rate of vacuum truck fill-up and the amount of product recovered will be estimated by gauging the amount of product in the vacuum truck. Results for each monitoring well will be recorded on a recovery well summary log.

Volatile organic compounds in the work-zone will be monitored using a photoionization detector. A Health and Safety Plan, which will be adhered to during the VER events is included as Attachment 1.

VER Events will occur weekly for a period of four weeks followed by an evaluation of the results. Based on the evaluation, Roux Associates will make a recommendation for future events. This recommendation may include continued weekly/monthly VER events, resuming the manual bailing events or some combination thereof.

Roux Associates will continue to provide periodic (monthly) updates to the NYSDEC on the progress of the IRM.

Thank you for your consideration and please do not hesitate to call if you have any questions or require further information.

Sincerely,

REMEDIAL ENGINEERING, P.C.



Charles J. McGuckin, P.E.
Senior Engineer



ROUX ASSOCIATES, INC.



Richard Maxwell
Senior Geologist

Enclosures

cc: Jane O'Connell, NYSDEC
Brent Carrier, Vernon 4540 Realty, LLC
Michael Bogin, Esq, Sive Paget & Riesel
Joseph D. Duminuco, Roux Associates

Vacuum Extraction Interim Remedial Measure Work Plan

ATTACHMENT 1

Health and Safety Plan

February 7, 2013

SITE HEALTH AND SAFETY PLAN

**Former Paragon Paint and Varnish Company
Manufacturing Facility
BCP Site Number C241108
5-43 to 5-49 46th Avenue and
45-38 Vernon Boulevard to
45-40 Vernon Boulevard
Long Island City, New York**

Prepared for

**VERNON 4540 REALTY, LLC
45 Carleon Avenue
Larchmont, New York 10538**

ROUX ASSOCIATES, INC.

Environmental Consulting & Management



209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600

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2. Hospital Route Map

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- B. Heat and Cold Stress Guidelines
- C. Medical Data Form
- D. Health and Safety Briefing/Tailgate Meeting Form
- E. Accident Report and Investigation Form
- F. Acord Form
- G. OSHA 300
- H. Weekly Safety Report
- I. Job Safety and Health Protection Poster

APPROVALS

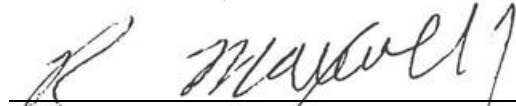
By their signature, the undersigned certify that this Health and Safety Plan (HASP) is approved and will be utilized at the project site located at 5-43 to 5-49 46th Avenue and 45-35 to 45-40 Vernon Boulevard in Long Island City, New York.



Joseph Gentile
Corporate Health and Safety Manager
Roux Associates, Inc.

February 7, 2013

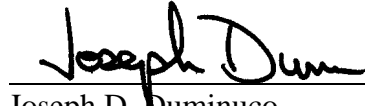
Date



Richard Maxwell
Site Health and Safety Officer
Roux Associates, Inc.

February 7, 2013

Date



Joseph D. Duminuco
Project Principal/
Vice President
Roux Associates, Inc.

February 7, 2013

Date

1.0 INTRODUCTION

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 Emergency Response (HAZWOPER) and Roux Associates, Inc. (Roux Associates) Standard Operating Procedures (SOPs). It addresses all activities to be performed during the implementation of Remedial Investigation (RI) activities, Interim Remedial Measures (IRM), and Remedial Actions (RA) at the property identified as the former Paragon Paint manufacturing facility and located at 5-43 to 5-49 46th Avenue and 45-35 to 45-40 Vernon Boulevard in Long Island City, New York (Site) (Figure 1). The HASP will be implemented by the designated Site Health and Safety Officer (SSO) during work at the Site. The HASP attempts to identify all potential hazards at the Site; however, Site conditions are dynamic and new hazards may appear constantly. Personnel must remain alert to existing and potential hazards as Site conditions change and protect themselves accordingly.

Compliance with this HASP is required of all persons and subcontractors who perform fieldwork or enter the Site. The contents of this HASP may change or undergo revision based upon additional information made available to health and safety personnel, monitoring results, or changes in the technical scope of work. Any changes proposed must be reviewed and approved by the Corporate Health and Safety Manager (CHSM), with the SSO implementing the changes to the HASP.

Upon entering the Site, all visitors are required to sign in. All visitors entering the Contamination Reduction Zone (CRZ) (defined in Section 8.1.2), the Contamination Reduction Corridor (CRC) (defined in Section 8.1.2), or the Exclusion Zone (EZ) (defined in Section 8.1.3) will be required to read and comply with the provisions of this HASP. Visitors will be required to comply with applicable OSHA requirements such as training, medical monitoring, and respiratory protection.

In the event that a visitor does not adhere to the provisions of this HASP, he or she will be required to leave the Site. Mobilization activities not requiring intrusive activities (e.g., survey, equipment staging, etc.) or exposure to potentially impacted areas may only be performed if supervised by a competent Roux Associates employee.

1.1 Scope of Work

The Scope of Work activities will include the implementation of RI activities.

The Scope of Work activities are as follows:

1. Obtain necessary permits and approvals.
2. Preparation and implementation of an approved Health and Safety Plan (HASP).
3. Implementation of RI activities, consisting of site inspection/reconnaissance, geophysical survey, drilling, soil boring and sampling, groundwater sampling, and soil vapor sampling.
4. Implementation of the approved Field Sampling Plan (FSP).
5. Mobilization and demobilization.
6. Maintain good site housekeeping at all times.
7. Identification, protection, and/or relocation of any utilities within the work area.
8. Construct a decontamination pad with proper containment and collection system, if necessary.

1.2 Emergency Numbers

1.2.1 Emergency Phone Numbers

Emergency Medical Service	911
<u>Police</u> : New York City Police Department (NYCPD)	911
Fire:	911
<u>Hospital</u> : Mt. Sinai Queens Hospital	718-267-4285
National Response Center.....	800-424-8802
Poison Control Center.....	800-222-1222
CHEMTREC.....	800-262-8200
<u>Fire</u> : New York City Fire Department.....	911
Center for Disease Control.....	800-311-3435
USEPA (Region II).....	212-637-5000
NYSDEC Emergency Spill Response	800-457-7362

1.2.2 Project Management/Health and Safety Personnel

Title	Contact	Telephone/Cell
<u>Roux Associates</u>		
Project Director	Joseph Dumunico	631-232-2600 Cell – 631-921-6279
Site Health and Safety Officer	Richard Maxwell	631-232-2600 Cell – 631-927-9531
Corporate Health and Safety Manager	Joseph Gentile	856-423-8800 Cell – 610-844-6911

1.2.3 Other Important Phone Numbers

New York City Emergency Response Team911

HealthSource Medical Services of Islandia631-435-0110
(For non-emergency medical services)

1.2.4 Directions to Mt. Sinai Queens Hospital

See Figure 2 for street map.

- Head west on 46th Avenue toward 5th Street
- Turn left onto 5th Street
- Take first left onto 46th Road
- Take the third left onto 21st Street
- Turn right onto 30th Avenue
- Arrive at Mt. Sinai Queens Hospital on the right (total distance is 2.7 miles)

2.0 HEALTH AND SAFETY STAFF

This section briefly describes all Site personnel and their health and safety responsibilities for the RI work to be implemented at the Site. All personnel are responsible for ensuring compliance with the HASP.

2.1 Project Principal (PP) – Joseph D. Dumunico – Roux Associates

- Has the overall responsibility for the health and safety of Site personnel.
- Ensures that adequate resources are provided to the field health and safety staff to carry out their responsibilities as outlined below.

2.2 Corporate Health and Safety Manager (CHSM) – Joseph W. Gentile – Roux Associates

- Implements the HASP.
- Performs or oversees site-specific training and approves revised or new safety protocols or field operations.
- Coordinates revisions of this HASP with Project Principal.
- Responsible for the development of new task safety protocols and procedures and resolution of any outstanding safety issues which may arise during the performance of site work.
- Review and approve all health and safety training and medical surveillance records for personnel and subcontractors.

2.3 Site Safety and Health Officer (SSO) – Richard Maxwell – Roux Associates

- Directs and coordinates health and safety monitoring activities.
- Ensures that field teams utilize proper personal protective equipment.
- Conducts initial onsite specific training prior to personnel and/or subcontractors commencing work.
- Conducts and documents periodic safety briefings.
- Ensures that field team members comply with this HASP.
- Completes and maintains Accident Report and Investigation Forms.
- Notifies PP and CHSM of all accidents/incidents.

- Notifies PP of daily field operations and work progress, who will then communicate at the end of the day to the designated representative the following:
 1. End of day tasks completed
 2. Next day's planned activities
 3. Third party issues
 4. Change of Plans – approvals
- Maintains contact with Contractors.
- Determines upgrade or downgrade of personal protective equipment (PPE) based on Site conditions and/or real time monitoring results.
- Ensures that monitoring instruments are calibrated daily or as manufacturers suggested instructions determine.
- Submits and maintains health and safety field log books, daily safety logs, training logs, air monitoring result reports, weekly safety report.

2.4 Field Personnel and Subcontractors

- Report any unsafe or potentially hazardous conditions to the SSO.
- Maintain knowledge of the information, instructions, and emergency response actions contained in the HASP.
- Comply with rules, regulations, and procedures as set forth in this HASP and any revisions, which are instituted.
- Prevent admittance to work Site by unauthorized personnel.

3.0 SITE LOCATION, DESCRIPTION, AND HISTORY

Descriptions of the Site and surrounding property usage are included in the following sections. The location of the Site is presented in Figure 1.

3.1 Property Location and Description

The Site is located at 5-43 46th Avenue to 5-49 46th Avenue and 45-38 Vernon Boulevard to 45-40 Vernon Boulevard in Long Island City, New York. The New York City Tax Map identified the Site as Block 26, Lot Number 4. The Site consists of an approximately 33,150-square foot lot improved by one four story former paint factory building, one three story former garage and office, one three story former warehouse, one 1-story shed and a concrete paved access road off 46th Avenue and a rear courtyard that fronts approximately 60 feet of Anable Basin. The buildings were reportedly constructed between 1923 and 1947.

The total area of the on-Site buildings is approximately 69,500 square feet. Floors two through four of the former paint factory building contain the bulk of the paint and varnish manufacturing equipment and bulk liquid mixing tanks including multiple (53) ASTs and a significant amount of piping that still may contain unknown liquids or residues. The one story shed, which is attached to the four story former paint factory building, contains a boiler room and a historical varnish cooking pot room that is currently empty. Seven underground varnish cooking pots in addition to two underground storage tanks (USTs) are reported to be located beneath the concrete slab of the shed. The three-story building known as the garage contains offices, a former small paint laboratory and storage space. Nine USTs are reported to be located beneath the concrete slab of the garage. The three-story building known as the warehouse stored raw materials and paint products; currently most of the building is empty.

The courtyard is concrete paved and is reported to contain nine USTs. Vehicular access is provided by a concrete paved access road off 46th Avenue, which is reported to contain two USTs.

4.0 WASTE DESCRIPTION/CHARACTERIZATION

4.1 General

The following information is presented in order to identify the types of materials that may be encountered at the Site. The detailed information on these materials was obtained from:

- Sax's Dangerous Properties of Industrial Materials – Lewis Eight Edition
- Chemical Hazards of the Workplace – Proctor/Hughes
- Condensed Chemical Dictionary – Hawley
- Rapid Guide to Hazardous Chemical in the Workplace – Lewis 1990
- NIOSH Pocket Guide to Chemical Hazards – 2005
- ACGIH TLV Values and Biological Exposure Indices
- OSHA 29 CFR 1910.1000

4.2 Chemical Data Sheets

Several chemicals that may potentially be present in soils and groundwater at the Site, based on previous soil, soil vapor and groundwater sampling results and historic operations conducted at the Site that have been identified. The Summary of Toxicological Data is found in Table 1 and is provided for review of chemicals that may be encountered. The Summary of Toxicological Data Sheets provides information such as the chemicals characteristics, health hazards, protection, and exposure limits.

4.2.1 Contaminants of Concern

Soil and groundwater contaminants that may be encountered during drilling and sampling activities include both organic and inorganic compounds. Prior investigations at the site have indicated detection of light non-aqueous phase liquid (LNAPL), Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs) and metals.

The toxicological, physical, and chemical properties of potential contaminants are presented in Table 1.

5.0 HAZARD ASSESSMENT

The potential to encounter chemical hazards is dependent upon the work activity performed (intrusive versus non-intrusive) and the duration and location of the work activity. Such hazards could include inhalation and/or skin contact with chemicals/gases that could cause: dermatitis, skin burns, being overcome by vapors or asphyxiation.

Physical hazards that may be encountered during Site work include: heat and cold stress, exposure to excessive noise, loss of limbs, being crushed, head injuries, punctures, cuts, falls, electrocution and bruises; structural integrity of buildings; asbestos and lead paint exposure; and other physical hazards due to motor vehicle operation, heavy equipment and power tools.

Biological hazards may exist during Site activities. These hazards include exposure to insect bites/stings, animals and animal wastes, mold and bloodborne pathogens.

Prior to the beginning of each new phase of work, an activity hazard analysis will be prepared by the SSO with assistance from the CHSM. The analysis will address the hazards for each activity performed in the phase and will present the procedures and safeguards necessary to eliminate the hazards or reduce the risk. The Activity Hazard Analysis Sheets are located in Appendix A.

5.1 Chemical Hazards

The potential for personnel and subcontractors to come in contact with chemical hazards may occur during the following tasks:

- Gauging, bailing/purging, and sampling monitoring wells;
- Drilling Activities; and
- Decontamination Activities.

For chronic and acute toxicity data, refer to Summary of Toxicological Data Sheets in Table 1 for further details on compound characteristics.

5.1.1 Exposure Pathways

Exposure to these compounds during ongoing activities may occur through inhalation of contaminated dust particles, inhalation of VOCs and SVOCs, dermal absorption, and accidental ingestion of the contaminant by either direct or indirect cross-contamination activities.

Inhalation of contaminated dust particles (VOCs, SVOCs, and inorganics) can occur during adverse weather conditions (high or changing wind directions) or during operations that may generate airborne dust such as excavation and loading of contaminated soils. Dust control measures such as applying water to roadways and excavations will be implemented where visible dust is generated. Where dust control measures are not feasible or effective, respiratory protection will be used when necessary (see Section 9.2.2 for monitoring procedures and action levels).

5.1.2 Operational Action Levels

A decision-making protocol for an upgrade in levels of protection and/or withdrawal of personnel from an area based on atmospheric hazards is outlined in Table 2.

5.1.3 Additional Precautions

Dermal absorption or skin contact with chemical compounds is possible during intrusive activities and while gauging, purging or sampling a monitoring well at the Site. The use of PPE in accordance with Section 8.2 and strict adherence to proper decontamination procedures should significantly reduce the risk of skin contact.

The potential for accidental ingestion of potentially hazardous chemicals is expected to be remote, when good hygiene practices are used.

5.2 Physical Hazards

A variety of physical hazards may be present during Site activities. These hazards include typical construction activities: operation of motor vehicles and heavy equipment operation, the use of power and hand tools, the use of pressurized pumps for *in situ* injections, roping and rigging of steel sheeting, walking on objects, tripping over objects, working on surfaces which have the potential to promote falling, skin burns, crushing of fingers, toes, limbs, head injuries caused by falling objects, temporary loss of one's hearing and/or eyesight. The referenced hazards are not

unique and are generally familiar to most hazardous waste site workers at construction sites. Task-specific safety requirements for each phase will be covered during safety briefings. Activity Hazard Analysis summaries are contained in Appendix A.

5.2.1 Noise

Noise is a potential hazard associated with operation of heavy equipment, power tools, pumps, and generators. High noise equipment operators will be evaluated at the discretion of the SSO. Employees with an 8-hour time weighted average exposure exceeding 85 dBA will be included in a hearing conservation program in accordance with 29 CFR 1910.95 and 1926.52.

It is mandated that employees working around heavy equipment or using power tools that produce noise levels exceeding 90 dBA are to wear hearing protection that shall consist of earplugs or protective earmuffs.

