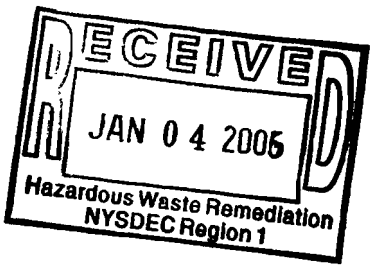
December 19, 2005



REMEDIAL INVESTIGATION WORK PLAN

Gent Uniform Rental
Operable Unit 2
Massapequa, New York

Prepared for

GENT UNIFORM RENTAL
5680 Merrick Road
Massapequa, New York 11568

ROUX ASSOCIATES, INC.
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1.0 INTRODUCTION

On behalf of Gent Uniform Rental Service (Gent), Roux Associates, Inc. (Roux Associates) has prepared this Remedial Investigation (RI) Work Plan for Operable Unit 2 (OU-2) of the Gent Facility (Site) located at 5680 Merrick Road, Massapequa, New York (Figure 1). Operable Unit 2, defined as offsite contamination, encompasses groundwater and potential soil vapor contamination attributable to the Site that is found beyond the property borders. Operable Unit 1, defined as onsite contamination, has already been investigated. A Remedial Investigation Report was submitted to the New York State Department of Environmental Conservation (NYSDEC) for OU-1 in April 2004 and a Remedial Design/Remedial Action Work Plan for OU-1 was submitted to the NYSDEC in July 2005. This Work Plan was prepared in accordance with the provisions of the Order on Consent (W1-0886-01-05) dated December 31, 2001 between the NYSDEC and Gent.

The following objectives were used to develop the scope of work described in this Work Plan.

Phase I

- Evaluate the potential for an offsite source of groundwater contamination identified during the OU-1 RI; and
- Collect groundwater samples from existing private supply wells identified downgradient of the Site during a private well survey conducted during the OU-1 RI.

Phase II

- Determine the groundwater flow direction downgradient of the Site;
- Determine the areal extent of the offsite groundwater contamination identified during the OU-1 RI; and
- Evaluate the potential for impacts to soil gas associated with subsurface contamination.

This Work Plan describes the methodology by which the RI will be implemented and was developed based upon a detailed review of historical data and published information. The RI will be conducted in accordance with the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation and applicable Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Superfund Amendments, Reauthorization Act (SARA) and United States Environmental Protection Agency (USEPA) guidance documents.

A Site Specific Health and Safety Plan (HASP) is presented as Appendix A, Roux Associates' Standard Operating Procedures (SOPs) are presented as Appendix B, the data validator's resume is presented as Appendix C, a Citizen Participation Plan (CPP) is presented as Appendix D, and a Community Air Monitoring Plan (CAMP) is presented as Appendix E. The procedures and methodologies presented in the HASP and Roux Associates' SOPs will be adhered to for the project.

2.0 SITE DESCRIPTION AND HISTORY

The Site is located at 5680 Merrick Road, Massapequa, New York, (Figure 1), which is located in the town of Oyster Bay, Nassau County. The Site is approximately 0.3 acres in size and includes one two-story building and an asphalt-paved parking area. Gent provides services that mainly focus on the supply and washing of uniforms and rugs. A majority of the building onsite is used for washing, drying, and storage of uniforms.

The Site is bordered on the north by Merrick Road, a heavily commercial corridor with residential properties adjacent to the commercial corridor extending beyond to both the north and south (Plate 1). Immediately to the east is Stone Road with a Volvo dealership located on the opposite corner. Immediately to the west is an empty building that was formerly occupied by Crown Tile and prior to that, formerly housed several steel distributors and processors. Additional commercial properties are located to the east and west along Merrick Road. To the south is an auto body shop with Major Road and residential properties beyond. This auto body shop was formerly a Safety-Kleen facility. Safety-Kleen is an environmental services company that collects, processes, recycles, and disposes of a wide range of hazardous and non-hazardous wastes, including solvents and waste oils.

2.1 Topography

The topography of the Site is relatively flat with an approximate elevation of 10 feet above mean sea level. Roof drains and surface water runoff are directed to storm drains located throughout the parking area. These storm drains drain directly to the subsurface.

In general, regional topography is also relatively flat with a gentle slope to the south and east. The nearest surface water bodies are the Narraskatuck Creek located approximately 0.2 miles east of the Site and Carman Creek located approximately 0.3 miles west of the Site.

2.2 Water Supply

Potable water in Massapequa is supplied by the New York Water Service. The groundwater aquifer beneath the Site is not used as a drinking water supply. The Site has one supply well that is used for process water at the facility. This supply well operates intermittently during

operational hours. All wastewater from washing operations is passed through an oil-water separator and then discharged to the municipal sewer system.

A private well survey performed as part of the OU-1 RI identified four private wells located downgradient of the Site. All four wells were identified as not in use; however, one owner indicated that she wanted to use the well for irrigation in the future.

2.3 Hydrogeologic Setting

The Site is underlain by unconsolidated glacial outwash deposits consisting mostly of sand and gravel. Based on historical soil borings advanced at the Site and published information, these outwash deposits are approximately 80-feet thick with a clay-confining unit at approximately 80 feet below land surface (Perlmutter, 1963). This clay unit represents the Gardiners Clay, a marine deposit that ranges across Long Island from zero to 90 feet in thickness. The sand and gravel deposits comprise the groundwater aquifer beneath the Site.

The water table underlying the Site occurs within the sand and gravel aquifer at approximately 10 feet below land surface as measured during January 2003. Groundwater flows to the southeast and southwest away from the building.

2.4 Site History

A two-story building was initially constructed on the Site in the early 1930s. This building was used as a residential home, produce stand, and delicatessen. In 1970, the property was purchased by Lafra Realty Corporation and Gent began uniform rental operations at the facility in 1972. In 1977, the building was expanded to the south to its current size. In 1978, the building was connected to the Nassau County Sewer District. This allowed Gent to add clothes washing and dry cleaning to the Site operations in 1979. The wastewater from the clothes washing system is still discharged to the community sewer system. The dry cleaning machine was removed from the Site in 1998. In December 1995, the Site was transferred from Lafra Realty Corporation and Gent Uniform Rental Corporation to 5680 Realty Corporation.

2.5 Previous Investigations – Site Environmental Conditions

A summary of previous environmental studies at the Site is presented below. A more complete description of previous environmental studies at the Site is presented in the July 2002 Remedial Investigation Work Plan for the Site (Handex, 2002).

In the mid-1980s, the water from a sink in the auto body shop located south of the Site was found to contain a high concentration of the solvent tetrachloroethene (PCE). Tetrachloroethene is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal degreasing. It is also used to make other chemicals and is used in some consumer products. Other names for tetrachloroethene (PCE) include tetrachloroethylene and perchloroethylene. Tetrachloroethene is a nonflammable liquid at room temperature, evaporates easily into the air, and has a sharp, sweet odor. The private supply well for the auto body shop was reportedly abandoned following the testing. Roux Associates was unable to locate any records maintained by the NYSDEC or the Nassau County Department of Health (NCDH) describing the exact location of this supply well; however, it was reportedly located on the adjacent Crown Tile property to the west (not the auto body or Gent Site).

An investigation into the reported PCE contamination was originally limited to the auto body shop property where PCE and other volatile organic compounds (VOCs) were found in the septic leaching pools, storm water drywells, soil on the property, and in groundwater. Following the initial investigation, the auto body shop dry wells and leaching pools were cleaned out and several underground storage tanks were removed from the property. A subsequent investigation included the Gent property.

Investigations on the Gent property were conducted in 1990 and 1992 by ERM-Northeast, in 1996 by Fluor Daniel GTI, and in 1996 by Dvirka and Bartilucci contracted by the NYSDEC (Handex, 2002). These investigations found that soil and groundwater on the Gent property were impacted by PCE from an abandoned grease trap located in the Gent Uniform building. Immediately following this discovery, Gent excavated the abandoned grease trap and discovered a corroded fitting. Three drums of impacted soil were removed from the subsurface and properly disposed of offsite. In 1997, an air sparge/soil vapor extraction system (AS/SVE) was installed to address residual PCE in soil and groundwater.

Periodic status reports were prepared by Fluor Daniel GTI and Handex to document the effectiveness of the AS/SVE system showing that there had been a substantial decrease in VOC concentrations reported in groundwater, the VOC removal rates had stabilized, and that air emissions were in compliance with NYS Regulations. A vertical delineation of groundwater on the southern portion of the Site in 2000 showed that some concentrations of VOCs were detected at depths up to 86.5 feet. The AS system was upgraded to sparge at approximately 70 feet below land surface in December 2000 (Handex, 2002).

In 2003, Roux Associates completed a Remedial Investigation at the Site. Included in that investigation were 24 groundwater samples collected from six offsite sampling locations -- five locations along Major Road and one on Stone Boulevard. The principal contaminants of concern at the Site, PCE, and its breakdown products, were essentially absent from the four eastern boreholes (TW-1 through TW-4) along Major Road. One sampling location, TW-5, was found to contain elevated concentrations of PCE and DCE, 1,600 ug/l and 510 ug/l, respectively, in the shallow sample collected at 14 to 16 feet below land surface. Concentrations of theses VOCs in the shallow sample collected from TW-5 were inconsistent with any of the detected concentrations found nearer to the source in recent years. Although there is an apparent flow path from the western side of the Site through TW-5, flow direction on the western side of the study area is imprecise due to the limited amount of data. The 2003 OU-1 Remedial Investigation concluded the potential existence of a PCE source to groundwater west of the Gent facility given both the inconsistency of the TW-5 data with the other four vertical profiles on Major Road and the groundwater contours.

A review of historical information by Gent discovered that two companies, County Line Steel and Piedmont Steel, operated the Crown Tile property located between the Site and TW-5 in the 1950s and 1960s. Both companies reportedly cleaned, sealed, and painted steel. It is very reasonable to assume that solvents were used by these companies to clean or machine metals based on the general operating practices in the metalworking industry.

3.0 SCOPE OF WORK

The general objectives of this RI are to 1) evaluate the potential for a contaminant source to groundwater located offsite, and 2) further define the nature and extent of groundwater and potential soil vapor contamination attributable to the Site that is found beyond the property borders. Specific objectives to address the overall project objectives as presented in Section 1.0 include:

Due to the limited analytical data available in the study area, the RI will be conducted in a phased approach. Data generated during the first phase (Phase I) will be evaluated by Gent and the NYSDEC to determine exact sampling locations for subsequent tasks (Phase II). The scope of work for the RI will be performed according to the methods discussed in this section. A summary of analytical methods and quality assurance sampling is presented in Table 1.