5.2.2 Heat Stress

Heat stress is a significant potential hazard, associated with the use of protective equipment in a hot weather environment. The human body is designed to function at a certain internal temperature. When metabolism or external sources (fire or hot summer day) cause the body temperature to rise, the body seeks to protect itself by triggering cooling mechanisms. The SSO will monitor the air temperature (as described later in this section) to determine potential adverse affects the weather can cause onsite personnel. Excess heat is dissipated by two means:

- Changes in blood flow to dissipate heat by convection, which can be seen as "flushing" or reddening of the skin in extreme cases.
- Perspiration, the release of water through skin and sweat glands. While working in hot environments, evaporation of perspiration is the primary cooling mechanism.

Protective clothing worn to guard against chemical contact effectively stops the evaporation of perspiration. Thus the use of protective clothing increases heat stress problems.

The major disorders due to heat stress are heat cramps, heat exhaustion, and heat stroke. Heat cramps are painful spasms, which occur in the skeletal muscles of workers who sweat profusely in the heat and drink large quantities of water, but fail to replace the bodies lost salts or electrolytes. Drinking water while continuing to lose salt tends to dilute the body's extracellular fluids.

Soon water seeps by osmosis into active muscles and causes pain. Muscles fatigued from work are usually most susceptible to cramps.

Extreme weakness or fatigue, dizziness, nausea, and headache characterize heat exhaustion. In serious cases, a person may vomit or lose consciousness. The skin is clammy and moist, complexion pale or flushed, and body temperature normal or slightly higher than normal. Treatment is rest in a cool place and replacement of body water lost by perspiration. Mild cases may recover spontaneously with this treatment; severe cases may require care for several days. There are no permanent effects. As first aid treatment, the person should be moved to a cool place. Body heat should be reduced artificially, but not too rapidly, by soaking the person's clothes in water and fanning them.

Heat stroke is considered a medical emergency and is caused by the breakdown of the body's regulating mechanisms. The skin is very dry and hot with red mottled or bluish appearance. Unconsciousness, mental confusion, or convulsions may occur. Without quick and adequate treatment, the result can be death or permanent brain damage.

Steps that can be taken to reduce heat stress are:

- Acclimate the body. Allow a period of adjustment to make further heat exposure endurable.
- Drink more liquids to replace the body water lost during sweating.
- Rest is necessary and should be conducted under the direction of the SSO.
- Wear personal cooling devices. These are two basic designs; units with pockets for holding frozen packets and units that circulate fluid from a reservoir through tubes to different parts of the body. Both designs can be in the form of a vest, jacket, or coverall. Some circulating units also have a cap for cooling the head.
- Wear long cotton underwear under chemical protective clothing. The cotton will absorb perspiration and will hold it close to the skin. This will provide the body with the maximum cooling available from the limited evaporation that takes place beneath chemical resistant clothing. It also allows for rapid cooling of the body when the protective clothing is removed.

Heat stress is a significant hazard associated with using protective equipment in hot weather environments. Local weather conditions may produce conditions, which will require restricted work schedules in order to protect employees.

Appendix B contains procedures for heat stress; these will be used as a guideline and to provide additional information.

5.2.3 Cold Stress

Cold temperatures are a significant potential hazard. Examples of cold temperature hazards are frostbite and hypothermia.

Frostbite is the most common injury resulting from exposure to cold. The extremities of the body are most often affected. The signs of frostbite are:

- The skin turns white or grayish-yellow.
- Pain is sometimes felt early but subsides later. Often there is no pain.
- The affected parts feel intensely cold and numb.

Hypothermia is characterized by shivering, numbness, drowsiness, muscular weakness, and a low internal body temperature when the body feels extremely warm. This can lead to unconsciousness and death. With both frostbite and hypothermia, the affected areas need to be warmed quickly. Immersion in warm water is an effective means of warming the affected areas quickly. In such cases, medical assistance will be sought.

To prevent these effects from occurring, persons working in the cold should wear adequate clothing and reduce the time spent in the cold area. The field SSO is responsible for determining appropriate time personnel should spend in adverse weather conditions and will monitor this.

Appendix B, which contains the Heat and Cold Stress Guidelines, provides additional information.

5.2.4 Asbestos

Asbestos is a widely used, mineral-based material that is resistant to heat and corrosive chemicals. Depending on the chemical composition, fibers may range from coarse to silky. The properties

that make asbestos fibers valuable to industry are its high-tensile strength, flexibility, heat and chemical resistance and good frictional properties. Asbestos is a common naturally occurring group of fibrous minerals. Asbestos fibers have been used in a variety of building materials; generally, most asbestos is found in pipe insulation, doors, textures paints and plasters, structural fireproofing, and floor tiles. Friable asbestos (that is, material that contains more than 0.1% asbestos by weight and can be crumbled by hand) is a potential hazard because it can release fibers into the air if damaged. Roux Associates' personnel will not disturb any suspected asbestos material.

5.2.5 Structural Integrity

The structural integrity of a building and the safety of the individuals inside depend on meeting and maintaining national and local building codes. Structural integrity can range from minor defects such as loose floorboards and roof leaks to major defects such as floors and walls sagging and collapsed roofs. Numerous other structural defects can exist with or without consequence to the occupants. If Roux Associates personnel detect a problem, they should notify their supervisor, who in turn, should seek the opinion of a qualified structural engineer to offer an opinion regarding the integrity of the building. If in the opinion of the qualified engineer it is unsafe, no work can proceed until a solution to rectify the situation has been performed.

It is presently known that the majority of the onsite buildings have been unoccupied since approximately 1998. As such, personnel will take this into consideration during the initial site visits and communicate this potential hazard during the safety tailgate meetings to all workers entering the site.

5.2.6 Lockout/Tagout

Roux Associates and all Site contractors will develop a lockout/tagout plan in the event of the repair of electrical, pneumatic, hydraulic, mechanical systems, per OSHA requirements under 29 CFR 1910.147.

5.3 Biological Hazards

The biological hazards, which have the potential to cause adverse health effects, are from exposure to domestic flies, mosquitoes, insects, animals and animal wastes, mold and bloodborne

pathogens. The Activity Hazard Analysis (Appendix A) suggests controls for various hazards to be potentially encountered onsite.

5.3.1 Insect Stings

Stings from insects are often painful, cause swelling and can be fatal if a severe allergic reaction such as anaphylactic shock occurs. If a sting occurs, the stinger should be scraped out of the skin, opposite of the sting direction. The area should be washed with soap and water followed by application of an ice pack.

If the victim has a history of allergic reaction, he should be taken to the nearest medical facility. If the victim has medication to reverse the effects of the sting, it should be taken immediately.

If the victim experiences a severe reaction, a constricting band should be placed between the sting and the heart. The bitten area should be kept below the heart if possible. A physician should be contacted immediately for further instructions.

5.3.2 Animals and Animal Wastes

Due to most of the onsite structures being unutilized for several years, there lies the potential for various wildlife to reside within the structures, including, but not limited to, pigeons, bats, mice, rats, squirrels, raccoons, and feral cats. Certain animals can represent significant sources (vectors) of disease transmission. Precautions to avoid or minimize potential contact with (biting) animals (such as some of the above listed) or animal waste and/or deceased animals should be considered prior to all field activities. Rats, squirrels, raccoons, feral cats, and other wild animals can inflict painful bites which can also cause disease (as in the case of rabid animals). Site personnel should avoid contact with any of the above.

If contact occurs, be sure to clean the area thoroughly with soap and water as soon as possible. If a bite occurs, the area should be cleaned thoroughly immediately with soap and water and medical attention should be sought.

5.3.3 Mold

Due to the unutilized state of the various structures onsite, leaking roofs and the collection of water may have gone unnoticed which may have led to the growth of mold within the buildings.

Although mold affects individuals differently and to different degrees, the following are some of the most common adverse health effects:

- Respiratory problems – wheezing, difficulty breathing;
- Nasal and sinus congestion;
- Eyes – burning, watery, reddened, blurry vision, light sensitivity;
- Dry, hacking cough;
- Sore throat;
- Nose and throat irritation;
- Shortness of breath and lung disease;
- Chronic fatigue;
- Skin irritation;
- Central nervous system (headaches, loss of memory, and mood changes);
- Aches and pains;
- Fever;
- Headaches;
- Diarrhea; and
- Immune suppression.

Decisions about removing individuals from an affected area must be based on the results of a medical evaluation, and will be made on a case-by-case basis.

Workers that discover the visible presence of mold in excess of 10 sq. feet need to notify the SSO for consultation. If a worker smells mold and feels that he/she is experiencing symptoms of exposure, he/she should leave the area and report the symptoms to the SSO.

5.3.4 Bloodborne Pathogens

The majority of the occupational tasks onsite will not involve a significant risk of exposure to blood, blood components, or body fluids. The highest risk of acquiring any bloodborne pathogen for employees onsite will be following an injury. When administering first aid care, there are potential hazards associated with bloodborne pathogens that cause diseases such as Human Immunodeficiency Virus (HIV), Hepatitis B (HBV), Hepatitis A (HAV), Hepatitis C (HCV), or the Herpes Simplex Virus (HSV). An employee who has not received the appropriate certification should never execute first aid and/or CPR.

In order to minimize any potential pathogen exposure, all employees should use the hand washing facilities on a regular basis. Additionally, the following universal precautions should be followed to prevent further potential risk:

- Direct skin or mucous membrane contact with blood should be avoided.
- Open skin cuts or sores should be covered to prevent contamination from infectious agents.
- Body parts should be washed immediately after contact with blood or body fluids that might contain blood, even when gloves or other barriers have been used.
- Gloves and disposable materials used to clean spilled blood shall be properly disposed of in an approved hazardous waste container.
- First aid responders shall wear latex or thin mil nitrile gloves when performing any procedure risking contact with blood or body substances.
- Safety glasses will be worn to protect the eyes from splashing or aerosolization of body fluids.
- A CPR mask will be worn when performing CPR to avoid mouth-to-mouth contact.
- Appropriate work gloves will be worn to minimize the risk of injury to the hands and fingers when working on all equipment with sharp or rough edges.
- Never pick up broken glass or possible contaminated material with your unprotected hands.
- Never handle wildlife (living or deceased) encountered onsite.

5.4 Hazard Assessment

Task	Hazards	Risk of Exposure
Gauging, purging and Sampling Monitoring Wells	Inhalation/Skin Contact	Moderate/High
	Heat Stress/Cold Stress	Moderate
	Physical Injury	Low/Moderate
	Noise	Low
Decontamination	Inhalation/Skin Contact	Moderate
	Heat Stress/Cold Stress	Moderate
	Physical Injury	Low/Moderate
	Noise	Low
Drilling/Sampling	Inhalation/Skin Contact	Moderate
	Heat Stress/Cold Stress	Moderate
	Noise	Moderate/High
	Physical Injury	Moderate

6.0 TRAINING

6.1 General Health and Safety Training

In accordance with Roux Associates' corporate policies, and pursuant to 29 CFR 1910.120, hazardous waste site workers shall, at the time of the job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations. As a minimum, the training shall have consisted of instruction in the topics outlined in the above reference. Personnel who have not met the requirements for initial training will not be allowed to work in any Site activities in which they may be exposed to hazards (chemical or physical).

Completion of a 40-hour Health and Safety Training Course for Hazardous Waste Operations or an approved equivalent will fulfill the requirements of this section.

In addition to the required initial training, each employee shall have received 3 days of directly supervised on-the-job training. This training will address the duties the employees are expected to perform.

Roux Associates' SSO has the responsibility of ensuring that personnel assigned to this project comply with these requirements.

6.2 Annual Eight-Hour Refresher Training

Current, annual 8-hour refresher training will be required of all hazardous waste site field personnel in order to maintain their qualifications for fieldwork. The following topics will be reviewed; toxicology, respiratory protection, including air purifying devices and self-contained breathing apparatus (SCBA), medical surveillance, decontamination procedures, and personal protective clothing. In addition, topics deemed necessary by Roux Associates' Health and Safety Director may be added to the above list.

6.3 Site-Specific Training

Site personnel will receive training that will specifically address the activities, procedures, monitoring and equipment for Site operations. It will include Site and facility layout, hazards, first aid equipment locations and emergency services at the Site, and will highlight 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.

6.4 Onsite Safety Meetings

Daily safety meetings will be presented each morning to discuss potential safety concerns for the upcoming activities.

The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety audits by Roux Associates or other involved parties.

6.5 First Aid and CPR

The SSO will identify those individuals having first aid and CPR training in order to ensure that emergency medical treatment is available during field activities. The training will be consistent with the requirements of the American Red Cross Association and, as applicable, the American Heart Association. Certification and appropriate training documentation will be kept with the Site personnel records.

6.6 Additional Training

The CHSM may require additional or specialized training throughout the project. Such training shall be in the safe operation of heavy or power tool equipment or hazard communication training or other topic deemed Site appropriate.

6.7 Subcontractor Training

All subcontractor personnel working on the Site shall have completed the 40-hour training requirement and meet the medical surveillance requirements found in Section 7.1. Subcontractor training shall be performed in accordance with 29 CFR 1910.120 and HASP specifications. In certain unique situations (e.g., mechanical failure of equipment), the non-trained individual performing emergency repairs may be allowed, at the discretion of the SSO, to perform repairs when no intrusive activities are being performed and provisions have been made to mitigate potential exposure.

7.0 MEDICAL SURVEILLANCE PROCEDURES

7.1 General

A Medical Surveillance Program has been established as part of this plan and is included in Appendix C. Roux Associates and subcontractor personnel performing field work at the Site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120(f). A physician's medical release for work will be confirmed by the SSO before an employee can begin Site activities. Such examinations shall include a statement as to the worker's present health status, the ability to work in a hazardous environment (including any required PPE, which may be used during temperature extremes), and the worker's ability to wear respiratory protection.

In the event that personal medical information is needed for emergency treatment, information will be made available to the treating health care professional through Roux Associates' Human Resources Department and the CHSM.

8.0 SITE CONTROL, PERSONAL PROTECTIVE EQUIPMENT, AND COMMUNICATIONS

A modified Site control approach may be utilized since activities will be limited to site inspection/geophysical survey, drilling and sampling only during this phase of work. If remedial work is necessary, the following four-zone approach will be used.

8.1 Site Control

Based on the Site history and operations, a potential for the presence of hazardous material does exist. During drilling and sampling work areas will be delineated with high visibility cones and/or caution tape. A dedicated decontamination area will be established to decontaminate all equipment used for sampling.

If remedial activities are necessary, a four-zone approach will be employed in order to prevent the spread of contamination from the disturbed areas onsite. The four zones include: the Exclusion Zone (EZ), the Contamination Reduction Zone (CRZ), Contamination Reduction Corridor (CRC) and the Support Zone (SZ). A stepped remedial approach will be managed and the zones modified as the work progresses. Each of the areas will be defined through the use of control barricades and/or construction/hazard fencing. A clearly marked delineation between the SZ and the remaining three zones, the CRZ, CRC and EZ, will be maintained. The preferred method will utilize high visibility orange fencing and hand-driven metal posts, or orange cones. Signage will be posted to further identify and delineate these areas.

8.1.1 Support Zone

The Support Zone (SZ) is an uncontaminated area that will be the field support area for the Site operations. The SZ will contain the temporary project trailers and provides for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated personnel or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples. Meteorological conditions will be observed and noted from this zone, as well as those factors pertinent to heat and cold stress.

8.1.2 Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) is established between the exclusion zone and the support zone. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of personnel and equipment. The CRZ will be used for general Site entry and egress in addition to access for heavy equipment and emergency support services. Personnel are not allowed in the CRZ without:

- A buddy (co-worker);
- Appropriate PPE;
- Medical authorization;
- Training certification; and
- A need to be in the zone.

8.1.3 Exclusion Zone

The area where contamination exists is considered to be the Exclusion Zone (EZ). All areas where excavation and handling of contaminated materials take place are considered the EZ. This zone will be clearly delineated by orange high visibility fencing. Safety tape may be used as a secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Personnel are not allowed in the EZ without:

- A buddy (co-worker);
- Appropriate PPE;
- Medical authorization;
- Training certification; and
- A need to be in the zone.