The scope of work includes the following tasks:

Phase I

- Task 1 – Soil Vapor Screening;
- Task 2 - Soil Boring and Sampling;
- Task 3 – Geoprobe Groundwater Sampling
- Task 4 – Private Well Sampling
- Task 5 – Data Evaluation and Reporting

Phase II

- Task 6 – Temporary Piezometer Installation and Water-Level Measurement;
- Task 7 – Geoprobe Groundwater Sampling
- Task 8 – Soil Gas and Ambient Air Sampling;

3.1 PHASE I

3.1.1 Task 1 – Soil Vapor Screening

Approximately 40 soil vapor screening locations will be advanced in a 15-foot by 15-foot grid pattern behind the former Crown Tile building to identify potential shallow VOC source areas. At each location, a one-inch diameter steel rod will be advanced approximately five feet below

land surface (bls) to create a void space. Polyethylene tubing will be inserted to just above the bottom of the void and the annular space around the rod will be sealed at the surface with hydrated bentonite, beeswax, or clay to minimize intrusion of ambient air. The sample apparatus will be purged of its dead volume (but no more than three times that) and then a PID will be used to monitor soil vapor continuously for one minute and a one-minute running average of VOC concentrations in the soil gas will be recorded. Results of the soil vapor screening task will be used to determine soil boring and groundwater sampling locations.

3.1.2 Task 2 - Soil Boring and Sampling

Four soil borings (SB-101 through SB-104) will be advanced behind the former Crown Tile building to determine if this area is a source of offsite groundwater contamination identified during the OU-1 RI. Exact soil sampling locations will be determined following a review of the results of the soil vapor screening task. At each soil boring location, soil samples will be collected using either hand tools (required near the surface to prevent damage to subsurface utilities) or a Geoprobe direct push sampler. Soil samples will be collected from land surface to the water table (approximately 10 feet bls). Soil will be separated into approximately two-foot sections and screened with a PID. Following the PID screening, a portion of soil from each two-foot section will be placed into pre-cleaned sample jars and placed on ice in a cooler at 4°C. All remaining soils will be visually characterized according to the Unified Soils Classification System (USCS) and placed into zip-lock plastic storage bags and homogenized. The bags will be allowed to stand for approximately 30 minutes and the bag headspace will then be monitored for organic vapors with a PID.

Soil samples from up to two intervals in each boring will be selected for laboratory analysis. One soil sample will be collected from the 0.5- to 2-foot interval bls. The second soil sample will be collected from the two-foot interval with the highest PID headspace reading. All soil samples will be analyzed for the Target Compound List (TCL) of VOCs.

Soil borings will be backfilled with bentonite chips. The ground surface will be restored with either gravel or asphalt to match pre-installation conditions. All soil cuttings generated during the soil sampling task will be containerized for offsite disposal.

3.1.3 Task 3 – Geoprobe Groundwater Sampling

Three temporary groundwater sampling locations (TW-101 through TW-103) will be advanced as part of the OU-2 RI:

- Two sampling locations will be advanced behind the former Crown Tile building (TW-101 and TW-102); and
- One sampling location (TW-103) will be advanced along Major Road at the OU-1 Remedial Investigation groundwater sampling location TW-5.

Groundwater sampling locations are shown on Figure 1. Exact groundwater sampling locations advanced behind the former Crown Tile property (TW-101 and TW-102) may be modified following a review of the results of the soil vapor screening task. At each location, a two-foot long Geoprobe mill slot screen will be advanced to a depth of approximately 14 to 16 feet below land surface, where a groundwater sample will be collected. This interval corresponds to the interval from which Roux Associates discovered elevated concentrations of VOCs in groundwater sample TW-5 as part of the OU-1 RI. The interval of groundwater sampling may be altered based on field conditions. This decision will be communicated to the NYSDEC.

At each groundwater sampling location, groundwater samples will be collected using low-flow (minimal drawdown) procedures consistent with United States Environmental Protection Agency (USEPA) document USEPA/540/S-95-504. Prior to sample collection, each point will be purged at low-flow evacuation rates of 0.1 to 0.5 liters per minute (L/min) using a bladder pump. An in-line water quality measurement device (Horiba U-22 or equivalent) will be used to monitor water quality indicator parameters such as pH, conductivity, dissolved oxygen (DO), oxygen reduction potential (ORP), temperature, and turbidity. Measurements will be taken every three minutes until, at a minimum, four of the six parameters have stabilized for three successive readings. Stabilization is achieved when the indicator parameter are within the following ranges:

- pH: +/- 0.1 standard units
- conductivity: +/- 3%
- ORP: +/- 10 mv
- Temperature, turbidity and DO: +/- 10%

Upon parameter stabilization, sampling will be initiated. Groundwater samples will be collected at the same flow rate as purging using the same device as was used for purging. All groundwater samples will be analyzed for TCL VOCs using USEPA Method 8260B.

3.1.4 Task 4 – Private Well Sampling

A private well survey performed as part of the OU-1 RI identified four private wells located downgradient of the Site. All four wells were identified as not in use; however, one owner indicated that she wanted to use the well for irrigation in the future.

As part of the OU-1 RI, Roux Associates submitted 241 Private Well Survey questionnaires in October 2003 to property owners in a notification area that was downgradient and cross-gradient of the Site. As summarized in Roux Associates' January 5, 2005 "Addendum to the Supplemental Remedial Investigation Report," four questionnaires responded that there was a private well located on the property (positive response). These properties included 50 Carman Boulevard, 387 Clocks Boulevard, 45 Stone Boulevard, and 556 Stone Boulevard.

As part of the OU-1 RI, Roux Associates contacted the four property owners who indicated a positive response on the Private Well Survey Questionnaires to confirm that private wells were in fact present on their property, whether or not the wells were being used, and the purpose of the wells if they were being used. All four property owners indicated that the private wells were not being used. One property owner indicated that they had plans to use the well in the future as part of an irrigation system.

During the OU-2 RI, an attempt will be made to locate all four private wells identified during the OU-1 RI. Any well that is located will be sampled using the groundwater sampling methods described in Section 3.1.3 Task 3 – Geoprobe Groundwater During the sampling of the private wells, any available information about the depth or screened intervals of the wells will be recorded.

3.1.5 Task 5 – Data Evaluation

Following completion of Phase I, the data collected will be evaluated by Gent and recommendations for the exact sampling locations of Phase II tasks will be made to the

NYSDEC for their review and approval. If a source of groundwater contamination is discovered on the former Crown Tile property, the ramifications of that source will also be evaluated by Gent and discussed with the NSYDEC.

3.2 PHASE II

3.2.1 Task 6 – Temporary Piezometer Installation and Water-Level Measurement

To evaluate groundwater flow direction, approximately 13 temporary piezometers (PZ-101 to PZ-113) will be installed downgradient of the Site. Proposed piezometer locations are shown in Figure 2. At each proposed piezometer location, a pilot borehole will be advanced from land surface to a minimum of two feet below the water table using a Geoprobe. A piezometer consisting of a one-inch diameter polyvinyl chloride (PVC) screen and riser will be installed in the borehole. The top of each temporary piezometer will be left flush with ground surface and surveyed to the nearest 0.01 foot relative to a Site datum. Following installation of all piezometers, a round of water levels measured to the nearest 0.01 foot with an electronic water level indicator will be collected from all piezometers.

3.2.2 Task 7 – Geoprobe Groundwater Sampling

Following a review of the groundwater flow direction developed in Task 6 - Temporary Piezometer Installation and Water-Level Measurement, Gent will make recommendations to the NYSDEC for their review on exact groundwater sampling locations. At each Geoprobe groundwater sampling location a two-foot long Geoprobe mill slot screen will be advanced to a depth of approximately 14 to 16 feet below land surface where a groundwater sample will be collected. The Geoprobe mill slot screen will then be advanced at 15-foot intervals (i.e., 29 to 31 feet, 44 to 46 feet, 59 to 61 feet, and 74 to 76 feet) to the top of a clay confining unit. A groundwater sample will be collected at each interval. These intervals correspond to the intervals from which Roux Associates collected groundwater samples as part of the OU-1 RI.

Groundwater samples will be collected and analyzed using the groundwater sampling methods described in Section 3.1.3 Task 3 – Geoprobe Groundwater Sampling.

3.2.3 Task 8 – Soil Vapor and Ambient Air Sampling

Data collected during Task 7 – Geoprobe Groundwater Sampling will be evaluated to determine the areal and vertical extent of groundwater contamination. Based on that data, Gent will make recommendations to the NYSDEC for their review on locations for soil vapor and ambient air sampling. Once the soil vapor sampling locations are selected, a sampling depth will also be determined based on the construction of nearby structures and depth to groundwater.

At each soil vapor sampling location, a Geoprobe® rod equipped with a Geoprobe soil vapor sampling connector and a disposable drive point will be advanced into the ground. Once at the desired depth, the Geoprobe rod will be retracted approximately one foot, creating a void space. One end of a polyethylene sampling tube will then be connected to an adapter inserted into the Geoprobe rods. The adapter will be threaded onto the post run tubing connector at the bottom of the rods, sealing off the ambient air with a silicon o-ring. The other end of the sampling tube will be run through an enclosure that covers the top of the sample probe and connected to a disposable three-way stop-cock. New sample tubing and stop-cocks will be used at each sample location. The enclosure will be flooded with an inert tracer gas (e.g., helium) as a quality assurance/quality control measure to verify that the soil gas samples are not compromised by inadvertent introduction of ambient air into the sample.

Tubing from one of the stop-cock ports will lead to a vacuum pump and tubing from the other stop-cock port will lead to a pre-evacuated six-liter Summa canister supplied by the laboratory. The stop-cock valve will isolate the pump and the Summa canister. Initially, the valve leading to the Summa canister will be closed and the valve leading to the vacuum pump will be open. The soil gas sampling location will be purged of one to three volumes of the sampling apparatus using the vacuum pump set at a rate equal to or less than 0.2 liters per minute. During purging, the purge gas will be analyzed for helium using a helium detector. If helium is detected, the surface seal will be adjusted and the purging continued until no helium is being detected. Care will be taken to avoid excessive purging prior to sample collection. Following purging, the valve leading to the pump will be closed, the pump will be turned off, and the valve leading to the Summa canister will be opened. The Summa canister will then be filled with soil gas at a rate not to exceed 0.2 liters per minute using a laboratory calibrated regulator. Once the Summa canister has been filled, the valve on the canister will be closed and the canister disconnected

from the sampling tubing. Soil gas samples will be analyzed for TCL VOCs using USEPA method TO-15.

3.3 Data Evaluation and Reporting

Analytical results of both phases will be evaluated immediately following their receipt from the lab. If a third phase of sampling is determined to be necessary, it will be proposed and discussed with the NYSDEC at a project review meeting prior to preparation of an RI report. This will expedite the completion of the investigation and consolidate project reporting into a single document.

Following completion of all sampling phases, a draft report will be prepared to summarize the results of the RI. This report will be presented to the NYSDEC for review and comment. The report will include the following:

- Discussion of investigation activities;
- Presentation of analytical results for all media sampled;
- Quality Assurance/Quality Control (QA/QC) evaluation of the analytical data, including data validation;
- Discussion of the nature and extent of any contaminants identified;
- Conclusions and recommendations; and
- Supporting data, including analytical data packages and soil boring logs.

3.3.1 Qualitative Exposure Assessment

A qualitative exposure assessment will be prepared in accordance with the New York State Department of Health Qualitative Human Health Exposure Assessment Guidelines and will attached to the report. The Qualitative Exposure Assessment will incorporate the following:

- Identification of areas of concern and compounds of concern;
- Evaluation of actual or potential exposure pathways;
- Characterization of the potentially exposed receptors (residents, workers, recreational users, etc.); and
- Identification of how any unacceptable exposure pathways might be eliminated/mitigated.

3.4 Feasibility Study

Gent understands that, if no additional sources of VOCs are discovered in the area and an offsite plume of constituents encountered on Gent's property is discovered in a downgradient flow path from the Site, additional phases of work may be required. It is also understood that an additional phase of work may be preparation of a feasibility study (FS). The scope of work for the FS will include the following:

- Establishment of Remedial Action Objectives (RAOs) and General Response Actions (GRAs);
- Identification and Screening of Technologies;
- Development and Screening of Alternatives; and
- Preparation of FS Report.

The preparation of the FS will be in accordance with the requirements of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation. The purposes of the FS will be to develop alternative remedies for the site; evaluate alternatives based on remedial action goals, objectives and criteria; and make a recommendation for an appropriate final remedy.

3.4.1 Establishment of Remedial Action Objectives and General Response Actions

As part of this task, data gathered during the RI, as well as other supporting background data, will be reviewed. Applicable, Relevant and Appropriate Requirements (ARARs) will be identified for the Site and RAOs and GRAs will be developed that focus on meeting the ARARs.

3.4.2 Identification and Screening of Technologies

After finalizing RAOs and GRAs, a range of potentially applicable treatment technologies and process options will be identified for each of the potentially affected environmental media. These technologies will subsequently be screened based on demonstrated effectiveness, site-specific or area-specific constraints, and considerations.

General categories of technologies and specific process options within each technology type will be identified during this task for each impacted medium. Entire technology types and/or specific process options may be eliminated from further consideration on the basis of their site-specific inapplicability or technical infeasibility. Following this initial screening, individual process

options will be further screened using three evaluation criteria: effectiveness, implementability, and cost. The objective of this screening is to select one process option, where possible, to represent each technology type. Surviving process options will then be assembled into remedial alternatives to be further screened.

3.4.3 Identification and Screening of Alternatives

A range of distinct remedial alternatives will be developed based on the results of initial technology screening, experience at similar sites, and our experience with NYSDEC requirements. The potential remedial alternatives will be screened to exclude feasible alternatives that are technically unreliable, infeasible, or too costly. The most promising alternatives will be carried forward for further evaluation in the FS Report. All of the development and analysis work performed as part of this task will be presented in the FS Report.

3.4.4 Preparation of the FS Report

Each of the surviving remedial alternatives, including a no-action alternative, will be evaluated and analyzed in detail to determine effectiveness, implementability, compliance with ARARs, and cost. Specific evaluation criteria will include:

- overall protection of human health and the environment;
- compliance with chemical-specific, action-specific and location-specific ARARs;
- long-term effectiveness and permanence;
- reduction of toxicity, mobility, or volume through treatment;
- short-term effectiveness;
- implementability including technical feasibility, administrative feasibility and availability of services and materials;
- costs including present value capital costs, annual operation and maintenance costs, and a sensitivity analysis of critical cost factors; and
- community acceptance.

During this task, a detailed analysis and comparison of each alternative will be completed using the first seven criteria. The analysis of each alternative will include a technical description of the alternative and a discussion profiling the performance of that alternative with respect to each of

the evaluation criteria. The relative performance of each alternative in meeting specific evaluation criteria will then be evaluated. A table summarizing the results of this comparative analysis will be prepared and a recommended alternative will be selected. The recommended alternative will subsequently be evaluated for the final criteria of community acceptance during the public comment period following the issuance of a Proposed Remedial Action Plan.

4.0 QUALITY ASSURANCE

Quality control procedures will include maintaining chain of custody and collecting duplicate samples, matrix spike and spike duplicate samples, trip blanks, and field blanks. A summary of analytical methods and quality assurance samples to be collected is presented in Table 1.

Roux Associates' SOPs for methods used to acquire and handle environmental samples and data, equipment calibration, and equipment decontamination procedures are included in Appendix B.

4.1 Laboratory Analyses

All samples selected for analysis will be transported to Severn Trent Laboratories (New York State Department of Health Certification Number 11728) of Shelton, Connecticut and analyzed as described above. A summary of analytical methods and quality assurance sampling is presented in Table 1. In addition, several soil and groundwater samples may be selected at Roux Associates' discretion and analyzed for biogeochemical parameters. Soil gas analytical results will be reported in micrograms per cubic meter (μg/m3) with detection limits of 3.0 μg/m3 or less. Following collection of soil and groundwater samples, the sample containers will be placed in a cooler at 4°C for transport to the laboratory.

4.2 Decontamination

All non-disposable field equipment used during groundwater sampling will be decontaminated between each sampling location to avoid cross contamination. All non-disposable sampling equipment (i.e., Geoprobe rods, trowel) will be decontaminated through the following steps:

- Fresh water rinse
- Scrubbing with non-phosphorus detergent wash; and
- Fresh water rinse.

Disposable, phthalate-free gloves will be worn during all sampling and decontamination activities. All waste water generated during decontamination will be containerized for disposal offsite.

4.3 Field Duplicates

Field duplicates will be collected at a rate of one per 20 soil or groundwater samples. Soil gas duplicates will not be collected.

4.4 Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicates (MSD) are analyzed by the laboratory to provide a quantitative measure of the laboratory's precision and accuracy. MS and MSD pairs will be collected at a rate of one per 20 soil or groundwater samples. Soil gas matrix spike and matrix spike duplicates will not be collected.

4.5 Field Blanks

New, clean, and dedicated sampling equipment will be used to collect all soil and groundwater samples. Field blanks will be collected at a rate of one per day each for soil and groundwater samples. Field blanks will be collected by pouring deionized, analyte-free water supplied by the laboratory over the sampling device (i.e., acetate sleeve or stainless steel bailer) and into a sampling container. Water used to fill a specific sampling container will be transferred from an identical sampling container. Field blanks will not be collected for soil gas samples.

4.6 Trip Blanks

Trip blanks will remain in the shipping cooler from when it leaves the laboratory until it returns to the laboratory. In addition, the trip blanks will accompany the sample containers at all times. One trip blank will be returned to the laboratory with any cooler containing aqueous samples for VOC analysis. A minimum of one trip blank for every 20 aqueous samples (including duplicates, MS, MSD, and field blanks) will be submitted to the laboratory.

4.7 Data Validation

The laboratory will provide a NYSDEC Analytical Services Protocol (ASP) Category B deliverable package and develop a case narrative describing how closely the data meet the quality objectives as described by the NYSDEC ASP. In addition, a Data Usability Summary Report (DUSR) will be prepared by Ms. Judy Harry from Data Validation Services of North Creek, New York, a third party data validation subcontractor. A copy of Ms. Harry's

resume is attached as Appendix C. The case narrative and the DUSR will be submitted to the NYSDEC as part of the RI Report.

4.8 Project Organization and Responsibility

The following section describes the proposed project organizational structure. A brief discussion of project personnel and general responsibilities are presented below.

Project Principal – Craig Werle, Principal Hydrogeologist

Mr. Werle will serve as the Project Principal. Although Mr. Werle will not be involved in the day-to-day conduct of the RI, he will be responsible for overall project direction and maintaining appropriate management controls at all responsibility levels.

Project Manager - Michael Roux, Senior Hydrogeologist

Mr. Roux will serve as the Project Manager. Mr. Roux will be in charge of the day-to-day conduct of the RI and will be responsible for successful completion of the project. Mr. Roux will also be the first point of contact at Roux Associates.

Field Manager - Staff Scientist

Roux Associates will assign a staff-level scientist to be in charge of implementation of field investigation tasks associated with the RI. These tasks will include responsibility for implementation of the Site-specific Health and Safety plan.

5.0 PROJECT SCHEDULE

Gent will initiate the RI within eight weeks of NYSDEC's final approval of the Work Plan. A table summarizing the anticipated schedule is attached as Table 2. All sampling points are located offsite. The schedule for collection of samples is contingent upon obtaining access agreements from public entities and private property owners. The NYSDEC will be notified at least five days prior to the start of field investigation activities. Approximately two weeks will be required for completion of all Phase I field-related tasks.

Roux Associates anticipates that the analytical results will begin to be received and evaluated within four weeks of initiating the investigation. Recommendations for the Phase II scope of work will be made following receipt and review of all Phase I analytical data.

Following completion of all investigation activities, a draft report will be submitted to the NYSDEC for review eight weeks following receipt of all analytical data.

6.0 REFERENCES

Handex of New York, 2002. Remedial Investigation Work Plan, Gent Uniform Rental Service, 5680 Merrick Road, Massapequa, New York, July 12, 2002.

New York State Department of Environmental Conservation, 2001. Order on Consent (W1-0886-01-05) between the New York State Department of Environmental Conservation and Gent Uniform Rental Corporation and Lafra Realty Corporation, executed December 31, 2001.

Perlmutter, N.M. and Geraghty, J.J, 1963. Geology and Ground-Water Conditions in Southern Nassau and Southeastern Queens Counties Long Island, New York, 1963.

Roux Associates, Inc. 2004. Revised Remedial Investigation Report, April 2, 2004.

Roux Associates, Inc. 2005. Remedial Design/Remedial Action Work Plan, Gent Uniform Rental, Operable Unit 1, July 20, 2005.