8.2 Personal Protective Equipment

8.2.1 General

The level of protection worn by field personnel will be enforced by the SSO. Levels of protection for general operations are provided below and are defined in this section. Levels of protection

may be upgraded at the discretion of the SSO. All decisions on the level of protection will be based upon a conservative interpretation by the SSO of the information provided by air monitoring results, environmental results and other appropriate information. Any changes in the level of protection shall be recorded in the health and safety field logbook.

8.2.2 Personal Protective Equipment Specifications

The initial level of personal protective equipment is Level D. It is not anticipated that either Level B or Level C protection will be necessary.

Although not anticipated, any tasks requiring Level B personal protective equipment (PPE) will utilize the following equipment:

- Positive pressure, full facepiece, self-contained breathing apparatus (SCBA) or positive pressure, supplied air respirator with escape SCBA (NIOSH approved)
- Disposable coveralls (Tyvek, Poly-coated Tyvek, or Saranex)
- Gloves, inner: latex or nitrile
- Gloves, outer: cut-resistant
- Chemical resistant boots over the work boots
- Steel toe work boots
- Hard hat
- Hearing protection (as needed)
- Boot cover (as needed)

For tasks requiring Level C PPE, the following equipment may be used in any combination:

- Full-face, air purifying, canister-equipped respirators (NIOSH approved) utilizing Organic Vapor/Acid Gas and P-100 filters (half-face if approved by SSO)
- Disposable coveralls (Tyvek, Poly-coated Tyvek, or Saranex) as required
- Gloves, inner: latex or nitrile as required
- Gloves, outer: cut-resistant
- Chemical resistant boots over the work boots as required

- Steel toe work boots
- Hard hat
- Hearing protection (as needed)
- Safety glasses (if half-mask is utilized)
- Boot covers (as needed)

The Minimum level of PPE for entry onto the Site is Level D PPE. The following equipment shall be used:

- Work uniform (long pants, sleeved shirt)
- Hard hat
- Steel toe work boots
- Safety glasses
- Boot covers (as needed)
- Hearing protection (as needed)
- Reflective safety vest

Modified Level D PPE consists of the following:

- Regular Tyvek coveralls (Poly-coated Tyvek as required)
- Outer gloves: cut-resistant, leather, cotton (as required)
- Inner gloves: latex or nitrile (doubled) as required
- Chemical resistant boots over work boots (as required)
- Steel toe work boots
- Hard hat
- Safety glasses
- Hearing protection as needed
- Reflective safety vest

8.2.3 Initial Levels of Protection

Levels of protection for the proposed scope of work may be upgraded or downgraded depending on direct-reading instruments or personnel monitoring. The following are the initial levels of protection that shall be used for each planned field activity:

<u>Activity</u>	<u>Initial level of PPE</u>
Mobilization/Demobilization	D
Site Inspection/Geophysical Survey	D
Decontamination	D
Drilling	D
Monitoring Well Gauging, Purging and Sampling	D

8.3 Communications

If working in level C/B respiratory protection is required, personnel may find that communication becomes a more difficult task and process to accomplish. Distance and space further complicate this. In order to address this problem, electronic instruments, mechanical devices, or hand signals will be used as follows:

Telephones – Mobile telephones will be carried by designated personnel for communication with emergency support services/facilities.

Radios – Two-way radios will be utilized onsite for communications between field personnel in areas where visual contact cannot be maintained and where hand signals cannot be employed.

Air Horn – Available as posted in the Site trailer or support zone to alert field personnel to an emergency situation. The emergency signal will be three sharp blasts of the air horn.

Hand Signals – This communication method will be employed by members of the field team along with use of the buddy system. Signals become especially important when in the vicinity of heavy moving equipment and when using Level B respiratory equipment. The signals shall become familiar to the entire field team before Site operations commence, and will be reinforced and reviewed during site-specific training.

<u>Signal</u>	<u>Meaning</u>
Hand gripping throat	Out of air; can't breathe
Grip partner's wrist	Leave area immediately; no debate
Hands on top of head	Need assistance
Thumbs up	OK; I'm all right; I understand
Thumbs down	No; Unable to understand you, I'm not all right

9.0 MONITORING PROCEDURES

9.1 General

Monitoring will be performed to verify the adequacy of respiratory protection, to aid in Site layout, and to document worker exposure. If air monitoring in these areas indicates the presence of potentially hazardous materials, control measures will be implemented. All monitoring instruments shall be operated by qualified personnel only and will be calibrated daily prior to use or, more often, as necessary. General air monitoring will be performed in accordance with the Community Air Monitoring Plan included as Appendix E of the Revised Remedial Investigation Work Plan.

9.2 Exclusion Zone Monitoring

9.2.1 Instrumentation

The following monitoring instruments will be available for use during field operations as necessary. There will be a minimum of one of each piece of equipment on the Site at all times during intrusive activities:

- Photoionization Detector (PID) with 10.6 EV probe or Flame Ionization Detector (FID) or equivalent.
- Dust/Particulate Monitor (DM), MIE Miniram, or equivalent.

A PID will be used to monitor VOCs in active work areas during intrusive activities. VOCs shall also be measured upwind of the work areas to determine background concentrations.

A particulate monitor shall be used to measure concentrations of dust and particulate matter.

When deemed necessary, a CGI/O₂ meter shall be used to monitor for combustible gases and oxygen content during confined space entry or when the HSO deems necessary.

Calibration records shall be documented and recorded daily and included in the daily air monitoring report. This report will be specific to work area monitoring. All instruments shall be calibrated before and after each daily use in accordance with manufacturer's procedures (Appendix D).

9.2.2 Action Levels

Action levels for the upgrading of PPE requirements in the HASP will apply to all Site work during investigation and remediation activities at the Site. Action levels are for known contaminants using direct reading instruments in the Breathing Zone (BZ) for VOCs and particulates, and at the source for combustible gases. The BZ will be determined by the SSO, but is typically 4 to 5 feet above the work area surface or elevation. The action levels to be utilized for the Site are found in Table 2.

9.2.3 Monitoring During Field Activities

Intrusive Operations – Continuous Personnel Breathing Zone Air Monitoring will be performed by the SSO during drilling activities. Real-time monitoring for all onsite activities will be accomplished as follows:

- Monitoring of VOCs in and around the work zones.
- Monitoring for particulates in and around the work zones, when necessary.

The frequency of monitoring may be modified by the SSO, after consultation with the Project Principal. The rationale for any modification must be documented in the HASP.

10.0 SAFETY CONSIDERATIONS

10.1 General

In addition to the specific requirements of this HASP, common sense should be used at all times.

The following general safety rules and practices will be in effect at the site.

- All open holes, trenches, and obstacles will be properly barricaded in accordance with local Site needs and requirements. Proximity to traffic ways, both pedestrian and vehicular, and location of the open hole, trench, or obstacle will determine these needs.
- All excavation and other Site work will be planned and performed with consideration for underground lines.
- Smoking and ignition sources in the vicinity of potentially flammable or contaminated material are strictly prohibited.
- Drilling, boring, and use of cranes and drilling rigs, erection of towers, movement of vehicles and equipment, and other activities will be planned and performed with consideration for the location, height, and relative position of aboveground utilities and fixtures, including signs; lights; canopies; buildings and other structures and construction; and natural features such as trees, boulders, bodies of water, and terrain.
- When working in areas where flammable vapors may be present, particular care shall be exercised with tools and equipment that may be sources of ignition. All tools and equipment provided must be properly bonded and/or grounded.
- Approved and appropriate safety equipment (as specified in this HASP), such as eye protection, hard hats, hand protection (nitrile, leather and/or cut resistant gloves as necessary), foot protection, and respirators, must be worn in areas where required. In addition, eye protection must be worn when sampling soil or water that may be contaminated.
- All site personnel may be called upon to use respiratory protection in some situations. Fit testing will be necessary for all persons using respirators. The criteria for facial hair will be determined by the SSO. In general, the guideline is that facial hair cannot impede the fit of the respirator.
- No smoking, eating, chewing tobacco, gum chewing or drinking will be allowed outside the SZ.
- Contaminated tools and hands must be kept away from the face.
- Personnel must use personal hygiene safe guards (washing up) at the end of the shift.
- Each sample must be treated and handled as though it were contaminated.
- Persons with long hair and/or loose-fitting clothing that could become entangled in power equipment must take adequate precautions.

- Horseplay is prohibited in the work area.
- Work while under the influence of intoxicants, narcotics, or controlled substances is strictly prohibited.

10.2 Traffic Control

Traffic control methods and barricades will be used when working on the sidewalk along 46th Avenue and when working on the driveway off of 46th Avenue. Since the site is fenced off and the areas of investigation are not in current use, outside vehicular and pedestrian traffic is not considered to be an issue when working in other areas of the Site.

10.3 Sample Handling

Personnel responsible for handling of samples will wear the prescribed level of protection. Samples are to be identified as to their hazard and packaged as to prevent spillage or breakage. Any unusual sample conditions shall be noted. Laboratory personnel and all field personnel shall be advised of sample hazard levels and the potential contaminants present. This can be accomplished by a phone call to the lab coordinator and/or including a written statement with the samples reviewing lab safety procedures in handling in order to assure that the practices are appropriate for the suspected contaminants in the sample.

11.0 DECONTAMINATION AND DISPOSAL PROCEDURES

11.1 Contamination Prevention

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

Personnel

- Do not walk through areas of obvious or known contamination.
- Do not directly handle or touch contaminated materials.
- Make sure that there are no cuts or tears on PPE.
- Fasten all closures in suits; cover with tape, if necessary.
- Particular care should be taken to protect any skin injuries.
- Stay upwind of airborne contaminants.
- Do not carry cigarettes, cosmetics, gum, etc., into contaminated areas.

Sampling/Monitoring

- When required by the SSO, cover instruments with clear plastic, leaving openings for sampling ports.
- Bag sample containers prior to emplacement of sample material.

Heavy Equipment

- Care should be taken to limit the amount of contamination that comes in contact with heavy equipment (tires, contaminated augers).
- If contaminated tools are to be placed on non-contaminated equipment for transport to a decontamination area, plastic should be used to keep the equipment clean.
- Dust control measures including water misting will be used on roads inside the Site boundaries.

11.2 Personnel Decontamination

A field wash for equipment and PPE shall be set up and maintained for all persons exiting the EZ. The system will include a gross wash and rinse for all disposable clothing and boots worn in the EZ. As necessary, equipment and facilities will be available for personnel to wash their hands, arms, neck, and face.

11.3 Equipment Decontamination

All potentially contaminated equipment used at the Site will be decontaminated to prevent contaminants from leaving the Site. The decontamination area will provide for the containment of all wastewater from the decontamination process. Respirators and any other PPE that comes in contact with contaminated materials shall pass through a field wash in the decontamination area, and a thorough decontamination at the end of the day. All decontamination rinse water will be collected and managed in accordance with all applicable regulations.

11.4 Decontamination during Medical Emergencies

If emergency life-saving first aid and/or medical treatment are required, normal decontamination procedures may need to be abbreviated or omitted. The Site SSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination, when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment, or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed, a plastic barrier between the individual and clean surfaces should be used to help prevent contaminating the inside of ambulances and/or medical personnel. Outer garments are then removed at the medical facility. Attempt to wash or rinse the victim if it is known that the individual has been contaminated with an extremely toxic or corrosive material, which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems (ambulatory) or injuries, the normal decontamination procedures will be followed. Note that heat stroke requires prompt treatment to prevent irreversible damage or death. Protective clothing must be promptly removed. Less serious forms of heat stress also require prompt attention and removal of protective clothing immediately. Unless the victim is obviously contaminated, decontamination should be omitted or minimized, and treatment begun immediately.

11.5 Disposal Procedures

A system of segregating all waste will be developed by the SSO.

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 onsite. All potentially contaminated materials (e.g., clothing, gloves, etc.,) will be bagged or drummed as necessary, labeled and segregated for disposal. All non-contaminated materials shall be collected and bagged for appropriate disposal as domestic waste.

12.0 EMERGENCY PLAN

Should an emergency situation occur, the emergency plan, outlined in this section, shall be known by Roux Associates and all Subcontractors prior to the start of work. The emergency plan will be available for use at all times during Site work. The plan provides the phone numbers for the fire, police, ambulance, hospital, poison control centers, and directions to the hospital from the Site. This information is to be found in Section 1.2 of the HASP.

Various individual Site characteristics will determine preliminary actions taken to assure that this emergency plan is successfully implemented in the event of a Site emergency. Careful consideration must be given to the proximity of neighborhood housing or places of employment, and to the relative possibility of Site release of vapors, which could affect the surrounding community.

The emergency coordinator shall implement the contingency plan whenever conditions at the Site warrant such action. The coordinator will be responsible for coordination of the evacuation, emergency treatment, and transport of Site personnel as necessary, and notification of emergency response units and the appropriate management staff.

In cases where the project principal (manager is not mentioned in HASP?) is not available, the SSO shall serve as the alternate emergency coordinator.

The SSO during an emergency will perform air monitoring as needed, as well as lend assistance and provide health and safety information to responding emergency personnel.

Site Personnel will endeavor to keep non-essential personnel away from the incident until the appropriate emergency resources arrive. At that time the responders will take control of the Site. Site personnel may be asked to lend assistance to emergency personnel such as during evacuations, help with the injured, etc.

12.1 Evacuation

Evacuation procedures will be discussed prior to the start of work and periodically during safety meetings. In the event of an emergency situation, such as fire, or explosion, an air horn,

automobile horn, or other appropriate device will be sounded for three (3) sharp blasts indicating the initiation of evacuation procedures. The emergency evacuation route shall be known by all site workers. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The SSO or project manager must ensure that access for emergency equipment is provided and that all combustion apparatuses have been shut down once the alarm has been sounded. All Site personnel will assemble in the designated nearest safe location. Once the safety of all personnel is established, the fire department and other emergency response groups will be notified by telephone of the emergency.

12.2 Personnel Injury

Emergency first aid shall be applied onsite as appropriate. If necessary, the individual shall be decontaminated and transported to the nearest hospital. The SSO will supply medical data sheets to medical personnel and complete the accident/incident reports in accordance with Section 13.4 of the HASP.

The ambulance/rescue squad shall be contacted for transport as necessary in an emergency. However, since some situations may require transport of an injured party by other means, the injured person shall be escorted to the occupational health clinic or hospital. Maps to these facilities are shown in Figure 2.

12.3 Accident/Incident Reporting

As soon as first aid and/or emergency response needs have been met, the following parties are to be contacted by telephone: (Direct contact, no phone messages).

		<u>Office:</u>	<u>Cell:</u>
1. <u>Project Director:</u>	Joseph Duminuco	631-232-2600	631-921-6279
2. <u>Office Health and Safety Manager:</u>	Joe Gentile	856-423-8800	610-844-6911
3. <u>Site Health and Safety Officer:</u>	Richard Maxwell	631-232-2600	631-921-9531
4. The employer of any injured worker, if not a Roux Associates employee.			

Written confirmation of verbal reports are to be submitted within 24 hours. The report form entitled "Accident Report and Investigation Form" (Appendix E) is to be used for this purpose. All representatives contacted by telephone are to receive a copy of this report. If the employee involved is not a Roux Associates employee, his employer shall receive a copy of the report. In addition to filling out the Accident Report and Investigation Form, if a Roux employee is involved in a motor vehicle accident, the employee must also complete the Acord form (Appendix F).

For reporting purposes, the term accident refers to fatalities, lost time injuries, spill or exposure to hazardous materials (radioactive materials, toxic materials, explosive or flammable materials), fire, explosion, property damage, or potential occurrence (i.e., near miss) of the above.

Any information released from the health care provider, which is not deemed confidential patient information, is to be attached to the appropriate form. Any medical information, which is released by patient consent, is to be filed in the individual's medical record and treated as confidential.

12.4 Personnel Exposure

Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area thoroughly, then provide appropriate medical attention. Eyes should be rinsed for 15 minutes upon chemical contamination.

Inhalation: Move to fresh air and/or, if necessary, decontaminate/transport to hospital.

Ingestion: Decontamination and transport to emergency medical facility.