Table 1. Summary of Analytical Methods and Quality Assurance Sampling
Gent Uniform Rental, OU-2, Massapequa, New York

Sample Type	Sample Matrix	Approximate Sample Frequency	Analytical Parameters / Methods	Sample Container / Preservation	Maximum Holding Time*
Normal (grab)	Soil	8 (Phase I)	TCL VOCs / USEPA 8260B	(1) 2-oz septum glass jar / ice	14 days
Normal	Groundwater	7 (Phase I)	TCL VOCs / USEPA 8260B	(3) 40 mL. glass vials / HCl and ice	14 days
Normal (Grab)	Soil Gas / Air	unknown	TCL VOCs / USEPA TO-15	(1)-6 L SUMMA canister	7 days
QA/QC	Trip Blank	1 per delivery group minimum 1 per 20 samples (groundwater only)	TCL VOCs / USEPA 8260B	(3)-40 mL. glass vials / HCl and ice	14 days
QA/QC	Field Duplicate	1 per 20 normal samples (soil and ground water)	Same Analytes as Above	Same Containers / Preservation as Above	Same as Above
QA/QC	Matrix Spike and Duplicate Pair	1 per 20 grab samples (soil and ground water)	Same Analytes as Above	Same Containers / Preservation as Above	Same as Above
QA/QC	Field Blank	1 per day for parameters collected that day (soil and ground water)	Same Analytes as Above	Same Containers / Preservation as Above	Same as Above

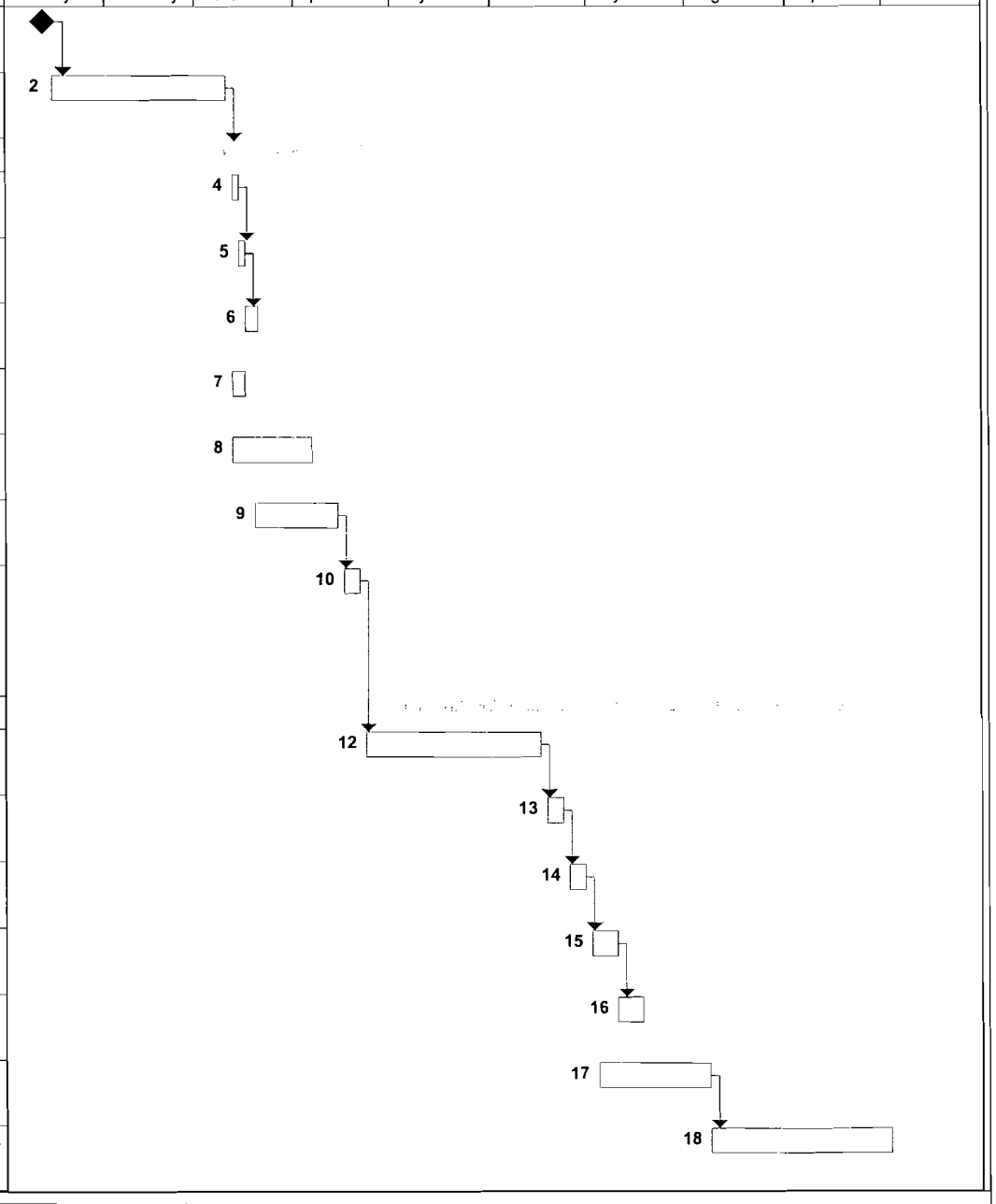
NOTES:

* - Maximum holding times are calculated from verified time of receipt at the laboratory. Samples must be received by the laboratory within 48 hours of sampling.

HCl - Hydrochloric acid
L - Liter
mL - Milliliter
oz - Ounce
QA/QC - Quality assurance/quality control
TCL - Target Compound List
USEPA - United States Environmental Protection Agency
VOCs - Volatile organic compounds

Table 2. Anticipated Scheudle, Gent Uniform Rental, Remedial Investigation for OU-2

ID	Task Name	Start
1	NYSDEC Approves Work Plan	Fri 1/13/06
2	Coordination of Offsite Access	Mon 1/16/06
3	**PHASE I**	
4	Task 1 – Soil Vapor Screening	Mon 3/13/06
5	Task 2 – Soil Boring and Sampling	Wed 3/15/06
6	Task 3 – Geoprobe Groundwater Sampling	Fri 3/17/06
7	Task 4 – Private Well Sampling	Mon 3/13/06
8	Laboratory Analysis of Samples	Mon 3/13/06
9	Task 5 – Data Evaluation	Mon 3/20/06
10	Determination by Gent, the NYSDEC, the NY	Mon 4/17/06
11	**Phase II**	
12	Coordination of Offsite Access	Mon 4/24/06
13	Task 6 – Temporary Piezometer Installation a	Mon 6/19/06
14	Sampling location selection with NYSDEC	Mon 6/26/06
15	Task 7 – Geoprobe Groundwater Sampling	Mon 7/3/06
16	Task 8 – Soil Vapor and Ambient Air Sampli	Tue 7/11/06
17	Laboratory Analysis of Samples	Wed 7/5/06
18	Data Evaluation and Reporting	Wed 8/9/06



Task Summary Milestone

QUADRANGLE LOCATION

SOURCE:
USGS; 1979. Amityville, NY
7.5 Minute Topographic Quadrangle

N

0 2000'

Title:

SITE LOCATION MAP

5680 MERRICK ROAD
MASSAPEQUA, NEW YORK

Prepared for:
GENT UNIFORM RENTAL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: M.R.	Date: 29AUG05	FIGURE
Prepared by: R.K.	Scale: 1:25000	1
Project Mgr.: M.R.	Office: NY	
File No.: GEN102013102.CDR	Project No.: 102001Y	

LEGEND

PZ-101 PROPOSED LOCATION AND DESIGNATION OF PIEZOMETER

TW-103 PROPOSED LOCATION AND DESIGNATION OF GEOPROBE GROUNDWATER SAMPLE

AREA OF PROPOSED SOIL VAPOR SCREENING

120' 0 120'

Title:

PROPOSED SAMPLING LOCATIONS

OU-2 RI WORK PLAN

Prepared For:

GENT UNIFORM RENTAL

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: M.R.	Date: 26AUG05	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	2
Project Mgr: M.R.	Office: NY	
File No: GEN0113101	Project: 102001Y	

\GEN1020Y\GEN01Y\131\GEN0113101.DWG

APPENDIX A

Site-Specific Health and Safety Plan

August 29, 2005

SITE-SPECIFIC HEALTH AND SAFETY PLAN

Gent Uniform Rental
Massapequa, New York
NYSDEC VCP#V00376-1

Prepared for

GENT UNIFORM RENTAL
5680 Merrick Road
Massapequa, New York 11758

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

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

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APPENDICES

1.0 INTRODUCTION

On behalf of Gent Uniform Rental Service (Gent), Roux Associates, Inc. (Roux Associates) has prepared this site-specific Health and Safety Plan (HASP) in accordance with the Occupational Safety and Health Administration's (OSHA's) Hazardous Waste Operation and Emergency Response Standard (29 CFR 1910.120 and 1926.65) and other OSHA requirements for job safety and health protection, and our Standard Operating Procedures (SOPs). In addition, various guidance documents were also consulted in preparing this HASP including the National Institute for Occupational Safety and Health's (NIOSH's) Occupation Safety, Health Guidance Manual for Hazardous Waste Site Activities, and the OSHA Job Safety and Health Protection Poster (Appendix A). This HASP addresses the work associated with soil and groundwater sampling at the Gent facility located at 5680 Merrick Road in Massapequa, New York (Site) and will be implemented by the designated Site Health and Safety Officer (SHSO) during Site work. 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 for Roux Associates personnel who enter this Site. Assistance in implementing this HASP can be obtained from the Roux Associates Office Health and Safety Manager (OHSM). The content of this HASP may undergo revision based upon additional information made available. Any changes proposed must be reviewed and approved by the Roux Associates OHSM or his designee and documented on the Field Change Request form included as Appendix B. Key Roux Associates personnel involved with this project include the following.

Responsibility	Name	Telephone Number
Project Principal	Craig Werle, P.G.	(631) 232-2600
Project Manager	Michael Roux	(631) 232-2600 (631) 774-7289 (cellular)
Office Health and Safety Manager	Indira Rattiram	(631) 232-2600
Site Health and Safety Officer	Kathryn Huhn	(631) 232-2600 (631) 445-0585 (cellular)

1.1 Scope of Work

The scope of work will include the following tasks:

- Soil vapor sampling;
- Geoprobe soil borings;
- Soil sampling; and
- Groundwater sampling.

1.2 Emergency Contacts

Type	Name	Telephone Numbers
Police	Nassau County Police Seventh Precinct	911
Fire Department	Massapequa Fire Department	911
Hospital (see Figure 1)	Brunswick Hospital Center Emergency Room	(631) 789-7000
Poison Control Center	Poison Control Center	(800) 876-4766
Emergency Response	Police Dispatch	911
Ambulance	Police Dispatch	911
Police Non-Emergency	Nassau County Police Seventh Precinct	(516) 573-6700
Fire Department Non-Emergency	Massapequa Fire Department	(516) 798-9849

Environmental Emergency (e.g., release or spill)

Contact	Name	Telephone Numbers
Project Principal	Craig Werle, P.G.	(631) 232-2600
Project Manager	Michael Roux	(631) 232-2600 (631) 774-7289 (cellular)
Office Health and Safety Manager	Indira Rattiram	(631) 232-2600

Contact	Name	Telephone Numbers
Site Health and Safety Officer	Kathryn Huhn	(631) 232-2600 (631) 445-0585 (cellular)
National Response Center		(800) 424-8802

Note: Roux Associates personnel will be equipped with a cellular telephone.

(Additional emergency information is provided in Section 13.0).

2.0 HEALTH AND SAFETY PERSONNEL RESPONSIBILITIES

2.1 Office Health and Safety Manager

The Office Health and Safety Manager (OHSM) serves in assuring that the policies and procedures of the HASP are implemented by the SHSO. The OHSM provides guidance regarding the appropriate monitoring and safety equipment and other resources necessary in implementing the HASP.

2.2 Site Health and Safety Officer

The Site Health and Safety Officer (SHSO) will be onsite during oversight activities and intrusive field operations. The SHSO is responsible for health and safety activities and has the authority to make related decisions. The determination of hazard levels will be made by the SHSO. The SHSO has stop-work authorization, which he or she will execute upon determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation, such as detrimental weather conditions. Authorization to proceed with work will be issued by the OHSM in consultation with the Project Principal (PP) or his/her designee, e.g., Project Manager (PM). The SHSO or PP will contact emergency facilities and personnel when appropriate. Alternate SHSOs may be designated by the SHSO, if required, but must be pre-qualified and approved by the OHSM.

2.3 Project Principal

The Project Principal is responsible for defining the overall project objectives (field and office related activities) determining chain-of-command, evaluating program outcome and serves as final technical review of deliverables. For Roux Associates, the Project Principal is ultimately responsible for overall Site activities including health and safety issues. The day-to-day management of health and safety issues is the responsibility of the Project Manager. The SHSO, OHSM, Project Manager, and Project Principal shall consult and make an agreeable determination should Site information or unforeseen circumstances indicate a change in field procedures may be warranted. Changes to the HASP must be made by formal addendum and be approved by the Project Principal, Project Manager, OHSM and SHSO.

2.4 Project Manager

The Project Manager is responsible for day-to-day activities associated with his/her project including health and safety. Because there may be more than one Project Manager for a site (for example, a Remedial Project Manager and a Site Investigation Project Manager), each Project Manager must ensure that the HASP addresses the hazards associated with each phase of the project and is appropriate for the current specified scope of work. The PM ensures that all Roux Associates personnel designated to work onsite are qualified according to applicable Environmental Protection Agency (EPA), OSHA and New York State requirements. The PM is responsible for ensuring that a duplicate office copy of this HASP is placed in the central project files. The PM is also responsible for ensuring that all required signatures are in place prior to implementing fieldwork.

2.5 Field Crew Personnel

All field crew personnel are responsible for reporting unsafe or hazardous conditions to SHSO. All field personnel (including the above listed personnel) are responsible for understanding and complying with this HASP.

3.0 SITE HISTORY AND PHYSICAL DESCRIPTION

The Site is located at 5680 Merrick Road, Massapequa, New York, (Figure 1), which is located in Town of Oyster Bay, Nassau County. The Site is approximately 0.3 acre in size and includes one two-story building and an asphalt-paved parking area. Gent provides services that mainly focus on the supply and washing of uniforms and rugs. A majority of the building onsite is used for washing, drying, and storage of uniforms.

The Site is bordered on the north by Merrick Road, a heavily commercial corridor with residential properties adjacent to the commercial corridor extending beyond to both the north and south (Plate 1). Immediately to the east is Stone Road with a Volvo dealership located on the opposite corner. Immediately to the west is an empty building that was formerly occupied by Crown Tile and prior to that, formerly housed several steel distributors and processors. Additional commercial properties are located to the east and west along Merrick Road. To the south is an auto body shop with Major Road and residential properties beyond. This auto body shop was formerly a Safety-Kleen facility. Safety-Kleen is an environmental services company that collects, processes, recycles, and disposes of a wide range of hazardous and non-hazardous wastes, including solvents and waste oils.

A summary of previous environmental studies at the Site is presented below. A more complete description of previous environmental studies at the Site is presented in the OU-2 Work Plan.

In the mid-1980s, the water from a sink in the auto body shop located south of the Site was found to contain a high concentration of the solvent, tetrachloroethene (PCE). Tetrachloroethene is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal degreasing. It is also used to make other chemicals and is used in some consumer products. Other names for tetrachloroethene (PCE) include tetrachloroethylene, and perchloroethylene. Tetrachloroethene is a nonflammable liquid at room temperature, evaporates easily into the air, and has a sharp, sweet odor. An investigation into the reported PCE contamination was originally limited to the auto body shop property where PCE and other volatile organic compounds (VOCs) were found in the septic leaching pools, storm water drywells, soil on the property, and in groundwater. Following the initial investigation, the auto body shop dry wells and leaching pools were cleaned

out and several underground storage tanks were removed from the property. A subsequent investigation included the Gent property.

Investigations on the Gent property were conducted in 1990 and 1992 by ERM-Northeast, in 1996 by Fluor Daniel GTI, and in 1996 by Dvirka and Bartilucci (contracted by the NYSDEC). These investigations found that soil and groundwater on the Gent property were impacted by PCE from an abandoned grease trap located in the Gent Uniform building. Immediately following this discovery, Gent excavated the abandoned grease trap and discovered a corroded fitting. Three drums of impacted soil were removed from the subsurface and properly disposed of offsite. In 1997, an air sparge/soil vapor extraction system (AS/SVE) was installed to address residual PCE in soil and groundwater.

Periodic status reports were prepared by Fluor Daniel GTI and Handex to document the effectiveness of the AS/SVE system showing that there had been a substantial decrease in VOC concentrations reported in groundwater, the VOC removal rates had stabilized, and that air emissions were in compliance with NYS Regulations. A vertical delineation of groundwater on the southern portion of the Site in 2000 showed that some concentrations VOCs were detected at depths up to 86.5 feet. The AS system was upgraded to sparge at approximately 70 feet below land surface in December 2000.

In 2003, Roux Associates completed a Remedial Investigation at the Site. Included in that investigation were 24 groundwater samples collected from six offsite sampling locations -- five locations along Major Road and one on Stone Boulevard. The principal contaminants of concern at the Site, PCE and its breakdown products, were essentially absent from the four eastern boreholes (TW-1 through TW-4) along Major Road. One sampling location, TW-5, was found to contain elevated concentrations of PCE and DCE, 1,600 ug/l and 510 ug/l, respectively in the shallow sample collected at 14 to 16 feet below land surface. Concentrations of theses VOCs in the shallow sample collected from TW-5 were inconsistent with any of the detected concentrations found nearer the source in recent years. Although there is an apparent flow path from the western side of the Site through TW-5, flow direction on the western side of the study area is imprecise due to the limited amount of data.

4.0 SITE-RELATED INCIDENTS, COMPLAINTS AND ACTIONS

Based on available information, there have been no incidents or complaints concerning this facility.

5.0 WASTE DESCRIPTION AND CHARACTERIZATION

Wastes may be encountered or generated during Site activities. Based on Roux Associates Scope of Work, these wastes are anticipated to be characterized as follows:

- Waste Types

Liquid	☒	Solid	☒	Gas	☐
Sludge	☐	Semi-Solid	☐	Other (describe)	

- Waste Characteristics

Corrosive	☐	Toxic	☒	Flammable	☐
Volatile	☒	Carcinogen	☒	Radioactive	☐
Reactive	☐	Other (describe) _____			

For purposes of this HASP, toxic chemicals are those materials as defined by OSHA in Appendix A of 29 CFR 1910.1200. In general, toxicity is defined by OSHA on the basis of median lethal dose (LD50) or median lethal concentration (LC50) based upon the effects of the chemical in laboratory studies. A chemical is considered a carcinogen, as defined by Appendix A of OSHA in 29 CFR 1910.1200, if "(a) It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or (b) It is listed as a carcinogen or a potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or (c) It is regulated by OSHA as a carcinogen."

- Waste Containment

Pond	☐	Process Vessel	☐	Tank	☐
Lagoon	☐	Piping	☐	Lab	☐
Lake	☐	Drum	☒	Other	☐
Tank Car	☐	Soil Stockpile	☐	Describe: _____	

6.0 HAZARD ASSESSMENT

Chemical Hazards

The toxicological, physical, and chemical properties of compounds of concern with respect to the New York State Ambient Water Quality Standards are presented in Table 1. The compounds listed in Table 1 may pose a potential exposure hazard through ingestion, inhalation, injection or skin absorption, or a combination of these routes. These exposures will be minimized through the use of personal protective equipment (PPE), designated action levels based upon onsite air monitoring, and the assignment of experienced field personnel.

Chemical inhalation hazards will be monitored with the following instrument:

- photoionization detector (PID)

Action levels for level of protection upgrades are discussed in Section 8.2.1.

Ambient Air Hazards

Potential exposure to organic vapors. All personnel will remain up-wind as the task allows.

Heat/Cold Stress and Sun Exposure

Heat and cold stress are potential hazards associated with seasonal temperatures in New York. Heat stress and cold stress symptoms, prevention, and treatment are described in Appendix C. Protection against sun exposure by wearing a sunscreen, hat, and long-sleeved shirts must be implemented when warranted.

Noise

Noise, associated with close proximity to operating heavy equipment (Geoprobe), power tools, pumps, and generators. Personnel with 8-hour time weighted average (TWA) exposures exceeding 85dBA must be included in a hearing conservation program in accordance with 29 CFR 1910.95. High noise operations will be evaluated by the SHSO. Noise exposure will be controlled through the use of hearing protection such as ear plugs or ear muffs or by maintaining set-backs from high noise equipment as warranted.

General Safety Hazards

- Heavy equipment and motor vehicle traffic. Workers shall wear fluorescent vests furnished with reflective strips at all times while working near motor vehicle traffic.
- Slip, trip, fall hazards associated with uneven terrain, obstacles and slippery or icy surfaces. General housekeeping will be performed to reduce slip, trip and fall hazards.
- Pinch points.
- Flying objects (i.e., rocks, debris) and airborne particulate hazards. Wear safety glasses, goggles, or face shields when appropriate.

Electrical Hazards

- Portable pumps, generators, and other power tools require proper grounding and/or a ground fault circuit interrupter (GFCI) before operation. Personnel should never attempt to move an operating pump or generator.
- Overhead and underground utility line.

Biological Hazards

Biological hazards include the possibility of snake bites, potentially rabid stray or wild animal bites, ticks or other insect bites and bee and wasp stings. Ticks may carry lyme disease and/or rocky mountain spotted fever. Personnel shall examine themselves for ticks. Insecticides containing DEET may be an effective tick repellent. Personnel allergic to bee and/or wasp stings shall notify the SHSO of their condition and have medicine or antidotes to treat allergic reactions as prescribed by their personal physician available.

Other biological hazards include poison ivy, poison oak and poison sumac. If exposed to these plants, wash skin thoroughly with soap and water.

7.0 TRAINING REQUIREMENTS

7.1 Basic Training

Site personnel who will perform work in areas where there exists the potential for toxic exposure will be health and safety trained prior to performing work onsite per OSHA 29 CFR 1910.120(e). Training records will be maintained by the onsite SHSO and as described in Section 7.2.

7.2 Site-Specific Training

Training will be provided by the SHSO and Field Team Leader (FTL) that will specifically address the activities, procedures, monitoring, and equipment for the Site operations to Site personnel and visitors. The training will include Site and facility layout, hazards, emergency services at the Site, and will detail 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. Site-specific training will be documented as part of the project records. There are no facility Health and Safety requirements currently in place. However, any facility Health and Safety requirements implemented in the future will be followed.

7.3 Safety Briefings

Project personnel will be given briefings by the FTL or SHSO on an as-needed basis to further assist them in conducting their activities safely. Safety briefings will be provided when new operations are to be conducted, changes in work practices must be implemented due to new information made available, and before work is begun at each project site. Records of safety briefings will be part of the project records.

7.4 Record Keeping Requirements

Record keeping requirements mandated by OSHA 29 CFR 1910.120 will be strictly followed. Specifically, all personnel training records, incident reports (Appendix D), and medical examination records will be maintained by Roux Associates for a period of at least 30 years after the employment termination date of each employee. The SHSO will maintain a daily written log of health and safety monitoring activities and monitoring results will become part of the project records.