Puncture Wound or Laceration: Decontamination and transport to emergency medical facility.

12.5 Adverse Weather Conditions

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

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related conditions.

- Limited visibility.
- Electrical storm potential.

Site activities will be limited to daylight hours and acceptable weather conditions. Inclement working conditions include heavy rain, fog, high winds, and lightning. Observe daily weather reports and evacuate if necessary in case of inclement weather conditions.

13.0 LOGS, REPORTS AND RECORD KEEPING

The following is a summary of required health and safety logs, reports, and record keeping for this project.

13.1 Medical and Training Records

The employer keeps medical and training records. The subcontractor employer must provide verification of training and medical qualifications to the SSO. The SSO will keep a log of personnel meeting appropriate training and medical qualifications for Site work. The log will be kept in the project file. Roux Associates will maintain medical records in accordance with 29 CFR 1910.20.

13.2 Onsite Log

The SSO or project manager will keep a log of onsite personnel daily in the designated field book.

13.3 Exposure Records

Any personal monitoring results, laboratory reports, calculations, and air sampling data sheets are part of an employee exposure record. These records will be kept by Roux Associates in accordance with 29 CFR 1910.20.

13.4 Accident/Incident Reports

An accident/incident report must be completed following procedures given in Appendix E. The originals will be sent to Roux Associates for maintenance. Copies will be distributed as stated. A copy of the forms will be kept in the project file.

13.5 OSHA Form 300

An OSHA Form 300 (Log of Occupational Injuries and Illnesses) (Appendix G) will be kept at the Site. All reportable injuries or illnesses will be recorded on this form. At the end of the project, the original will be sent to Roux Associates for maintenance. Subcontractor employers must also meet the requirements of maintaining an OSHA 300 form.

13.6 Daily Safety Logs

The Daily Safety Log form in Appendix D will be completed daily by the SSO and submitted to the project manager.

13.7 Weekly Safety Reports

The Weekly Safety Reports in Appendix H will be completed by the SSO and submitted to the designated Owner's representative, if requested.

13.8 Close-Out Safety Report

At the completion of the work, Roux Associates will submit a closeout Safety Report that will include all logs and reports generated during the project. The report will be signed and dated by the SSO and submitted to the Safety Manager and/or Owner's representative, if requested.

14.0 FIELD TEAM REVIEW

Each Roux Associates employee or subcontractor shall sign this section after site-specific training is completed and before being permitted to work at the Site.

I have read and reviewed the Site Health and Safety Plan prepared for this Site. I understand and will comply with the provisions contained therein.

Site/Project: Former Paragon Paint Manufacturing Facility
5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard
Long Island City, New York

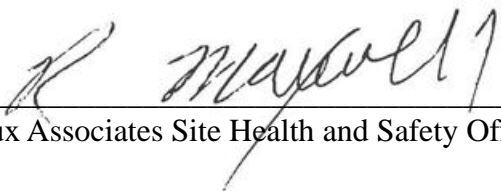
Date	Name	Signature	Company

**SSO CERTIFICATION OF
OCCUPATIONAL HEALTH CLINIC AND HOSPITAL DIRECTIONS**

Name of Roux Associates SSO: Richard Maxwell

Date: February 7, 2013

This is to certify that on February 1, 2013, I personally drove the route to Mt. Sinai Queens Hospital as listed in the HASP. The Map Routings and Directions were/were not as listed in the plan. Listed below were conditions that resulted in different directions.



Roux Associates Site Health and Safety Officer

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,1,1-Trichloroethane	71-55-6	TWA 350 ppm STEL 440 ppm C 440 ppm	C 350 ppm (1900 mg/m ³) [15-minute]	TWA 350 ppm (1900 mg/m ³)	700 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias;	Eyes, skin, central nervous system, cardiovascular system, liver	Colorless liquid with a mild, chloroform-like odor. BP: 165°F UEL: 12.5% LEL: 7.5%
1,1,2-Trichloroethane	79-00-5	TWA 10 ppm	Ca TWA 10 ppm (45 mg/m ³) [skin]	TWA 10 ppm (45 mg/m ³) [skin]	Ca [100 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; central nervous system depression; liver, kidney damage; dermatitis; [potential occupational carcinogen]	Eyes, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, chloroform-like odor. BP: 237°F UEL: 15.5% LEL: 6%
1,1-Dichloroethane	75-34-3	TWA 100 ppm	TWA 100 ppm (400 mg/m ³)	TWA 100 ppm (400 mg/m ³)	3000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation skin; central nervous system depression; liver, kidney, lung damage	Skin, liver, kidneys, lungs, central nervous system	Colorless, oily liquid with a chloroform-like odor. BP: 135°F Fl.P: 2°F UEL: 11.4% LEL: 5.4%
1,1-Dichloroethene	75-35-4	TWA 5 ppm	Ca (lowest feasible concentration)/TWA 1ppm		Ca [N.D.]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor. BP: 89°F Fl.P: -2°F UEL: 15.5% LEL: 6.5% Class IA Flammable Liquid
1,2,4-Trimethylbenzene	95-63-6	None established	TWA 25 ppm (125mg/m ³)	None established	N.D.	Inhalation; ingestion; skin and/or eye contact	Eye, skin, nose, and throat, resp syst irritation; bronchitis; hypochromic anemia; headache, drowsiness, weakness, dizziness, nausea, incoordination, vomit, confusion; chemical pneumonitis	Eyes, skin, resp sys, CNS, blood	Clear, colorless liquid with a distinctive, aromatic odor BP: 337°F Fl.P: 112°F UEL: 6.4% LEL: 0.9% Class II Flammable liquid
1,2,4-Trimethylbenzene	95-63-6	TWA 25 ppm (125 mg TWA 25 ppm (125 mg/m ³)	TWA 25 ppm (125 mg/m ³)	None established	N.D.	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, fatigue, dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system, blood	Clear, colorless liquid with a distinctive, aromatic odor. BP: 337°F Fl.P: 112°F UEL: 6.4% LEL: 0.9% Class II Flammable Liquid
1,2-Dichlorobenzene	95-50-1	TWA 25 ppm STEL 50 ppm	C 50 ppm (300 mg/m ³)	C 50 ppm (300 mg/m ³)	200 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; liver, kidney damage; skin blisters	Eyes, skin, respiratory system, liver, kidneys	Colorless to pale-yellow liquid with a pleasant, aromatic odor. [herbicide] BP: 357°F Fl.P: 151°F UEL: 9.2% LEL: 2.2% Class IIIA Combustible Liquid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,2-Dichloroethane	107-06-2	TWA 10 ppm	Ca TWA 1 ppm (4 mg/m ³) STEL 2 ppm (8 mg/m ³)	TWA 50 ppm C 100 ppm 200 ppm [5-minute maximum peak in any 3 hours]	Ca [50 ppm]	inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]	Eyes, skin, kidneys, liver, central nervous system, cardiovascular system	Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.] BP: 182°F Fl.P: 56°F UEL: 16% LEL: 6.2% Class IB Flammable Liquid
1,2-Dichloroethene (total)	540-59-0	TWA 200 ppm (790 μg/m ³)	TWA 200 ppm (790 mg/m ³)	TWA 200 ppm (790 mg/m ³)	1000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acid, chloroform-like odor BP: 118-140°F Fl.P: 36-39°F UEL: 12.8% LEL: 5.6% Class IB Flammable Liquid
1,3,5-Trimethylbenzene	108-67-8	None established	TWA 25 ppm (125mg/m ³)	None established	N.D.	Inhalation; ingestion; skin and/or eye contact	Eye, skin, nose, and throat, resp syst irritation; bronchitis; hypochromic anemia; headache, drowsiness, weakness, dizziness, nausea, incoordination, vomit, confusion; chemical pneumonitis	Eyes, skin, resp sys, CNS, blood	Clear, colorless liquid with a distinctive, aromatic odor BP: 329°F FL.P: 122°F Class II Flammable liquid
1,3,5-Trimethylbenzene	108-67-8	TWA 25 ppm (125 mg/m ³)	TWA 25 ppm (125 mg/m ³)	None established	N.D	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system, blood	Clear, colorless liquid with a distinctive, aromatic odor. BP: 329°F Fl.P: 122°F Class II Flammable Liquid
1,4-Dichlorobenzene	106-46-7	TWA 10 ppm	Ca	TWA 75 ppm (450 mg/m ³)	Ca [150 ppm]	inhalation, skin absorption, skin and/or eye contact	Eye irritation, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Liver, respiratory system, eyes, kidneys, skin	Colorless or white crystalline solid with a mothball-like odor. [insecticide] BP: 345°F Fl.P: 150°F LEL: 2.5% Combustible Solid
2,4-Dimethylphenol	105-67-9	None established	None established	None established	None established	inhalation, skin absorption, skin and/or eye contact	Irritation eyes, skin, respiratory system, mouth, throat, stomach; dizziness, weakness, fatigue, nausea, headache; systemic damage; moderate to severe eye injury.	Skin, CVS, eyes, CNS	Clear, colorless liquid with a faint ether or chloroform-like odor BP: 178°F

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
2-Butanone (MEK)	78-93-3	TWA 200 ppm (590 mg/m ³) STEL 300 ppm (885 mg/m ³)	TWA 200 ppm (590 mg/m ³) STEL 300 ppm (885 mg/m ³)	TWA 200 ppm (590 mg/m ³)	3000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor. BP: 175°F Fl.P: 16°F UEL(200°F): 11.4% LEL(200°F): 1.4% Class IB Flammable Liquid
Acenaphthene	83-32-9	None established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Brown solid
Acetone	67-64-1	TWA 500 ppm STEL 50 ppm	TWA 250 ppm (590 mg/m ³)	TWA 1000 ppm (2400 mg/m ³)	2500 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a fragrant, mint-like odor BP: 133°F Fl.P: 0°F UEL: 12.8% LEL: 2.5% Class IB Flammable Liquid
Anthracene	65996-93-2	TWA 0.2 mg/m ³	Ca TWA 0.1 mg/m ³ (cyclohexane-extractable fraction)	TWA 0.2 mg/m ³ (benzene-soluble fraction)	Ca [80 mg/m ³]	inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue. Combustible Solids
Antimony	7440-36-0	TWA 0.5 mg/m ³	TWA 0.5 mg/m ³	TWA 0.5 mg/m ³	50 mg/m ³ (as Sb)	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly	Eyes, skin, respiratory system, cardiovascular system	Silver-white, lustrous, hard, brittle solid; scale-like crystals; or a dark-gray, lustrous powder. BP: 2975°F
Arsenic (inorganic)	7440-38-2 (metal)	TWA 0.01 mg/m ³	Ca C 0.002 mg/m ³ [15-min]	TWA 0.010 mg/m ³	Ca [5 mg/m ³ (as As)]	Inhalation; ingestion; skin absorption; skin and/or eye contact	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]	Liver, kidneys, skin, lungs, lymphatic sys	Metal: silver-gray or tin-white, brittle, odorless solid BP: sublimes
Asbestos	1332-21-4	TWA 0.1 f/cc	Ca 100,000 fibers/m ³	TWA 0.1 fiber/cm ³	Ca [IDLH value has not been determined]	Inhalation; ingestion; skin and/or eye contact	Asbestosis (chronic exposure), dyspnea, interstitial fibrosis, restricted pulmonary function, finger clubbing, irritation eyes, [potential occupational carcinogen]	Respiratory system, eyes,	White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite), fibrous, odorless solids. BP: decomposes
Asphalt fumes	8052-42-4	TWA 0.5 mg/m ³ (fumes)	Ca C 5 mg/m ³ [15 min]	None established	Ca [IDLH value has not been determined]	Skin absorption; inhalation; skin and/or eye contact	Irritation eyes, resp sys	Eyes, respiratory system	Black or dark brown cement-like substance Combustible solid
Barium	7440-39-3	TWA 0.5 mg/m ³	None established	TWA 0.5 mg/m ³	None established	Inhalation, ingestion, skin contact	Irritation skin, respiratory system,	(Skin, eyes, respiratory system	Yellow white powder BP: 1640 C
Benzene	71-43-2	TWA 0.5 ppm STEL 2.5 ppm	Ca TWA 0.1 ppm STEL 1 ppm	TWA 1 ppm STEL 5 ppm	Ca [500 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]	Eyes, skin, respiratory system, blood, central nervous system, bone marrow	Colorless to light yellow liquid with an aromatic odor [Note: Solid below 42 °F] BP: 176°F Fl.Pt = 12°F LEL: 1.2% UEL: 7.8% Class B Flammable liquid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Benzo[a]anthracene	56-55-3	None established	None established	None established	None established	Inhalation; ingestion; skin absorption; skin and/or eye contact	Irritation eyes, skin, respiratory system, CNS	Skin	Pale Yellow crystal, solid BP: 438 C
Benzo[a]pyrene	50-32-8	None established	TWA 0.1 mg/m ³	TWA 0.2 mg/m ³	None established	Inhalation; ingestion; skin absorption; skin and/or eye contact	POISON. This material is an experimental carcinogen, mutagen, tumorigen, neoplastigen and teratogen. It is a probable carcinogen in humans and a known human mutagen. IARC Group 2A carcinogen. It is believed to cause bladder, skin and lung cancer. Exposure to it may damage the developing foetus. May cause reproductive damage. Skin, respiratory and eye irritant or burns.	Skin, eye, bladder, lung, reproductive	Yellow crystals or powder [found in cigarette smoke, coal tar, fuel exhaust gas and in many other sources] BP: 495 C
Benzo[b]fluoranthene	205-99-2	None established	TWA 0.1 mg/m ³	TWA 0.2 mg/m ³	None established	Inhalation; ingestion; skin and/or eye contact	No data were identified on the toxicity of benzo[b]fluoranthene to humans. Based on results of studies in animals, IARC concluded that benzo[b]fluoranthene is possibly carcinogenic to humans	Respiratory system, skin, bladder, kidneys	Off-white to tan powder
Benzo[k]fluoranthene	207-08-9	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory tract, gastrointestinal; fatal if swallowed, inhaled, absorbed through the skin; vomiting, nausea, diarrhea	Lungs, respiratory system	Yellow crystals BP: 480 C
Beryllium	7440-41-7 (metal)	TWA 0.002 mg/m ³	Ca C 0.0005 mg/m ³	TWA 0.002 mg/m ³ C 0.005 mg/m ³ (30 minutes) with a maximum peak of 0.025 mg/m ³	Ca [4 mg/m ³ (as Be)]	inhalation, skin and/or eye contact	Berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation eyes; dermatitis; [potential occupational carcinogen]	Eyes, skin, respiratory system	Metal: A hard, brittle, gray-white solid. BP: 4532°F
Bis(2-ethylhexyl) phthalate	117-81-7	TWA 5 mg/m ³	TWA 5 mg/m ³ STEL 10 mg/m ³ (do not exceed during any 15-minute work period)	TWA 5 mg/m ³	None established	inhalation, skin and/or eye contact	Irritation eyes, skin, nose, throat; affect the nervous system and liver; damage to male reproductive glands	Eyes, skin, nose, respiratory system, nervous system, reproductive system, liver	Colorless to light colored, thick liquid with slight odor
Butane	106-97-8	TWA 1000 ppm	TWA 800 ppm (1900 mg/m ³)	None established	None established	inhalation, skin and/or eye contact (liquid)	Drowsiness, narcosis, asphyxia; liquid: frostbite	central nervous system	Colorless gas with a gasoline-like or natural gas odor. BP: 31°F UEL: 8.4% LEL: 1.6% Flammable Gas