8.0 ZONES, PROTECTION AND COMMUNICATIONS

8.1 Site Zones

The Scope of Work will be performed in level "D" Personal Protective Equipment, upgrading to Level C protection is not anticipated on this project. However, should the level of protection worn by field personnel be upgraded to level C, Roux Associates will employ a three-zone approach to Site operations to control the potential spread of contamination. Level D operation will not generally require segregated zones. The three zones to be employed when Level C is in use include:

- The Exclusion Zone;
- The Contamination Reduction Zone; and
- The Support Zone.

8.1.1 Exclusion Zone

The area(s) which contain or are suspected to contain hazardous materials will be considered the Exclusion Zone. This zone will be clearly delineated by a "Hotline." The "Hotline" is a length of colored flag tape completely surrounding the Exclusion Zone. The SHSO may establish more than one restricted area within the Exclusion Zone when different levels of protection may be used or various hazards exist. Personnel are not allowed in the Exclusion Zone without the following:

- a buddy;
- appropriate personal protective equipment;
- medical authorization; and
- training certification.

For purposes of this project, if Level C protection is required on this project, the Exclusion Zone's Hotline will include, at a minimum, a 30-foot radius around all areas that contain or are suspected to contain hazardous materials. This area will be determined by the SHSO.

8.1.2 Contamination Reduction Zone

The Contamination Reduction Zone (CRZ) is established between the Exclusion Zone and the Support Zone. The CRZ will contain the Contamination Reduction Corridor (CRC) and will provide for full personnel and portable equipment decontamination. The CRZ is used for general Site entry and egress in addition to access for heavy equipment for investigation activities. The CRZ will also contain safety and emergency equipment (see Section 8.2.3). No personnel are allowed in the Contamination Reduction Zone without:

- a buddy;
- the proper personal protective equipment;
- medical authorization; and
- training certification.

For purposes of this project, if Level C protection is required on this project, the CRZ will include a 20 foot radius area outside of the Exclusion Zone.

8.1.3 Support Zone

The Support Zone is considered the uncontaminated area and will be separated from the CRZ by the "Contamination Control Line." The "Contamination Control Line" will be a different colored flag tape than the "Hotline." The Support Zone will contain the support facility which will provide for team communications and emergency response. At least one person will remain in the Support Zone at all times during operations downrange to facilitate communications and emergency response. Appropriate sanitary facilities and safety and support equipment will be located in this zone. The majority of Site operations will be controlled from this location as well as Site access of authorized persons. The support facility will be located upwind of Site operations, if possible and may be used as a potential evacuation point. No potentially contaminated personnel or materials are allowed in this zone except appropriately packaged/ decontaminated and labeled samples and drummed wastes.

For purposes of this project, the Support Zone will include all areas outside of the CRZ.

8.2 Personal Protection

This section describes personal protective equipment (PPE) and safety equipment to be used onsite.

8.2.1 General

Appropriate PPE shall be worn by Site personnel when there is a potential exposure to chemical hazards or physical hazards (e.g., falling objects, flying particles, sharp edges, electricity, noise) and as otherwise directed by the SHSO. The level of personal protection, type and kind of equipment selected depends on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors must be made before work can be safely carried out.

Roux Associates maintains a comprehensive written PPE program that addresses proper PPE selection, use, maintenance, storage, fit and inspection. PPE to be used at the Site will meet the appropriate American National Standards Institute (ANSI) standards and the following OSHA (General Industry) standards for PPE.

- head protection – 29 CFR 1910.135;
- eye and face protection – 29 CFR 1910.133;
- respiratory protection – 29 CFR 1910.134;
- hand protection – 29 CFR 1910.138;
- foot protection – 29 CFR 1910.136; and
- protective clothing – 1910.132, 1910.120.

The level of protection to be worn by field personnel will be defined and controlled by the SHSO in conjunction with the Project Principal or his/her designee. Where more than one hazard area is indicated, further definition will be provided by review of Site hazards, conditions, and operational requirements and by monitoring at the particular operation being conducted. Any

upgrades or downgrades must be immediately communicated to the Project Principal or his/her designee. The anticipated PPE level of protection for Site tasks are listed below.

Task	Level of Protection
Collection of Soil Vapor Samples	Level D
Geoprobe Soil Boring	Level D
Collection of Soil Samples	Level D
Collection of Groundwater Samples	Level D

Respiratory protection may be upgraded or downgraded by the SHSO in conjunction with the Project Principal on the basis of action levels presented below:

Action Levels for Respiratory Protection (Total Organic Vapors)

Total Organic Vapors in Breathing Zone (ppm)[1]	Action
≤5	No Action
>5 - <25	Level C or Cease Work until Level Drops
≥25	Cease Field Operations

[1] Based on relative response (sensitivity of PID to total organic vapors).

If the PID measurements are above five ppm but below 25 ppm and above background for five minutes in the breathing zone, employee protection will be upgraded to Level C with the use of a full-face respirator or work will cease until the relative measurements of VOCs are below 5 ppm.

If PID measurements exceed 25 ppm above background for five minutes in the breathing zone, work activities will cease until airborne vapor levels can be reduced to less than 25 ppm and are quantified or the SHSO determines alternate methods to be followed in order to proceed.

8.2.2 PPE Level Descriptions

The type of respiratory protection and clothing to be worn in each level of protection indicated above includes the following:

- Level D
  - Full-length pants and short-sleeved shirt at a minimum. Long-sleeved shirt or coveralls as required.
  - Boots/shoes - chemical resistant with steel toes and shanks
  - Safety glasses
  - Hard hat (as required)
  - Chemical-resistant or cut-resistant gloves – depending on task
  - Hearing protection (as required)
  - Fluorescent Traffic Safety Vest w/ Reflective Strips (as required)

- Level C
  - Full-face, air-purifying, HEPA cartridge-equipped respirator (MSHA/NIOSH specifically approved for protection from organic vapors and particulates per OSHA 1910.1028)
  - Chemical-resistant clothing (coverall; hooded, two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls)
  - Gloves (outer), chemical-resistant - latex
  - Gloves (inner), chemical-resistant - nitrile
  - Boots (inner), chemical-resistant, steel toe and shank
  - Boots (outer), chemical-resistant (disposable)
  - Hard hat
  - Hearing protection (as required)

8.2.3 Safety Equipment

Basic emergency and first-aid equipment will be available at the work site, as appropriate. This may include HASP-specified communications, first-aid kit, emergency eyewash or emergency shower or drench system, fire extinguisher, and other safety-related equipment. Other safety

equipment will be located at the area of specific operations, e.g., drilling and sampling, as appropriate. Traffic cones or barricades, and traffic vests will be used when work is required in high traffic areas.

8.3 Communications

Telephones – for communication with emergency support services/facilities. Roux Associates personnel will be equipped with a cellular telephone.

9.0 MONITORING PROCEDURES FOR SITE OPERATIONS

9.1 Monitoring During Site Operations

Air monitoring may be performed to verify that the proper level of equipment is used and to determine if increased protection or work stoppage is required. The following equipment may be used by Roux Associates onsite to monitor conditions:

- photoionization detector (PID)

Section 8.2.1 lists the acceptable ranges for each piece of monitoring equipment above and the action levels for changes in respiratory protection. Monitoring equipment will be calibrated in accordance with the owner's manual.

9.2 Personnel Monitoring Procedures

Personal breathing zone samples, 8-hour, time-weighted average (TWA) sampling, may be conducted if sustained operations in Level C are required. The personal breathing zone samples will be collected according to NIOSH analytical methods and analyzed by an AIHA-certified laboratory.

9.3 Medical Surveillance Requirements

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

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

The examination will be annual, at a minimum, and upon termination of employment with the company. Additional medical testing may be required by the OHSM in consultation with the company physician and the SHSO if an overt exposure or accident occurs, or if other Site conditions warrant further medical surveillance.

10.0 SAFETY CONSIDERATIONS FOR SITE OPERATIONS

Field activities will be performed under the level of personal protection described in Section 8.0. In this section, non-monitoring safety-related procedures are described.

10.1 Site Walk-Throughs

As a full investigation of the Site has already been performed, Site walks will not encounter unknown situations. However, site walks still present the potential for dangerous situations based on the hazard assessment presented in Section 6.0. The SHSO must inform all personnel performing a Site walk of the hazards associated with the Site, describe the Site layout, and identify areas of particular hazard, if any.

10.2 Heavy Equipment and Geoprobe® Safety

The SHSO will be present onsite during invasive operations such as excavation and Geoprobe® soil sampling, and will provide health and safety monitoring to ensure that appropriate levels of protection and safety procedures are followed by Roux Associates personnel. The proximity of chemical, water, sewer and electrical lines will be identified by a utility mark-out service before any subsurface activity or sampling is attempted. The SHSO and Project Manager shall confirm that the utility mark-out service has been notified at least 72 hours prior to earth disturbing activities.

The mechanical equipment used on any major construction site may also be used on a hazardous waste site. Typical machinery to be found includes pumps, compressors, generators, portable lighting systems, pneumatic tools (drum openers), hydraulic drum crushers, fork lifts, trucks, dozers, backhoes, drill rigs, and Geoprobe® percussion probes. The equipment poses a serious hazard if not operated properly or if personnel near machinery cannot be seen by operators.

Geoprobe™ crews are confronted with all of these heavy equipment hazards. They must be responsible for good housekeeping around the machine because of the tools used for the operation. Maintenance is a constant requirement. Overhead and buried utilities require special precautions because of electrical and natural gas hazards. Electrical storms may seek out a standing probe. Hearing loss, while not an immediate danger, is considerable over time. Use hearing protection.

Proper containment and disposal practices will be followed in regard to the potential amount of waste generated during operations. The location of safety equipment and evacuation procedures will be established prior to initiation of operations according to this HASP. The use of hard hats, eye protection, ear protection, and steel-toed boots will be required during heavy equipment operations. Contaminated equipment will be placed on liner material when not in use, or when awaiting and during decontamination. Communications with the Support Zone will be regularly maintained.

10.3 Soil Sampling

Personnel must wear prescribed clothing, especially eye protection and chemical resistant gloves when sampling soils. Sample containers may be bagged prior to sampling to ease decontamination procedures. The sampling team must be aware of emergency evacuation procedures described in this HASP and the location of emergency equipment, including spill containment materials, prior to sampling. Contamination avoidance will be practiced at all times. In some situations, additional monitoring by the SHSO may be needed to confirm or establish the proper level of protection before the sampling team can proceed.

10.4 Groundwater Sampling

Personnel must wear prescribed clothing, especially eye protection and chemical resistant gloves when purging, sampling, or filtering groundwater samples. Sample bottles may be bagged prior to sampling to ease decontamination procedures. The sampling team must be aware of emergency evacuation procedures described in this HASP and the location of emergency equipment, including spill containment materials, prior to sampling. Contamination avoidance will be practiced at all times. In some situations, additional monitoring by the SHSO may be needed to confirm or establish the proper level of protection before the sampling team can proceed.