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Cadmium	7440-43-9 (metal)	TWA 0.01 mg/m ³	Ca	TWA 0.005 mg/m ³	Ca [9 mg/m ³ (as Cd)]	inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	respiratory system, kidneys, prostate, blood	Metal: Silver-white, blue-tinged lustrous, odorless solid. BP: 1409°F
Carbon Disulfide	75-15-0	TWA 1 ppm	TWA 1 ppm (3 mg/m ³) STEL 10 ppm (30 mg/m ³) [skin]	TWA 20 ppm C 30 ppm 100 ppm (30-minute maximum peak)	500 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Dizziness, headache, poor sleep, lassitude (weakness, exhaustion), anxiety, anorexia, weight loss; psychosis; polyneuropathy; Parkinson-like syndrome; ocular changes; coronary heart disease; gastritis; kidney, liver injury; eye, skin burns; dermatitis; reproductive effects	central nervous system, peripheral nervous system, cardiovascular system, eyes, kidneys, liver, skin, reproductive system	Colorless to faint-yellow liquid with a sweet ether-like odor. BP: 116°F Fl.P: -22°F UEL: 50.0% LEL: 1.3% Class IB Flammable Liquid
Chlorobenzene	108-90-7	TWA 10 ppm	None established	TWA 75 ppm (350 mg/m ³)	1000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; drowsiness, incoordination; central nervous system depression; in animals: liver, lung, kidney injury	Eyes, skin, respiratory system, central nervous system, liver	Colorless liquid with an almond-like odor BP: 270°F Fl.P: 82°F UEL: 9.6% LEL: 1.3%
Chloroethane	75-00-3	TWA 100ppm	Handle with caution in the workplace	TWA 1000 ppm (2600 mg/m ³)	3800 ppm [10%LEL]	inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact	Incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage	Liver, kidneys, respiratory system, cardiovascular system, central nervous system	Colorless gas or liquid (below 54°F) with a pungent, ether-like odor. BP: 54°F Fl.P: NA (Gas) -58°F (Liquid) UEL: 15.4% LEL: 3.8%
Chloroform	67-66-3	TWA 10 ppm	Ca STEL 2 ppm (9.78 mg/m ³) [60-minute]	C 50 ppm (240 mg/m ³)	Ca [500 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Liver, kidneys, heart, eyes, skin, central nervous system	Colorless liquid with a pleasant odor BP: 143°F
Chromium	7440-47-3	TWA 0.5 mg/m ³ (metal and Cr III compounds) TWA 0.05 mg/m ³ (water-soluble Cr IV compounds) TWA 0.01 mg/m ³ (insoluble Cr IV compounds)	TWA 0.5 mg/m ³	TWA 1 mg/m ³	250 mg/m ³ (as Cr)	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; lung fibrosis (histologic)	Eyes, skin, respiratory system	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid. BP: 4788°F
Chrysene; Phenanthrene; Pyrene; Coal tar pitch volatiles	65996-93-2	TWA 0.2 mg/m ³	Ca TWA 0.1 mg/m ³ (cyclohexane-extractable fraction)	TWA 0.2 mg/m ³ (benzene-soluble fraction)	Ca [80 mg/m ³]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue. Combustible Solids

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
cis-1,2-Dichloroethene	158-59-2	TWA 200 ppm	TWA 200 ppm	TWA 200 ppm	None established	inhalation, skin absorption, ingestion	Harmful if swallowed, inhaled, or absorbed through skin. Irritant. Narcotic. Suspected carcinogen	Skin	Colorless liquid BP: 60 C Fl.P: 4 C UEL: 12.8% LEL: 9.7 %
Copper	7440-50-8	TWA 0.2mg/m ³ (fume) 1 mg/m ³ (dusts and mists)	TWA 1 mg/m ³	TWA 1 mg/m ³	100 mg/m ³ (as Cu)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; cough, dyspnea (breathing difficulty), wheezing	Eyes, skin, respiratory system, liver, kidneys (increase(d) risk with Wilson's disease)	Noncombustible Solid in bulk form, but powdered form may ignite. BP: 4703°F
Dibenzo[a,h]anthracene	53-70-3	None established	None established	None established	None established	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin	Eyes, skin; skin photosensitization.	Colorless crystalline powder BP: 524°C
Diesel Fuel #2	68476-34-6	None established	None established	Designated as an OSHA Select Carcinogen	None established	ingestion, skin and/or eye contact	Kidney damage; potential lung damage; suspected carcinogen; irritation of eyes, skin, respiratory tract; dizziness, headache, nausea; chemical pneumonitis (from aspiration of liquid); dry, red skin; irritant contact dermatitis; eye redness, pain.	Eyes, skin, kidneys	Clear yellow brown combustible liquid; floats on water; distinct diesel petroleum hydrocarbon odor. BP: 356-716°F Fl.P: 154.4-165.2°F LEL: 0.6% UEL: 7.0%
Ethylbenzene	100-41-4	TWA 100 ppm STEL 125 ppm	TWA 100 ppm (435 mg/m ³) STEL 125 ppm (545 mg/m ³)	TWA 100 ppm (435 mg/m ³)	800 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with an aromatic odor. BP: 277°F Fl.P: 55°F UEL: 6.7% LEL: 0.8% Class IB Flammable Liquid
Fluoranthene	206-44-0	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; possible burns; heart and liver injury, pulmonary edema, respiratory arrest, gastrointestinal disturbances.	Heart, liver, lungs.	Yellow needles.
Fluorene	86-73-7	None established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Irritation skin, digestive tract	Skin	White crystals BP: 563°F
Fuel Oil #2	68476-30-2	TWA 100mg/m ³ (aerosol and vapor, as total hydrocarbons)	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; CNS effects; nausea, vomiting, headache, cramping, dizziness, weakness, loss of coordination, drowsiness; kidney, liver damage	Eyes, skin, CNS	Clear or yellow to red oily liquid, kerosene-like odor BP: 347 - 689 °F UEL: 5-6% LEL: 0.7-1.0%
Gasoline	8006-61-9	TWA 300 ppm STEL 500 ppm	Carcinogen	None established	Ca [IDLH value has not been determined]	Skin absorption; inhalation; ingestion; skin and/or eye contact	Eyes and skin irritation, mucous membrane; dermatitis; headache; listlessness, blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis; possible liver, kidney damage [Potential occupational carcinogen]	Eyes, skin, respiratory system, CNS, Liver, Kidneys	Clear liquid with a characteristic odor, aromatic Fl.Pt = -45°F LEL = 1.4% UEL = 7.6% Class 1B Flammable Liquid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Hexachlorobutadiene	87-68-3	TWA 0.02 ppm	Ca TWA 0.02 ppm (0.24 mg/m ³) [skin]	None established	Ca [N.D.]	inhalation, skin absorption, ingestion, skin and/or eye contact	In animals: irritation eyes, skin, respiratory system; kidney damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, kidneys	Clear, colorless liquid with a mild, turpentine-like odor. BP: 419°F
Hydrogen Sulfide	7783-06-4	TWA (10 ppm) STEL (15 ppm) (adopted values for which changes are proposed in the NIC)	C 10 ppm (15 mg/m ³) [10-minute]	C 20 ppm 50 ppm [10-minute maximum peak]	100 ppm	inhalation, skin and/or eye contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance; liquid: frostbite	Eyes, respiratory system, central nervous system	Colorless gas with a strong odor of rotten eggs. BP: -77°F UEL: 44.0% LEL: 4.0% Flammable Gas
Indeno[1,2,3-cd]pyrene	193-39-5	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; possible human carcinogen (skin); weakness; affect liver, lung tissue, renal tissue; impariment of blood forming tissue	Skin	Fluorescent green-yellow crystalline solid BP: 536 C
Indeno[1,2,3-cd]pyrene	193-39-5	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; possible human carcinogen (skin); weakness; affect liver, lung tissue, renal tissue; impariment of blood forming tissue	Skin	Yellowish crystal solid BP: 536 C
Isopropylbenzene	98-82-8	TWA 50 ppm	TWA 50 ppm (245 mg/m ³) [skin]	TWA 50 ppm (245 mg/m ³) [skin]	900 ppm [10%LEL]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sharp, penetrating, aromatic odor. BP: 306°F Fl.P: 96°F UEL: 6.5% LEL: 0.9%
Kerosene	8008-20-6	TWA 200 mg/m ³	TWA 100 mg/m ³	None established	IDLH value has not been determined	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system	Colorless to yellowish, oily liquid with a strong, characteristic odor. BP: 347-617°F Fl.P: 100-162°F UEL: 5% LEL: 0.7% Class II Combustible Liquid
Lead	7439-92-1	TWA 0.05 mg/m ³	TWA (8-hour) 0.050 mg/m ³	TWA 0.050 mg/m ³	100 mg/m ³ (as Pb)	inhalation, ingestion, skin and/or eye contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid. BP: 3164°F Noncombustible Solid in bulk form

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Manganese	7439-96-5 (metal)	TWA 0.2 mg/m ³	TWA 1 mg/m ³ STEL 3 mg/m ³	C 5 mg/m ³	500 mg/m ³ (as Mn)	inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage	respiratory system, central nervous system, blood, kidneys	A lustrous, brittle, silvery solid. BP: 3564°F
Mercury (organo) alkyl compounds (as Hg)	7439-97-6	TWA 0.01 mg/m ³ STEL 0.03 mg/m ³ [skin]	TWA 0.01 mg/m ³ STEL 0.03 mg/m ³ [skin]	TWA 0.01 mg/m ³ C 0.04 mg/m ³	2 mg/m ³ (as Hg)	inhalation, skin absorption, ingestion, skin and/or eye contact	Paresthesia; ataxia, dysarthria; vision, hearing disturbance; spasticity, jerking limbs; dizziness; salivation; lacrimation (discharge of tears); nausea, vomiting, diarrhea, constipation; skin burns; emotional disturbance; kidney injury; possible teratogenic effects	Eyes, skin, central nervous system, peripheral nervous system, kidneys	Appearance and odor vary depending upon the specific (organo) alkyl mercury compound
Mercury compounds [except (organo) alkyls] (as Hg) Mercury	7439-97-6	TWA 0.025 mg/m ³ (elemental and inorganic forms)	Hg Vapor: TWA 0.05 mg/m ³ [skin] Other: C 0.1 mg/m ³ [skin]	TWA 0.1 mg/m ³	10 mg/m ³ (as Hg)	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eyes, skin, respiratory system, central nervous system, kidneys	Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.] BP: 674°F
Methyl tert-butyl ether (MTBE)	1634-04-4	TWA 50 ppm	No established REL	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, mucous membrane, respiratory; dizziness, nausea, headache, intoxication	Eyes, skin, mucous membrane, respiratory system, central nervous system	Colorless liquid BP: 55.2 C
Methylene Chloride	75-09-2	TWA 50 ppm, A3 - Ca suspected human carcinogen	Ca	TWA 25 ppm STEL 125 ppm	Ca [2300 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numbness, tingle limbs; nausea; [potential occupational carcinogen]	Eyes, skin, cardiovascular system, central nervous system	Colorless liquid with a chloroform-like odor BP: 104°F UEL: 23% LEL: 13%
Naphtha (coal tar)	8030-30-6	None established	TWA 100 ppm (400 mg/m ³)	TWA 100 ppm (400 mg/m ³)	1000 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; dizziness, drowsiness; dermatitis; in animals: liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Reddish-brown, mobile liquid with an aromatic odor BP: 320-428°F FL.P: 100-109°F Class II Combustible Liquid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Naphthalene	91-20-3	TWA 10 ppm STEL 15 ppm	TWA 10 ppm (50 mg/m ³) STEL 15 ppm (75 mg/m ³)	TWA 10 ppm (50 mg/m ³)	250 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage	Eyes, skin, blood, liver, kidneys, central nervous system	Colorless to brown solid with an odor of mothballs. BP: 424°F Fl.P: 174°F UEL: 5.9% LEL: 0.9%
n-Butylbenzene	104-51-8	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; CNS depression, lung damage; nausea, vomiting, headache, dizziness, weakness, loss of coordination, blurred vision, drowsiness, confusion, disorientation	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sweet odor BP: 183 C Fl.P: 59 C UEL: 5.8% LEL: 0.8%
Nickel	7440-02-0 (Metal)	TWA 1.5 mg/m ³ (elemental) TWA 0.1 mg/m ³ (soluble inorganic compounds) TWA 0.2 mg/m ³ (insoluble inorganic compounds) TWA 0.1 mg/m ³ (Nickel subsulfide)	Ca TWA 0.015 mg/m ³	TWA 1 mg/m ³	Ca [10 mg/m ³ (as Ni)]	inhalation, ingestion, skin and/or eye contact	Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Nasal cavities, lungs, skin	Metal: Lustrous, silvery, odorless solid. BP: 5139°F
Nitrobenzene	98-95-3	TWA 1 ppm	TWA 1 ppm (5 mg/m ³) [skin]	TWA 1 ppm (5 mg/m ³) [skin]	200 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; anoxia; dermatitis; anemia; methemoglobinemia; in animals: liver, kidney damage; testicular effects	Eyes, skin, blood, liver, kidneys, cardiovascular system, reproductive system	Yellow, oily liquid with a pungent odor like paste shoe polish. BP: 411°F Fl.P: 190°F LEL(200°F): 1.8%
n-Propylbenzene	103-65-1	None established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Harmful if swallowed, Irritation eyes, skin, digestive tract, respiratory tract, central nervous system	Eyes, skin, central nervous system, respiratory system	colorless or light yellow liquid BP: 159 C Fl.P: 47 C UEL: 6% LEL: 0.8%
Petroleum hydrocarbons(Petroleum distillates)	8002-05-9	None established	TWA 350 mg/m ³ C 1800 mg/m ³ [15 min]	TWA 500 ppm (2000 mg/m ³)	1,100 [10% LEL]	Inhalation; ingestion; skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, drowsiness, headache, nausea; dried/cracked skin; chemical pneumonitis	CNS, eyes, respiratory system, skin	Colorless liquid with a gasoline or kerosene-like odor BP: 86-460°F Fl. Pt = -40 to -86°F UEL: 5.9% LEL: 1.1% Flammable liquid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Phenol	108-95-2	TWA 5 ppm	TWA 5 ppm (19 mg/m ³) C 15.6 ppm (60 mg/m ³) [15-minute] [skin]	TWA 5 ppm (19 mg/m ³) [skin]	250 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine; cyanosis; liver, kidney damage; skin burns; dermatitis; ochronosis; tremor, convulsions, twitching	Eyes, skin, respiratory system, liver, kidneys	Colorless to light-pink, crystalline solid with a sweet, acrid odor. BP: 359°F UEL: 8.6% LEL: 1.8%
p-Isopropyltoluene	99-87-6	None established	None established	None established	None established	inhalation, skin absorption, eye contact	Irritation skin	CNS, skin	Colorless, clear liquid, sweetish aromatic odor BP: 350.8°F Class III Flammable liquid
sec-Butylbenzene	135-98-8	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, upper airway; central nervous system, headache, dizziness; gastrointestinal disturbance	Respiratory system, central nervous system, eyes, skin;	Colorless liquid BP: 344°F Fl.P: 126 °F UEL: 6.9% LEL: 0.8% Combustible liquid
Selenium	7782-49-2	TWA 0.2 mg/m ³	TWA 0.2 mg/m ³	TWA 0.2 mg/m ³	1 mg/m ³ (as Se)	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; in animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, liver, kidneys, blood, spleen	Amorphous or crystalline, red to gray solid. [Note: Occurs as an impurity in most sulfide ores.] BP: 1265°F
Silver	7440-22-4 (metal)	TWA 0.1 mg/m ³ (metal, dust, fumes) TWA 0.01 mg/m ³ (Soluble compounds, as Ag)	TWA 0.01 mg/m ³	TWA 0.01 mg/m ³	10 mg/m ³ (as Ag)	inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Nasal septum, skin, eyes	Metal: White, lustrous solid BP: 3632°F
Slop Oil	69029-75-0	None established	None established	None established	None established	Inhalation; ingestion	Irritation eyes, skin, gastrointestinal tract	Eyes, skin, gastrointestinal tract	Clear light to dark amber liquid, with mild hydrocarbon odor. BP: >500°F Fl.P : 250°F
Sulfuric Acid	7664-93-9	TWA 0.2 mg/m ³	TWA 1 mg/m ³	TWA 1 mg/m ³	15 mg/m ³	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; eye, skin burns; dermatitis	Eyes, skin, respiratory system, teeth	Colorless to dark-brown, oily, odorless liquid. BP: 554°F Noncombustible Liquid
tert-Butylbenzene	98-06-6	None established	None established	None established	None established	inhalation, skin absorption, ingestion,	Eye and respiratory irritant; CNS depression; liver or kidney damage	Respiratory system, central nervous system, eyes, liver, kidney	Colorless liquid with an aromatic odor BP: 168 - 169 C Fl.P: 34 C UEL:5.6 % LEL: 0.8 %

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 5-43 to 5-49 46th Avenue and 45-38 to 45-40 Vernon Boulevard, Long Island City, New York

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Tetrachloroethene	127-18-4	TWA 25 ppm STEL 100 ppm (STEL) listed as A3, animal carcinogen	Ca Minimize workplace exposure concentrations	TWA 100 ppm C 200 ppm (for 5 minutes in any 3-hour period), with a maximum peak of 300 ppm	Ca [150 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless liquid with a mild, chloroform-like odor. BP: 250°F Noncombustible Liquid
Toluene	108-88-3	TWA 20 ppm	TWA 100 ppm (375 mg/m ³) STEL 150 ppm (560 mg/m ³)	TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak)	500 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, pungent, benzene-like odor. BP: 232°F Fl.P: 40°F UEL: 7.1% LEL: 1.1% Class IB Flammable Liquid
trans-1,2-Dichloroethene	156-60-5	TWA 200 ppm	None established	TWA 200 ppm STEL 250 ppm (skin)	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Narcotic. Irritation eyes, skin, respiratory tract, mucous membrane; CNS depression.	Respiratory tract, mucous membrane, eyes, skin, CNS	Colorless liquid with a fruity pleasant odor BP: 48°C Fl.P 6C UEL: 12.8% LEL: 9.7%
Trichloroethene	79-01-6	TWA 10 ppm STEL 25 ppm	Ca	TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)	Ca [1000 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system	Colorless liquid (unless dyed blue) with a chloroform-like odor. BP: 189°F UEL(77°F): 10.5% LEL(77°F): 8%
Vinyl Chloride	75-01-4	TWA 1 ppm	Carcinogen	TWA 1 ppm C 5 ppm [15-minute]	Ca [IDLH value has not been determined]	inhalation, skin, and/or eye contact (liquid)	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]	Liver, central nervous system, blood, respiratory system, lymphatic system	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations. BP: 7°F UEL: 33.0% LEL: 3.6% Flammable Gas
Xylene (m, o & p isomers)	108-38-3, 95-47-6, 106-42-3	TWA 100 ppm (435 mg/m ³) STEL 150 ppm	TWA 100 ppm (435 mg/m ³)	TWA 100 ppm (435 mg/m ³)	900 ppm	Skin absorption, inhalation, ingestion, skin, and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys	Colorless liquid with an aromatic odor BP: 282°F, 292°F, 281°F Fl. Pt. 82°F, 90°F, 81°F LEL: 1.1%, 0.9%, 1.1% UEL: 7.0%, 6.7%, 7.0% Class C Flammable Liquid
Zinc	7440-66-6	TWA 10 mg/m3 (Inhalable fraction)	None established	TWA 10 mg/m3 (for zinc oxide fume)	None established	skin and/or eye contact, inhalation, ingestion	Irritation eyes, skin, respiratory tract; gastrointestinal disturbances	Eyes, skin, respiratory system	Bluish gray solid BP: 1664.6°F Flammable

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at 900 Old Country Road, Garden City, New York

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Abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists.
BP – boiling point at 1 atmosphere, °F
C – Ceiling, is a concentration that should not be exceeded during and part of the working exposure.
Ca - considered by NIOSH to be a potential occupational carcinogen
CAS# Chemical Abstracts Service registry number which is unique for each chemical.
Fl. Pt. – Flash point
IDLH - Immediately Dangerous to Life and Health concentrations represent the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
LEL – Lower explosive (flammable) limit in air, % by volume (at room temperature)
mg/m³ – Milligrams of substance per cubic meter of air
NIOSH -National Institute for Occupational Safety and Health.
OSHA – Occupational Safety and Health Administration
PEL - OSHA Permissible Exposure Limit (usually) a time weighted average concentration that must not be exceeded during any 8 hour work shift of a 40 hr work week.
ppm – parts per million
REL – NIOSH Recommended Limit indicated a time weighted average concentration that must not be exceeded during any 10 hour work shift of a 40 hr work week
STEL – Short-term exposure limit
TLV -ACGIH Threshold Limit Values (usually 8 hour time weighted average concentrations).
TWA – 8-hour, time-weighted average
UEL – Upper explosive (flammable) limit in air, % by volume (at room temperature)

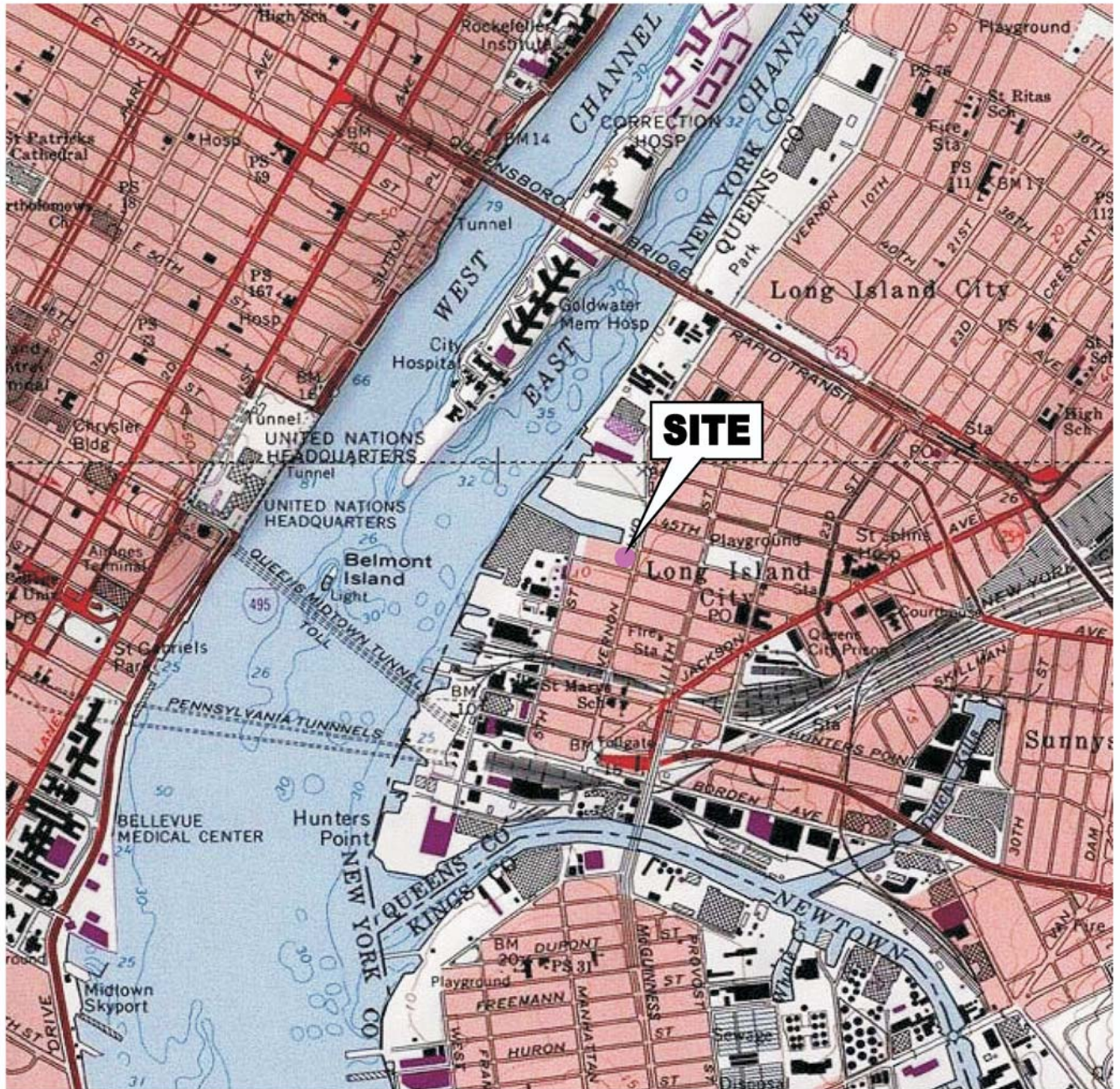
TABLE 2
ACTION LEVELS FOR WORKER BREATHING ZONE

Instrument	Action Level *	Level of Respiratory Protection/Action
PID	0 to <5 ppm (one minute sustained)	Level D *
PID	>5 to <50 ppm (one minute sustained)	Utilize APR (Level C)
PID	>50 to <100 ppm (one minute sustained)	Level B
PID	>100ppm	Stop work** (ventilate, apply foam)
CGI/H ₂ S Meter	<5%	Level D
CGI/H ₂ S Meter	>5% to <25%	Level B
CGI/H ₂ S Meter	>25%	Stop work**
CGI/CO Meter	>25%	Level B
CGI/CO Meter	>50%	Stop work** (ventilate area)
CGI/O ₂ Meter	<10% LEL, in excavation 19.5% oxygen – 23.5%	Level D Level D
CGI/O ₂ Meter	>10% LEL, in excavation >23.5% oxygen	Allow to vent, apply foam** Stop work, Oxygen Enriched ATM**
Dust Monitor	0 – 1.0 mg/m ³ , 5-minutes average	Level D
Dust Monitor	>1.0 to 5.0 mg/m ³ , 5-minutes average	Level D – Institute dust suppression measures
Dust Monitor	5.0 to >50 mg/m ³ , 5-minute average	Level C – Institute dust suppression measures

Note: Action levels are based on above background levels.

* Instrument readings will be taken in the breathing zone (BZ) of the workers, unless otherwise indicated.

** Suspend work in immediate area. Conduct air monitoring periodically to determine when work can continue. Implement mitigative measures.



QUADRANGLE LOCATION



SOURCE:
USGS; 1995, Central Park & Brooklyn
7.5 Minute Topographic Quadrangle



Title:

SITE LOCATION MAP

FORMER PARAGON PAINT AND VARNISH
COMPANY MANUFACTURING FACILITY
5-49 46TH AVENUE & 45-40 VERNON BOULEVARD
LONG ISLAND CITY, NEW YORK

Prepared for:

VERNON 4540 REALTY LLC

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting
& Management

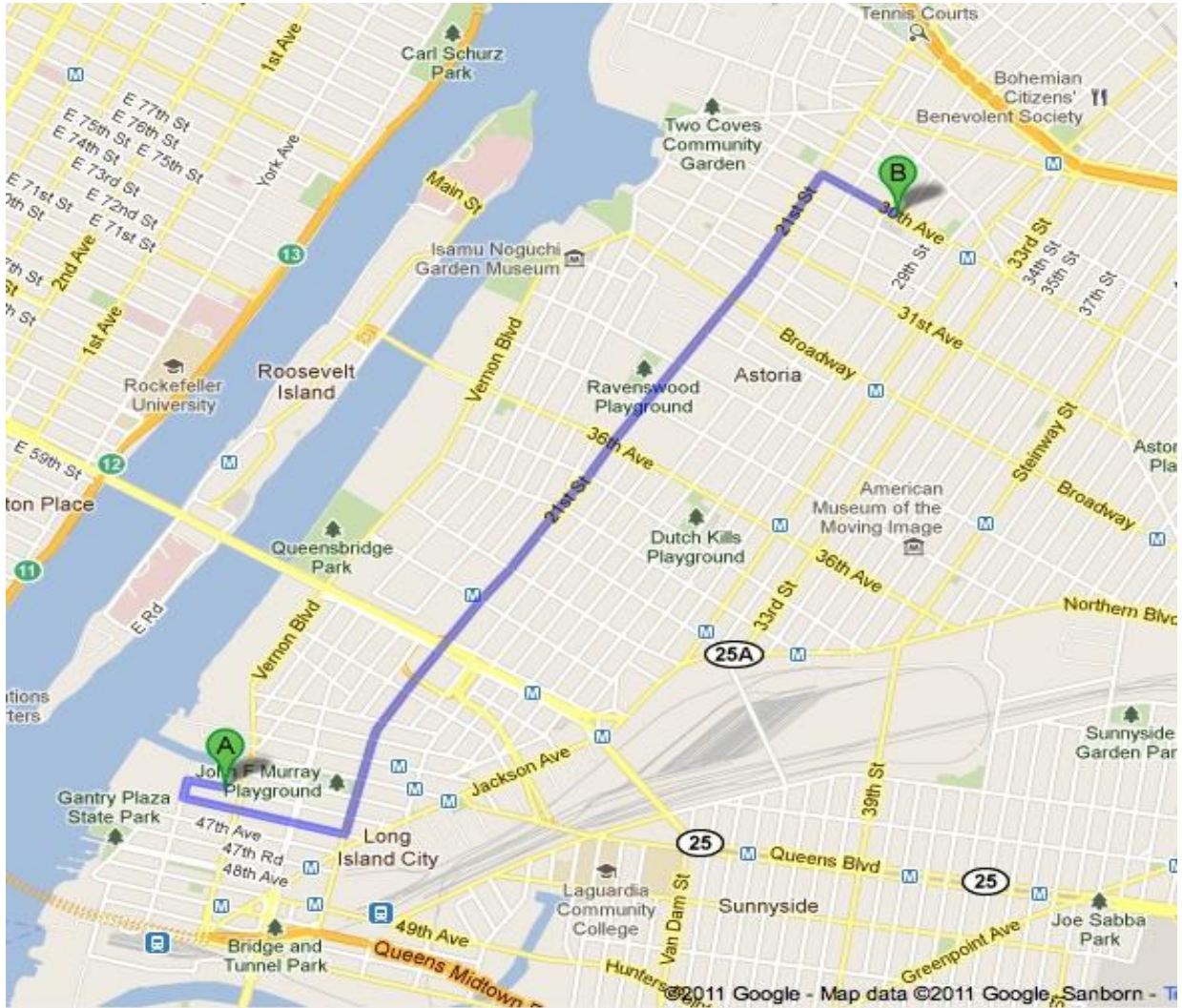
Compiled by: R.M.	Date: 11OCT11
Prepared by: J.A.D.	Scale: AS SHOWN
Project Mgr.: R.M.	Project No.: 2051.0001Y000
File: 2051.0001Y105.01.CDR	

FIGURE

1

FIGURE 2

Directions to Mt. Sinai Queens Hospital – 25-10 30th Avenue, Long Island City, New York



- Head west on 46th Avenue toward 5th Street
- Turn left onto 46th Road
- Take the third left onto 21st Street
- Turn right onto 30th Avenue
- Arrive at Mt. Sinai Queens Hospital on your right

**Activity Hazard Analysis and
Material Safety Data Sheets**

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Mobilization/Demobilization		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
Temporary Facilities Set Up (Support and CRZ zones)	Noise Eyes Slips-Trips-Falls Power Tools Heat Stress/Cold Stress Cuts and Abrasions Punctures Electrocutation Traffic Hazards Insect Bites/Wildlife Sun exposure	Ear plugs, ear muffs. Safety glasses with side shields, safety visor or shield. Be sure footing is in a clear area free of loose material. Hard hats, work gloves. Follow heat stress/cold stress guidelines in HASP appendices. Wear work gloves. Wear puncture resistant steel toed boots, long sleeve shirts, work shirts or coveralls. Ground fault circuit interrupters, inspect power supply cords of equipment prior to use. Wear orange safety vests and/or high visibility clothing. Use insect repellent. Avoid contact with all wildlife. Use sunscreen as needed, take breaks in shaded areas, drink ample fluids.
Equipment to be Used	Inspection Requirements	Training Requirements
Power Tools (e.g., Drills, Saws) Hand Tools (e.g., Hammer, Shovel, Pry Bars) Trailers, Vehicles, Low Boy, Heavy Equipment	Daily inspections to insure personnel wear appropriate PPE during mobilization and demobilization and survey work. Inspect equipment for wear or damage, test emergency shut-off switches. Ensure all equipment on wheels is chocked per Wheel Chocking Policy.	Tool box safety meetings. Review heavy equipment safety guidelines. Review Wheel Chocking Policy.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Contaminated Soil Excavation		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
Work Zone Delineations Decon Area Layout Personal/Perimeter Air Monitoring Removal of Contaminated Soil Verification of Soil Removal Loading Contaminated Soil for Disposal Decon/Demobilization	Noise Eyes Electrocutation Puncture Wildlife Hose Connections Traffic – Vehicle Traffic – Pedestrian	Ear plugs, ear muffs. Safety glasses with side shields or upgrade to Level C full-face respirators. Inspect area for overhead and/or subsurface electrical lines. Follow Lock out/Tag out Procedures. Steel toe/steel shank boots. Avoid direct handling of soil – use shovels, rakes or squeegees. Avoid contact with all animals. Make sure all vacuum line connections are clamped and secured. Cones and flagging to be used for vehicles parked on streets – if a lane is to be taken, flagmen to be used. All work zones to be delineated by SSO to be able to control area from curious onlookers.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Contaminated Soil Excavation		Analyzed by / Date: _____
Equipment to be Used	Inspection Requirements	Training Requirements
Dump Truck(s) Rubber Tire Backhoe Miscellaneous Hand Tools Level D and Level C PPE Excavator	Prior to start of work daily - area for security - barriers in place - equipment inspection/proper wheel chocking PPE Inspections - before donning - buddy system to continually observe - upon de-suiting During Operations – that area remains secure Atmosphere - prior to entering confined space - continually during operations	40-Hour HAZWOPER 8-Hour Refresher Site Specific Training and Orientation Daily Safety Meetings