10.5 Sample Handling

Personnel responsible for the handling of samples will wear the level of protection described in Section 8.2. Samples will be identified as to their hazard and packaged to prevent spillage or breakage. Any unusual sample conditions will be noted. Lab personnel will be advised of sample hazard level and the potential contaminants present. This can be accomplished by a

phone call to the lab coordinator and/or inclusion of a written statement with the samples. It may be necessary for the SHSO to review safety procedures in handling Site samples to assist or assure that these practices are appropriate for the type of suspected contaminants in the sample.

10.6 Waste Disposal

Waste disposal operations will be monitored by the SHSO and performed under the appropriate level of personal protection described in Section 8.2. Personnel will wear the prescribed clothing, especially eye protection and chemical resistant gloves, when handling or drumming waste materials. Contamination avoidance will be practiced at all times. Additional information on disposal procedures is described in Section 12.0.

10.7 Heavy Equipment Decontamination

If steam cleaner or pressure washer is used to decontaminate heavy equipment and associated tools, personnel will exercise caution during use. The high-pressure steam can cause severe burns. Protective gloves, face shields, hard hats, steel-toed boots, and Tyvek suits or rain gear must be worn when using steam cleaners or pressure washers.

10.8 Inspection

Each piece of potentially hazardous equipment (i.e., power tools, drill rig) will be inspected for proper and safe operation prior to its use.

- All mechanical and rigging equipment will be inspected by the operators prior to beginning this work effort, and at least daily thereafter to ensure proper operating capability. Defective equipment must be repaired or replaced prior to continued use/operation.
- Inspect all cables, sheaves, slings, chains, hooks, and eyes prior to use.
- Secure equipment firmly or be sure it is supported.
- Be sure all power lines are inactivated, removed, or at a safe distance.
- Always use proper loading for capacity at lifting radius.
- Keep all equipment lubricated and maintained.
- Employ signal persons whenever needed.

Make certain that signals are understood and observed

10.9 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 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 stress are as follows:

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

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

Heat exhaustion may occur in a healthy individual who has been exposed to excessive heat while working or exercising. 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. If the individual is not better within 30 minutes and the body 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 degrees 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 is a significant hazard if any type of protective equipment (semipermeable or impermeable) that prevents evaporative cooling is worn in hot weather environments.

10.10 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. A work/rest regimen will be initiated when ambient temperatures and protective clothing cause a stressful situation. In addition, reduced work periods followed by rest in a warm area may be necessary in extreme conditions. The signs and symptoms of cold stress include the following:

- severe shivering;
- abnormal behavior;
- slowing;
- weakness;
- stumbling or repeated falling;
- inability to walk;

- collapse; and/or
- unconsciousness.

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

10.11 Manhole Cover Lifting

Any task that requires the removal of a manhole cover or catch basin cover will be monitored by the SHSO and performed under the appropriate level of personal protection described in Section 7.2. A mechanical manhole cover lifter is the preferred tool to remove a manhole cover. If unavailable, pry bars and manhole cover hooks can be used to loosen and remove a manhole or catch basin cover from the frame. Proper lifting technique should be used when using a manhole cover hook to prevent back injury.

Proper lifting technique begins with determining how heavy the cover is before attempting to lift or move it. In addition, think about how far the cover needs to be moved and where it is going to end up. Look for obstructions before lifting the object. If the cover appears to be is too heavy for your ability, don't try to lift it alone; find help.

The correct technique for lifting a heavy load includes:

- use both hands on the pry bar or manhole cover hook to lift or slide the cover;
- stand directly in front of the load, with feet about shoulder width apart;
- keep one foot in front of the other for balance;
- bend the knees and tighten the stomach muscles;
- lift with the legs, until they are straightened (leg muscles are stronger than back muscles);
- avoid jerky movements;
- keep the natural curve in the spine (don't bend at the waist); and
- turn by pivoting on the toes and moving the feet, do not twist at the stomach.

Before lifting a cover, move any objects away from the area that may be damaged by the cover if it should fall. Stay aware of the cover and your feet at all times.

Any work being performed in a vehicular traffic area should be performed following the safety considerations presented in section 9.4. Any open manhole or catch basin that is left unattended for any period of time should be protected with a manhole guard or safety cones. Manholes and catch basins are not permitted to remain uncovered when the personnel performing the task are not on site (i.e., lunch or at end of the day).

10.12 Vehicular Traffic Safety Procedures

A vehicular traffic area is any area where a vehicle may legally travel including, but not limited to, a roadway, roadway shoulder, and driveway or parking area. Traffic consists of car, bus, and large-commercial truck traffic typically moving at speeds of 30 to 40 miles per hour (mph). Note that the local speed limit on all roads adjacent to the Site is 30 mph. Vehicle speed in work areas within parking lots is typically low but may be hazardous due to vision limitations caused by miscellaneous obstructions. The following procedures shall be followed to mitigate vehicular traffic hazards posed at the work areas at the Site during any activities within a roadway, roadway shoulder or any active parking area unless the area is secured (fenced and gated without any vehicle movement potential).

- Double parking shall not be permitted.
- All workers shall wear hardhats and reflective orange vests.
- Workers shall use caution when crossing any road.
- Workers should take care to avoid sudden movements across the road.
- Workers shall position vehicles and equipment to minimize exposure to traffic and to facilitate safe access and egress from vehicles while loading and unloading equipment and/or materials.
- Traffic cones shall be deployed around work areas while workers are present.
- Traffic cones shall be placed at strategic locations to warn approaching traffic.
- All vehicles shall be parked as close to the work area as possible to use the vehicle as a barrier against oncoming traffic.

- When performing activities on a roadway or on the shoulder of any roadway, a minimum of two people must be present. One person will serve as a "traffic watchman" whose sole responsibility is to monitor vehicular traffic conditions and alert worker(s) of potential traffic hazards. The "traffic watchman" must be alert at all times and focused on traffic conditions. At no time should the "traffic watchman" engage in activities other than monitoring traffic conditions.

- Project Staff shall require that all project subcontractors conform to the same guidelines.

- If a specific task is required to be performed in high volume traffic areas or areas with unpredictable traffic patterns, a traffic watchman or police detail should be utilized. The need for a traffic watchman or police detail should be discussed with the Project Manager and client prior to deployment.

- Notify the local police of the work location, dates of work and the anticipated work times when work is to be conducted in a public roadway.

- Additional requirements of local transportation, highway, public safety, and police departments must also be followed when work is performed in a public roadway.

10.13 Automobile Safety

Motor vehicle safety and awareness is a very important aspect in prevention of injuries and of the health and safety plan. On average, over 43,000 people die each year in automobile accidents, most occurring on Friday evenings. Deaths, injuries, and property damage can occur from careless and unsafe driving acts. The main rule for vehicle safety is being smart and driving defensively. Driving defensively means not only taking responsibility for yourself and your actions but also being mindful of other vehicles and potential obstacles on the roadway.

The following are guidelines to help reduce your risks on the road:

- Secure each passenger before starting engine. Lock all doors.

- Driving too fast or slow can increase the likelihood of collisions.

- Avoid an impaired driver by turning right at next corner or exiting. If oncoming car appears to cross into your lane, pull over, sound horn and flash lights.

- Avoid "road rage", don't drive while angry, take a deep breath and let it go.

- Don't contest the "right of way" or try to race another car during a merge.

- Be aware of sudden traffic slow downs due to security checkpoints, accidents and toll plazas.

- While driving, be cautious, aware and responsible.

Before operating your vehicle, and on a regular basis, check the following:

- Does the driver have a valid drivers license?
- Does vehicle have valid inspection stickers, registration, and insurance information?
- Are tires inflated to right pressure?
- Are the tires worn?
- Are the brakes working properly?
- Is there an inflated spare?
- Are lights and indicators working?
- Are windshield wipers and washer fluid working?
- Are vehicle attachments (such as ladders) secured?
- Is the horn working?
- Are the engine belts and hoses in good shape?
- Is the license plate clean and visible?

The following is a list of things to avoid while driving:

- Shaving or putting on makeup;
- Reading a map;
- Driving under the influence;
- Driving at an unsafe speed;
- Failing to stop or yield;
- Unsafe passing of another vehicle;
- Tailgating;
- Not using signals;
- Operating a cell phone.

Remember, commercial vehicles are prohibited from left lanes, HOV lanes, and many roadways. In addition, commercial vehicles are prohibited on parkways. Some unsafe conditions can make driving hazardous include:

- Poor visibility;
- Dust storms;
- Rains storms;
- Snow storms;
- Night driving;
- Windshield wipers not effective;
- Poor Road and slippery weather conditions

Please remember; driving is an important part of the work we do. Always be aware of your surroundings and be a responsible driver.

10.14 Hazard Communication

Personnel working at this Site have the right to know about the chemical hazards associated with hazardous materials used and stored onsite. This information will be readily available to all Site workers as required by OSHA's Hazard Communication Standard (29 CFR 1910.1200). This information will be communicated to personnel through the maintenance of a chemical inventory system, chemical labeling, material safety data sheets (MSDSs), hazard communication training, and a written hazard communication program.

Chemicals imported to the Site will bear the original Department of Transportation (DOT) required labeling on the chemical's container. In addition, a new label will be affixed to the original containers, if necessary, and to a new container to which the chemical is dispensed providing the chemical name and specific hazard warnings (e.g., flammability, health, reactivity). Hazard warnings will follow either the National Fire Protection Association (NFPA) format or the Hazardous Material Information System (HMIS) format. Both systems are easy to use and rely on numerically ranking hazards on a 0 to 4 scale. Most chemicals used onsite,

which are subject to the Hazard Communication Standard are related to sampling activities. These chemicals may include hexane, methanol, acetone and nitric acid.

10.15 Additional Safe Work Practices

Refer to the SHSO for specific concerns on each individual Site task. The safety rules listed below must be strictly followed:

- Use the buddy system when required.
- Practice contamination avoidance, both on and offsite.
- Plan activities ahead of time.
- Do not climb over/under obstacles.
- Be alert to your own physical condition.
- Watch your co-workers for signs of fatigue, exposure, heat or cold stress, etc.
- Report all accidents, no matter how minor, immediately to the SHSO.
- Do not eat, drink, chew gum, apply cosmetics, or use tobacco products while working onsite (except in the support zone).
- Be aware of traffic, heavy equipment, and other obstacles around you.
- Do not work onsite while under the influence of drugs or alcohol, including prescription drugs that may cause drowsiness.
- Copies of this HASP shall be readily accessible at all times.
- Note wind direction. Personnel shall remain upwind wherever possible during onsite activities.
- **READ AND SIGN YOUR HEALTH AND SAFETY PLAN BEFORE ENGAGING IN SITE ACTIVITIES.**

A work/rest regimen will be initiated when ambient temperatures and protective clothing cause a stressful situation. Work will not be conducted without adequate light or without supervision. Safety briefings may be held prior to beginning each task.