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Drilling Activities		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
Work Zone Delineations Decon Area Layout Personal Air Monitoring Installation of Soil Borings Installation of Monitoring Wells Installation of Soil Vapor Sampling Points Decon/Demobilization	Noise Eyes Electrocutation Puncture Wildlife/Insect Bites Hose Connections Traffic – Vehicle Traffic – Pedestrian Hands	Ear plugs, ear muffs. Safety glasses with side shields or upgrade to Level C full-face respirators. Inspect area for overhead and/or subsurface electrical lines. Follow Lock out/Tag out Procedures. Steel toe/steel shank boots. Avoid direct handling of soil – use shovels, rakes or squeegees. Leather and/or cut resistant work gloves as appropriate to protect hands. Avoid contact with all animals, use insect repellent. Make sure all vacuum line connections are clamped and secured. Cones and flagging to be used for vehicles parked on streets – if a lane is to be taken, flagmen to be used. All work zones to be delineated by SSO to be able to control area from curious onlookers. Employ a “Show Hands Policy” between drillers and helpers.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Drilling Activities		Analyzed by / Date: _____
Equipment to be Used	Inspection Requirements	Training Requirements
Drill Rig Support Truck Miscellaneous Hand Tools Level D and Level C PPE	Prior to start of work daily - area for security - barriers in place - equipment inspection, including emergency shut-off switch testing PPE Inspections - before donning - buddy system to continually observe - upon de-suiting During Operations - that area remains secure Atmosphere - prior to entering confined space - continually during operations	40-Hour HAZWOPER 8-Hour Refresher Site Specific Training and Orientation Daily Safety Meetings

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Miscellaneous Fill Placement		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
Grading Placement of Fill	Abrasions; heat stress; cold stress; cuts; slips; trips; falls; insects; rodents and stray animals; hazardous noise; puncture; struck by moving heavy equipment; loading and unloading of heavy equipment; crushed or pinned between machinery; and nuisance dust.	Hard hats; safety glasses/goggles; work gloves; puncture resistant steel toed, steel shank work boots; reflective vest and/or high visibility clothing. Hearing protection (muffs/plugs). Personnel should stand at least 10 feet from moving or swing radius of equipment. Personal protective equipment.
Equipment to be Used	Inspection Requirements	Training Requirements
Bull dozer Grader Dump Trucks Water Truck Hand Tools (Shovels, etc.)	Periodic inspections to ensure site personnel wear the appropriate PPE. Daily site safety inspection check list. Heavy equipment/machinery must be inspected by SSHO & Operator, test emergency shutoff switches.	Tool box safety meetings. Review working around or near heavy equipment and review heavy equipment safety guidelines.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
Mobilization Equipment Set Up Unloading of Equipment Installation of Shoring/Sheeting Removal of Shoring Loading of Equipment Demobilization	Buried utilities and underground structures Truck traffic Slip / trip / fall Rigging to unload and handle materials Overhead hazards Workmen in the area Site control Equipment operation Sheeting installation and removal Demobilization of equipment Cold / heat stress Biological hazards Hearing protection / eye protection Hand protection Untrained personnel Electric powered hand tools Cutting torches	All trucks to be equipped with backup alarms – pedestrian traffic to have orange protective vests and/or high visibility clothing for visibility. All personnel are to be aware that the potential for slipping / tripping / falling exists at all times due to uneven terrain. Equipment being laid out and staged. Any person working at a height of greater than 6 feet must have a safety harness and shock absorbing lanyard. Sheeting being delivered to the site will have to be unloaded prior to this activity – all grips, slings, chains, clevises or grab hooks and any other lifting devices shall be inspected. A regular inspection of these items shall be made prior to their use for any lifting. Any equipment with frayed or broken components will be set aside and tagged and shall not be used until the appropriate repairs are made. Prior to the start of any activity, the area shall be checked for overhead hazards. Operators and spotters are to be aware of the potential for personnel and/or equipment to be in the work zone. No lifting and rigging shall go over a person or vehicle. During all phases of operations, the minimum personal protection will consist of hard hat, steel-toed and steel-shanked work boots, safety glasses. When handling wire rope, slings, chains, etc., appropriate hand protection will be used (leather or cut resistant work gloves). When working

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
		<p>around equipment, hearing protection shall be used.</p> <p>Extra care shall be taken to make sure no one's hands or feet are caught under or between metal objects when lifting or setting sheeting. Employ hand signals to give "all clear" approval.</p> <p>All personnel shall be trained and qualified to perform the task assigned them.</p> <p>Equipment operators are responsible to make sure their swing radius and work areas are clear. Operators are to be trained and competent with their equipment.</p> <p>During operations, a zone will be established outside of the swing radius and/or fall radius of the equipment and sheeting where control of persons entering and exiting can be safety maintained. The same type of control for vehicles will be maintained.</p> <p>Equipment will be in good working order, equipped with current protective devices and travel alarms, and chocked when not in use.</p> <p>A competent person shall have designed the sheeting/pile plan to meet the stress loads of the environment. This plan shall include all bracing, cross bracing, installation depths.</p>

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
		<p>Hydraulic and/or airlines used to power the vibratory sheeting drive/extractor shall be checked twice daily.</p> <p>Operators and spotters will have a clear plan of communications. All hand signals will be predetermined. There will only be one person spotting for the operator that gives directions. If two-way communications are to be used, the channel will remain undisturbed during lifting and setting operations by company personnel.</p> <p>Tag lines as appropriate will be used to erect and disassemble the sheeting.</p> <p>When loading shoring up to demobilize, there shall not be any lifts over a person or equipment.</p> <p>Potential exists for cold / heat stress. Follow the guidelines for cold / heat stress in the HASP. Replenish fluids and take breaks, as necessary.</p> <p>If there is a need to utilize electric power tools, all cords will be inspected. Ground Fault Interrupter (GFI) outlets will be used. No guards shall have been removed and no triggers will be wired open.</p> <p>If cutting torches are utilized, all lines, gauges, regulators and torches shall be inspected prior to use. Tanks will have current inspection and be inspected upon receipt at the site prior to their use. A 30-minute fire watch will be maintained after burning activity has stopped for the day.</p>

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation		Analyzed by / Date: _____
Equipment to be Used	Inspection Requirements	Training Requirements
Tractor Trailers Hydraulic Excavators and/or Cranes Interlocking Steel Sheeting/Shoring/Bracing Materials Miscellaneous Slings, Grips, chains, hooks, Clevises Miscellaneous Electric Power Tools Oxygen and Acetylene Torches Pile Drivers	Daily inspection of equipment as recommended by manufacturer. Inspection of work area and perimeters prior to start and during works operations. Twice daily inspection of cables, slings, etc., electric equipment, torches, regulators, gauges.	Current CDL license for tractor trailer operators. Competent person to develop shoring plan. Site specific HASP. Trained operations/laborers. Daily safety meetings.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: In-situ Chemical Injections		Analyzed by / Date: _____
Principal Steps	Potential Hazards	Recommended Controls
Work Zone Delineations Decon Area Layout Personal Air Monitoring Mixing of Chemicals to be Injected Injection of Chemicals Decon/Demobilization	Noise Eyes Skin Contact/Irritation Slips-Trips-Falls Power Tools Heat Stress/Cold Stress Cuts and Abrasions Punctures Electrocutation Traffic Hazards Insect Bites/Wildlife Sun exposure	Ear plugs, ear muffs. Safety glasses with side shields, safety visor or shield. Wear long sleeved shirts, have ample clean water supply in immediate vicinity of work zone to flush skin if needed. Be sure footing is in a clear area free of loose material. Hard hats, work gloves. Follow heat stress/cold stress guidelines in HASP appendices. Wear work gloves. Wear puncture resistant steel toed boots, long sleeve shirts, work shirts or coveralls. Ground fault circuit interrupters, inspect power supply cords of equipment prior to use. Wear reflective safety vests and/or high visibility clothing. Use insect repellent. Avoid contact with all wildlife. Use sunscreen as needed, take breaks in shaded areas, drink ample fluids.

ACTIVITY HAZARD ANALYSIS

(Continued)

Equipment to be Used	Inspection Requirements	Training Requirements
<p>Geoprobe [See Drilling Activity Hazard Analysis (AHA)]</p> <p>Chemicals to be injected [Regenox Parts A and B; Metals Remediation Compound (MRC); Oxygen Releasing Compounds (ORC), etc.]</p> <p>Power Tools (e.g., Drills, Saws, Injection Pumps)</p> <p>Hand Tools (e.g., Hammer, Shovel, Pry Bars)</p> <p>Trailers, Vehicles, Low Boy, Heavy Equipment</p>	<p>Inspect drill rig for wear and tear and/or damage to rig or any pieces of the drill string or assembly.</p> <p>Test emergency shut offs.</p> <p>Ensure that drill rig is level and stable for injections to proceed.</p> <p>See Drilling AHA.</p> <p>Store each chemical in the manner directed by manufacturer and per MSDS.</p> <p>Daily inspections to insure personnel wear appropriate PPE during mobilization and demobilization and survey work.</p> <p>Inspect equipment for wear or damage, test emergency shut-off switches.</p> <p>Ensure all equipment on wheels is chocked per Wheel Chocking Policy.</p>	<p>Competent drill rig operator.</p> <p>Identify subsurface utility lines prior to any drilling activities. (verify location with Site supervisor)</p> <p>Tool box safety meeting to review potential hazards.</p> <p>Review MSDS and manufacturer specifications and application procedures.</p> <p>Only required personnel should be near the chemicals, maintain distance from mixing and injection activities when possible.</p> <p>Tool box safety meetings.</p> <p>Review heavy equipment safety guidelines.</p> <p>Review Wheel Chocking Policy.</p>

Heat and Cold Stress Guidelines

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 moving to a shaded area, rest, and fluid intake. 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. 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 protective equipment (semi-permeable 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.

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 of body movement;
- confusion;
- 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.

Medical Data Form

MEDICAL DATA SHEET

This form must be completed by all onsite personnel prior to the commencement of activities, and shall be kept by the Site Health and Safety Officer during site activities. This form must be delivered to any attending physician when medical assistance is needed.

(This form should be typed or printed legibly.)

Site: _____

Name: _____ Home Telephone: _____
(Area Code/Telephone Number)

Address: _____

Date of Birth: _____ Height: _____ Weight: _____

Emergency Contact: _____ Telephone: _____
(Area Code/Telephone Number)

Drug Allergies or Other Allergies: _____

Previous Illnesses or Exposures to Hazardous Substances: _____

Current Medication (Prescription and Non-Prescription): _____

Medical Restrictions: _____

Name, Address and Telephone Number of Person Physician: _____

**Health and Safety
Briefing/Tailgate Meeting Form**

HEALTH & SAFETY BRIEFING / TAILGATE MEETING FORM

Site Name / Location _____

Date: _____ Weather Forecast: _____

Names of Personnel Attending Briefing

_____	_____	_____
_____	_____	_____
_____	_____	_____

Planned Work

Instrument Calibration: Instrument/Time/Cal. Gas/Cal. Concentration/Actual Concentration

Items Discussed

Work Permit Type and Applicable Restrictions

Signatures of Attending Personnel

_____	_____	_____
_____	_____	_____
_____	_____	_____

Accident Report and Investigation Form

Roux Associates, Inc. Remedial Engineering, P.C.
 (Check applicable company name)

ACCIDENT REPORT

Joe Gentile, Corporate Health and Safety Manager
 Cell: (610) 844-6911; Office: (856) 423-8800; Office FAX: (856) 423-3220; Home: (484) 373-0953

PART 1: ADMINISTRATIVE INFORMATION

Project #: _____ Project Name: _____ Project Location (street address/city/state): _____ _____ Client Corporate Name / Contact / Address / Phone #: _____ _____ _____ _____ _____	Immediate Verbal Notifications Given To: Corporate Health & Safety <input type="checkbox"/> Yes <input type="checkbox"/> No Office Health & Safety <input type="checkbox"/> Yes <input type="checkbox"/> No Office Manager <input type="checkbox"/> Yes <input type="checkbox"/> No Project Principal <input type="checkbox"/> Yes <input type="checkbox"/> No Project Manager <input type="checkbox"/> Yes <input type="checkbox"/> No Client Contact <input type="checkbox"/> Yes <input type="checkbox"/> No	REPORT STATUS (time due): <input type="checkbox"/> Initial (24 hr) <input type="checkbox"/> Final (5-10 days) Date: _____ Date: _____ Accident Report Delivered To: Corporate Health & Safety <input type="checkbox"/> Yes <input type="checkbox"/> No Office Health & Safety <input type="checkbox"/> Yes <input type="checkbox"/> No Office Manager <input type="checkbox"/> Yes <input type="checkbox"/> No Project Principal <input type="checkbox"/> Yes <input type="checkbox"/> No Project Manager <input type="checkbox"/> Yes <input type="checkbox"/> No
REPORT TYPE: <input type="checkbox"/> Loss <input type="checkbox"/> Near Loss Estimated Costs: \$ _____		

OSHA CASE # Assigned by Corporate Health & Safety if Applicable: _____	Corporate Health & Safety Confirmed Final Accident Report <input type="checkbox"/> Yes <input type="checkbox"/> No
---	--

DATE OF INCIDENT: _____	TIME INCIDENT OCCURRED: _____ <input type="checkbox"/> AM <input type="checkbox"/> PM	INCIDENT LOCATION – City, State, and Country (If outside U.S.A.) _____
--------------------------------	---	--

INCIDENT TYPES: (Select most appropriate if Loss occurred.)
 From lists below, please select the option that best categories the incident. When selecting an injury or illness, also indicate the severity level.

<input type="checkbox"/> INJURY -----Severity Level----- <input type="checkbox"/> Fatality <input type="checkbox"/> First Aid <input type="checkbox"/> Medical <input type="checkbox"/> Restricted Work <input type="checkbox"/> Lost Time <input type="checkbox"/> Treatment	<input type="checkbox"/> ILLNESS <input type="checkbox"/> Spill / Release Material involved: _____ Quantity (U.S. Gallons): _____	<input type="checkbox"/> OTHER INCIDENT TYPES <input type="checkbox"/> Misdirected Waste <input type="checkbox"/> Consent Order <input type="checkbox"/> NOV <input type="checkbox"/> Property Damage <input type="checkbox"/> Exceedance <input type="checkbox"/> Motor Vehicle <input type="checkbox"/> Fine / Penalty
---	---	--

ACTIVITY TYPE (Check most appropriate one.) <input type="checkbox"/> Decommissioning <input type="checkbox"/> Geoprobe <input type="checkbox"/> Sampling <input type="checkbox"/> Demolition <input type="checkbox"/> Motor Vehicle <input type="checkbox"/> System Start-up <input type="checkbox"/> Dewatering <input type="checkbox"/> Operations/ Maintenance <input type="checkbox"/> Trenching <input type="checkbox"/> Drilling <input type="checkbox"/> Pump/Pilot Test <input type="checkbox"/> AST/UST Removal <input type="checkbox"/> Excavation <input type="checkbox"/> Rigging/Lifting <input type="checkbox"/> Other _____ <input type="checkbox"/> Gauging	INJURY TYPE (Check all applicable.) <input type="checkbox"/> Abrasion <input type="checkbox"/> Occupational Illness <input type="checkbox"/> Amputation <input type="checkbox"/> Puncture <input type="checkbox"/> Burn <input type="checkbox"/> Rash <input type="checkbox"/> Cold/Heat Stress <input type="checkbox"/> Repetitive Motion <input type="checkbox"/> Inflammation <input type="checkbox"/> Sprain/Strain <input type="checkbox"/> Laceration <input type="checkbox"/> Other _____	BODY PART AFFECTED (Check all applicable.) <input type="checkbox"/> Respiratory <input type="checkbox"/> Shoulder <input type="checkbox"/> Face <input type="checkbox"/> Neck <input type="checkbox"/> Arm <input type="checkbox"/> Leg <input type="checkbox"/> Chest <input type="checkbox"/> Wrist <input type="checkbox"/> Knee <input type="checkbox"/> Abdomen <input type="checkbox"/> Hand/Fingers <input type="checkbox"/> Ankle <input type="checkbox"/> Groin <input type="checkbox"/> Eye <input type="checkbox"/> Foot/Toes <input type="checkbox"/> Back <input type="checkbox"/> Head <input type="checkbox"/> Other _____
--	---	--

I. PERSON(S) DIRECTLY / INDIRECTLY INVOLVED IN INCIDENT (Attach additional information as necessary/applicable.)				
Name/Phone # of Each Person Directly/Indirectly Involved in Incident:	Designate: Roux/Remedial Employee Roux/Remedial Subcontractor Client Employee Client Contractor Third Party	As applicable, Current Occupation; Yrs in Current Occupation; Current Position; and Yrs in Current Position:	As applicable, Employer Name; Address; and Phone #:	As applicable, Supervisor Name; and Phone #:
1)				
2)				

II. PERSONS INJURED IN INCIDENT (Attach additional information as necessary/applicable.)					
Name/Phone # of Each Person Injured in Incident:	Designate: Roux/Remedial Employee Roux/Remedial Subcontractor Client Employee Client Contractor Third Party	As applicable, Current Occupation; Yrs in Current Occupation; Current Position; and Yrs in Current Position:	As applicable, Employer Name; Address; and Phone #:	As applicable, Supervisor Name; and Phone #:	Description of Injury:
1)					
2)					

III. PROPERTY DAMAGED IN INCIDENT (Attach additional information as necessary/applicable.)				
Property Damaged:	Property Location:	Owner Name, Address & Phone #:	Description of Damage:	Estimated Cost:
1)				\$

Accident Report – Page 2

2)				\$
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IV. WITNESSES TO INCIDENT (Attach additional information as necessary/applicable.)

Witness Name:	Address:	Phone #:
1)		
2)		

PART 2: WHAT HAPPENED AND INCIDENT DETAILS

PROVIDE FACTUAL DESCRIPTION OF INCIDENT (e.g., describe loss/near loss, injury, response / treatment).

I. AUTHORITIES/GOVERNMENTAL AGENCIES NOTIFIED (Attach additional information as necessary/applicable.)

Authority/Agency Notified:	Name/Phone #/Fax # of Person Notified:	Address of Person Notified:	Date & Time of Notification:	Exact Information Reported/Provided:

II. PUBLIC RESPONSES TO INCIDENT (if applicable)

Response/Inquiry By: (check one)	Entity Name:	Name/Phone # of Respondent/ Inquirer:	Address of Entity/Person:	Date & Time of Response/Inquiry:
<input type="checkbox"/> Newspaper <input type="checkbox"/> Television <input type="checkbox"/> Community Group <input type="checkbox"/> Neighbors <input type="checkbox"/> Other _____				

Describe Response/Inquiry:

Roux/Remedial Response:

(Check all that apply.) (Attach photos, drawings, etc. to help illustrate the incident.)

ATTACHED INFORMATION: Photo Sketches Vehicle Acord Form Police Report Other

Name(s) of person(s) who prepared Initial and Final Report:	Title(s):	Phone number(s):

PART 3: INVESTIGATION TEAM ANALYSIS

CONCLUSION: WHY IT HAPPENED (LIST CAUSAL FACTORS AND CORRESPONDING ROOT CAUSES)

(Root Causes: Lack of knowledge or skill, Doing the task according to procedures or acceptable practices takes more time or effort, Short-cuts or not following acceptable practices is reinforced or tolerated, Not following procedures or acceptable practices did not result in an accident, Lack of or inadequate procedures, Inadequate communications of expectations regarding procedures or acceptable practices, Inadequate tools or equipment, External Factors)

ROOT CAUSE(S) AND SOLUTION(S): HOW TO PREVENT INCIDENT FROM RECURRING

CAUSAL FACTOR	ROOT CAUSE	SOLUTION(S) [Must Match Root Cause(s)]		PERSON RESPONSIBLE	AGREED DUE DATE	ACTUAL COMPLETION DATE
		#	Solution(s)			
		1				
		2				
		3				

INVESTIGATION TEAM:

PRINT NAME	JOB POSITION	DATE	SIGNATURE

No One Gets Hurt!

Acord Form

ACORD™ AUTOMOBILE LOSS NOTICE

DATE

PRODUCER PHONE (A/C, No, Ext): 516-678-2626 James C. Herrmann & Associates LTD 265 Sunrise Highway, Suite #20 Rockville Centre, NY 11570		COMPANY NAIC CODE: 19410 Commerce & Industry		MISCELLANEOUS INFO (Site & location code)						
CODE: AGENCY CUSTOMER ID:		EFFECTIVE DATE 06/01/10		EXPIRATION DATE 06/01/11		DATE OF ACCIDENT AND TIME		AM PM	PREVIOUSLY REPORTED YES NO	

INSURED NAME AND ADDRESS Roux Associates, Inc. 209 Shafter Street Islandia, NY 11749 RESIDENCE PHONE (A/C, No) NA BUSINESS PHONE (A/C, No, Ext) 631-232-2600		CONTACT NAME AND ADDRESS Susan Sullivan, General Counsel Roux Associates, Inc. 209 Shafter Street Islandia, NY 11749 RESIDENCE PHONE (A/C, No) BUSINESS PHONE (A/C, No, Ext) 631-232-2600		CONTACT INSURED WHERE TO CONTACT Fax Notice: 631-232-1525 WHEN TO CONTACT	
---	--	---	--	---	--

LOSS LOCATION OF ACCIDENT (Include city & state) DESCRIPTION OF ACCIDENT (Use separate sheet, if necessary)		AUTHORITY CONTACTED: REPORT #: VIOLATIONS/CITATIONS	
--	--	---	--

POLICY INFORMATION						
BODILY INJURY (Per Person)	BODILY INJURY (Per Accident)	PROPERTY DAMAGE	SINGLE LIMIT	MEDICAL PAYMENT	OTC DEDUCTIBLE	OTHER COVERAGE & DEDUCTIBLES (UM, no-fault, towing, etc)
LOSS PAYEE					COLLISION DED	
UMBRELLA/ EXCESS	UMBRELLA	EXCESS	CARRIER:	LIMITS:	AGGR	PER CLAIM/OCC SIR/ DED

INSURED VEHICLE						
VEH #	YEAR	MAKE:	BODY TYPE:	PLATE NUMBER	STATE	
		MODEL:	V.I.N.:			
OWNER'S NAME & ADDRESS			RESIDENCE PHONE (A/C, No):		BUSINESS PHONE (A/C, No, Ext):	
DRIVER'S NAME & ADDRESS (Check if same as owner)			RESIDENCE PHONE (A/C, No):		BUSINESS PHONE (A/C, No, Ext):	
RELATION TO INSURED (Employee, family, etc.)	DATE OF BIRTH	DRIVER'S LICENSE NUMBER	STATE	PURPOSE OF USE	USED WITH PERMISSION? YES NO	
Employee						
DESCRIBE DAMAGE	ESTIMATE AMOUNT	WHERE CAN VEHICLE BE SEEN?	WHEN CAN VEH BE SEEN?	OTHER INSURANCE ON VEHICLE		

PROPERTY DAMAGED			
DESCRIBE PROPERTY (If auto, year, make, model, plate #)		OTHER VEH/PROP INS? YES NO	COMPANY OR AGENCY NAME: POLICY #:
OWNER'S NAME & ADDRESS		RESIDENCE PHONE (A/C, No):	
OTHER DRIVER'S NAME & ADDRESS (Check if same as owner)		BUSINESS PHONE (A/C, No, Ext):	
		RESIDENCE PHONE (A/C, No):	
		BUSINESS PHONE (A/C, No, Ext):	
DESCRIBE DAMAGE	ESTIMATE AMOUNT	WHERE CAN DAMAGE BE SEEN?	

INJURED						
NAME & ADDRESS	PHONE (A/C, No)	PED	INS VEH	OTH VEH	AGE	EXTENT OF INJURY

WITNESSES OR PASSENGERS				
NAME & ADDRESS	PHONE (A/C, No)	INS VEH	OTH VEH	OTHER (Specify)

REMARKS (Include adjuster assigned)			
REPORTED BY	REPORTED TO	SIGNATURE OF INSURED	SIGNATURE OF PRODUCER

Applicable in Arizona

For your protection, Arizona law requires the following statement to appear on this form. Any person who knowingly presents a false or fraudulent claim for payment of a loss is subject to criminal and civil penalties.

Applicable in Arkansas, District of Columbia, Kentucky, Louisiana, Maine, Michigan, New Jersey, New Mexico, Pennsylvania and Virginia

Any person who knowingly and with intent to defraud any insurance company or another person, files a statement of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact, material thereto, commits a fraudulent insurance act, which is a crime, subject to criminal prosecution and civil penalties. In D.C., LA, ME and VA insurance benefits may also be denied.

Applicable in California

Any person who knowingly files a statement of claim containing any false or misleading information is subject to criminal and civil penalties.

Applicable in Colorado

It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policy holder or claimant for the purpose of defrauding or attempting to defraud the policy holder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado Division of Insurance within the Department of Regulatory Agencies.

Applicable in Florida and Idaho

Any person who knowingly and with the intent to injure, Defraud, or Deceive any Insurance Company Files a Statement of Claim Containing any False, Incomplete or Misleading information is Guilty of a Felony.*

* In Florida - Third Degree Felony

Applicable in Hawaii

For your protection, Hawaii law requires you to be informed that presenting a fraudulent claim for payment of a loss or benefit is a crime punishable by fines or imprisonment, or both.

Applicable in Indiana

A person who knowingly and with intent to defraud an insurer files a statement of claim containing any false, incomplete, or misleading information commits a felony.

Applicable in Minnesota

A person who files a claim with intent to defraud or helps commit a fraud against an insurer is guilty of a crime.

Applicable in Nevada

Pursuant to NRS 686A.291, any person who knowingly and willfully files a statement of claim that contains any false, incomplete or misleading information concerning a material fact is guilty of a felony.

Applicable in New Hampshire

Any person who, with purpose to injure, defraud or deceive any insurance company, files a statement of claim containing any false, incomplete or misleading information is subject to prosecution and punishment for insurance fraud, as provided in RSA 638:20.

Applicable in New York

Any person who knowingly makes or knowingly assists, abets, solicits or conspires with another to make a false report of the theft, destruction, damage or conversion of any motor vehicle to a law enforcement agency, the Department of Motor Vehicles or an insurance company, commits a fraudulent insurance act, which is a crime, and shall also be subject to a civil penalty not to exceed five thousand dollars and the value of the subject motor vehicle or stated claim for each violation.

Applicable in Ohio

Any person who, with intent to defraud or knowing that he/she is facilitating a fraud against an insurer, submits an application or files a claim containing a false or deceptive statement is guilty of insurance fraud.

Applicable in Oklahoma

WARNING: Any person who knowingly and with intent to injure, defraud or deceive any insurer, makes any claim for the proceeds of an insurance policy containing any false, incomplete or misleading information is guilty of a felony.

OSHA 300

OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0	0	0	0
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
0	0
(K)	(L)

Injury and Illness Types

Total number of... (M)			
(1) Injury	0	(4) Poisoning	0
(2) Skin Disorder	0	(5) Hearing Loss	0
(3) Respiratory Condition	0	(6) All Other Illnesses	0

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name _____

Street _____

City _____ State _____ Zip _____

Industry description (e.g., Manufacture of motor truck trailers)

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)

OR North American Industrial Classification (NAICS), if known (e.g., 336212)

Employment information

Annual average number of employees _____

Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Company executive

Phone

Title

Date

OSHA's Form 301

Injuries and Illnesses Incident Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Information about the employee

- 1) Full Name _____
- 2) Street _____
City _____ State _____ Zip _____
- 3) Date of birth _____
- 4) Date hired _____
- 5) Male
 Female

Information about the physician or other health care professional

- 6) Name of physician or other health care professional

- 7) If treatment was given away from the worksite, where was it given?
Facility _____
Street _____
City _____ State _____ Zip _____
- 8) Was employee treated in an emergency room?
 Yes
 No
- 9) Was employee hospitalized overnight as an in-patient?
 Yes
 No

Information about the case

- 10) Case number from the Log _____ (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness _____
- 12) Time employee began work _____ AM/PM
- 13) Time of event _____ AM/PM Check if time cannot be determined
- 14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
- 15) **What happened?** Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
- 16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
- 17) **What object or substance directly harmed the employee?** Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
- 18) **If the employee died, when did death occur?** Date of death _____

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by _____
Title _____
Phone _____ Date _____

Public reporting burden for this collection of information is estimated to average 22 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a current valid OMB control number. If you have any comments about this estimate or any other aspects of this data collection, including suggestions for reducing this burden, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

Weekly Safety Report

APPENDIX H
WEEKLY SAFETY REPORT

Job Name _____ **Job#** _____

Week of: _____ **Days Without Lost Time Injury:** _____

Describe any recordable incidents or accidents:

What actions were taken to prevent such incidents or accidents from occurring again?

Was training conducted addressing the incident? Y N What date? ___

What level of PPE is currently in place?

Has PPE been upgraded or downgraded?

Have Perimeter Air Monitoring action limits been exceeded:

What action was taken to mitigate the exceedance?

Have personal air monitoring limits been exceeded:

What actions were taken?

List any problems with air monitoring equipment:

Write a summary of work completed during the week:

Write a summary of proposed work for the coming week:

Summarize any safety issues that are outstanding:

HSO Name: _____ **HSO Signature:** _____

**Job Safety and
Health Protection Poster**

You Have a Right to a Safe and Healthful Workplace. IT'S THE LAW!

- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in the inspection.
- You can file a complaint with OSHA within 30 days of discrimination by your employer for making safety and health complaints or for exercising your rights under the *OSH Act*.
- You have a right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violation.
- Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records or records of your exposure to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.



The *Occupational Safety and Health Act of 1970 (OSH Act)*, P.L. 91-596, assures safe and healthful working conditions for working men and women throughout the Nation. The Occupational Safety and Health Administration, in the U.S. Department of Labor, has the primary responsibility for administering the *OSH Act*. The rights listed here may vary depending on the particular circumstances. To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, call 1-800-321-OSHA or your nearest OSHA office: • Atlanta (404) 562-2300 • Boston (617) 565-9860 • Chicago (312) 353-2220 • Dallas (214) 767-4731 • Denver (303) 844-1600 • Kansas City (816) 426-5861 • New York (212) 337-2378 • Philadelphia (215) 861-4900 • San Francisco (415) 975-4310 • Seattle (206) 553-5930. Teletypewriter (TTY) number is 1-877-889-5627. To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website at www.osha.gov. If your workplace is in a state operating under an OSHA-approved plan, your employer must post the required state equivalent of this poster.

1-800-321-OSHA www.osha.gov