11.0 DECONTAMINATION PROCEDURES

11.1 Contamination Prevention

One of the most important aspects of decontamination is contamination prevention. Contamination prevention practices will minimize worker exposure and ensure valid sample results by precluding cross contamination. Procedures for contamination prevention include the following:

- For Personnel
  - do not walk through areas of obvious or known contamination;
  - do not handle or touch contaminated materials directly;
  - make sure all personal protective equipment (PPE) has no cuts or tears prior to donning;
  - fasten all closures on suits, covering with tape, if necessary;
  - take particular care to protect any skin injuries;
  - stay upwind of airborne contaminants; and
  - do not carry cigarettes, gum, etc. into contaminated areas.

- Sampling/Monitoring
  - when required by the SHSO, cover instruments with clear plastic, leaving opening for sampling and exhaust ports; and
  - bag sample containers prior to the placement of sample material.

- Heavy Equipment
  - care should be taken to limit the amount of contamination that comes in contact with heavy equipment;
  - if contaminated tools are to be placed on non-contaminated equipment for transport to the decontamination pad, plastic should be used to keep the equipment clean; and
  - drill cuttings (i.e., soil) should be contained and kept out of the way of workers.

11.2 Decontamination

All personnel and equipment exiting an Exclusion Zone will be thoroughly decontaminated. Safety briefings will explain the decontamination procedures for personnel and portable

equipment for the various levels of protection indicated in Section 8.2. Heavy equipment will be decontaminated with either a steam cleaner, pressure washer, or potable water. Rinseates will be collected, handled, and/or drummed as potentially hazardous waste. Additional information on disposal procedures is presented in Section 12.0.

Equipment Decontamination

Non-disposable sampling equipment will be decontaminated through the following steps, if necessary:

- fresh water rinse;
- non-phosphorus detergent wash; and
- fresh water rinse.

12.0 DISPOSAL PROCEDURES

Discarded materials, waste materials, or other objects will 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. Potentially contaminated materials as determined by the SHSO, e.g., soil, clothing, gloves, etc., will be bagged or drummed, as necessary, and segregated for disposal. Contaminated materials will be disposed in accordance with appropriate regulations. Non-contaminated materials will be collected and bagged for appropriate disposal as normal domestic waste. Waste disposal operations conducted by Roux Associates will be monitored by the SHSO and carried out under the appropriate level of personal protection described in Section 8.2.

13.0 EMERGENCY PLAN

As a result of the hazards onsite and the conditions under which operations are conducted, the possibility of an emergency exists. An emergency plan is required by OSHA 29 CFR 1910.120 to be available for use and is included below. A copy of this plan will be posted in the Support Zone at each work site. Figure 1 includes directions and a map to the Brunswick Hospital Center.

13.1 Site Emergency Coordinator(s)

The Site Emergency Coordinator(s) are the Field Team Leader and the Site Health and Safety Officer. The Site Emergency Coordinator(s) will contact the local fire, police, and other emergency units prior to beginning work onsite. In these contacts, the Site Emergency Coordinator(s) will inform the emergency units about the nature and duration of work expected on the Site and the type of contaminants and possible health or safety effects of emergencies involving these contaminants. Also at this time, the coordinators and the emergency response units will make arrangements to handle any emergencies that might occur.

The Site Emergency Coordinator(s) will implement the emergency plan whenever conditions at the Site warrant such action. The coordinator(s) will be responsible for assuring the evacuation, emergency treatment, emergency transport of Site personnel as necessary, and notification of emergency response units, and the appropriate management staff.

Emergency Site Control

In the event of an emergency, the Site Emergency Coordinator(s) will discourage any unauthorized personnel from entering the Site. If necessary, the Site Emergency Coordinator(s) will contact the proper authorities.

13.2 Evacuation

In the event of an emergency situation, such as fire, explosion, significant release of particulates, etc., an air horn, automobile horn, or other appropriate device will be sounded by the SHSO or field crew personnel for approximately ten seconds indicating the initiation of evacuation procedures. All persons in both the restricted and non-restricted areas will evacuate and assemble near the Support Zone or other safe area as identified by the Site Emergency

Coordinator(s). The Site Emergency Coordinator(s) will have authority to initiate proper action if outside services are required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been sounded. The SHSO must see that access for emergency equipment is provided and that all combustion apparatus has been shutdown once the alarm has been sounded. Once the safety of all personnel is established, the fire department and other emergency response groups will be notified by telephone of the emergency. Then, other personnel listed in Section 13.4 will be notified.

13.3 Potential or Actual Fire or Explosion

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

- immediately evacuate the Site as described above (Section 13.2); and
- notify fire, security, and police departments.

13.4 Environmental Incident (Release or Spread of Contamination)

If possible, the spread of contamination will be controlled or stopped. The Site Emergency Coordinator(s) will instruct a person onsite to immediately contact police and fire authorities to inform them of the possible or immediate need for nearby evacuation. If a significant release has occurred, the National Response Center and other appropriate groups will be contacted. Those groups will alert National or Regional Response Teams as necessary. Following these emergency calls, the remaining personnel listed in the table below will be notified, as necessary.

Responsibility	Contact	Telephone
Fire Department	Police Dispatches	911
Police Department	Nassau County Police Seventh Precinct	911
Ambulance	Police Dispatches	911
Hospital (see Figure 1)	Brunswick Hospital Center	(631) 789-7000
National Response Center (Release or Spill)		800-424-8802

Responsibility	Contact	Telephone
Chemical Transport Emergency Center (CHEMTREC)		800-424-9300
Site Health and Safety Officer	Kathryn Huhn	(631) 232-2600 (631) 445-0585 (cellular)
Project Manager	Michael Roux	(631) 232-2600 (631) 774-7289 (cellular)
Project Principal	Craig Werle, P.G.	(631) 232-2600
Site Contact	Frank Sammon	(516) 795-4238
Office Health and Safety Manager	Indira Rattiram	(631) 232-2600

13.5 Personal Injury

If onsite personnel require emergency medical treatment, the following steps will be taken:

1. Notify the Fire Department or Ambulance service and request an ambulance or transport the victim to the hospital, as appropriate.
2. Decontaminate to the extent possible prior to administration of first aid or movement to emergency facilities.
3. First aid will be provided by emergency medical services (EMS) or by onsite personnel trained in first aid, CPR, and bloodborne pathogens, if available.
4. The OHSM will supply medical data sheets on the victim (if a Roux Associates employee) to appropriate medical personnel.

13.6 Overt Personnel Exposure

If an overt exposure to toxic materials occurs, the exposed person will be treated onsite as follows:

Skin Contact:	Remove contaminated clothing. Wash immediately with water. Use soap if available. Contact EMS, if necessary.
Inhalation:	Remove from contaminated atmosphere. Contact EMS, if necessary. Transport to hospital.
Ingestion:	Never induce vomiting on an unconscious person. Also, never induce vomiting when acids, alkalis, or petroleum products are suspected. Contact the poison control center. Contact EMS, if necessary.
Puncture Wound or Laceration:	Decontaminate and transport to emergency medical facility or contact EMS. Do not contact blood or bodily fluids. The OHSM will provide medical data sheets to medical personnel as requested.

13.7 Adverse Weather Conditions

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

- heavy rainfall;
- potential for heat stress (see Appendix B);
- potential for cold stress and cold-related injuries (see Appendix B);
- limited visibility;
- potential for electrical storms;
- potential for malfunction of H&S monitoring equipment or gear;
- potential for accidents;
- unsafe driving and working conditions due to snow or ice; and
- high wind.

14.0 FIELD TEAM REVIEW

Each Roux Associates field member shall sign this section after Site-specific training is completed and before being permitted to work onsite.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provision contained herein. I have been provided with an opportunity to have questions and concerns addressed by the Project Manager.

Site/Project: Gent Uniform Rental Service Facility/Remedial Investigation
Massapequa, New York

Name Printed	Signature	Date

15.0 APPROVALS

The Approval Page must be attached and signed by the SHSO, OHSM, Project Manager and Project Principal.

By their signature, the undersigned certify that this HASP is approved and will be utilized by Roux Associates, Inc. personnel at the Busy Bee facility located in Merrick, New York.

Site Health and Safety Officer	Date
Office Health and Safety Manager	Date
Project Manager	Date
Project Principal	Date

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Gent Uniform Facility, Massapequa, New York

Compound	CAS#	TLV (mg/m^3)	IDLH (ppm)	PEL (mg/m^3)	Routes of Exposure	Toxic Properties	Target Organs	Physical/ Chemical Properties
1,2-dichlorobenzene	95-50-1	300 50 ppm	200	NA	Dermal; inhalation; ingestion	Eye and nose irritant Liver damage Kidney damage Skin blisters	eyes skin resp system liver kidneys	Colorless to pale yellow liquid Aromatic odor BP = 357°F LEL = 2.2% UEL = 9.2%
1,2-dichloroethene	540-59-0	790 200 ppm	4,000	790 200 ppm	Dermal; ingestion; inhalation	CNS depressant Epigastric cramps Sensory irritant Dermatitis	CNS stomach skin	Colorless liquid BP = 59°F LEL = 9.7% UEL = 12.8%
1,4-dichlorobenzene	106-46-7	NA	150	450 75 ppm	Dermal; inhalation; ingestion	Eye irritant Anorexia Vomiting Jaundice Cirrhosis	eyes liver kidneys skin resp system	Crystalline solid Mothball-like odor BP = 345°F LEL = 2.5%
Carbon tetrachloride	56-23-5	NA	200	10 ppm	Dermal; inhalation; ingestion	CNS depression Sensory irritant Liver damage Kidney damage	CNS eyes lungs liver kidneys skin	Colorless liquid Ether-like odor BP = 170°F
Tetrachloroethene	127-18-4	335 50 ppm	None	170 25 ppm	Dermal; inhalation; ingestion	CNS depression Liver damage Sensory irritant	CNS liver skin eyes kidneys	Liquid Ether-like odor BP = 121.20°C

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Gent Uniform Facility, Massapequa, New York

Compound	CAS#	TLV (mg/m^3)	IDLH (ppm)	PEL (mg/m^3)	Routes of Exposure	Toxic Properties	Target Organs	Physical/ Chemical Properties
Trichloroethene	79-01-6	270 50 ppm	None	270 50 ppm	Dermal; inhalation; ingestion	CNS depression Sensory irritant Kidney damage Liver damage Heart damage	CNS skin eyes kidney liver CVS	Liquid Flammable BP = 86.7°F LEL = 12.5% UEL = 90%
Vinyl chloride	75-01-4	13 5 ppm	None	1 ppm	Inhalation; ingestion	Liver tumors Blood tumors Sensory irritant CNS depressant	liver blood eyes skin CNS	Colorless gas Highly flammable BP = -13°F FP = -159.7°F LCL = 4% UEL = 22%

TLV - Threshold Limit Value - must not be exceeded over 8 hour shift
IDLH - Immediately Dangerous to Life and Health - maximum concentration from which one could escape in 30 minutes without a respirator
PEL - Permissible Exposure Limit - must not be exceeded over 8 hour shift
mg/m^3 - milligrams per cubic meter
ppm - Part Per Million
CNS - Central Nervous System
CVS - Cardiovascular System
GI tract - Gastrointestinal tract
BP - Boiling Point
FP - Flash Point
UEL - Upper Explosive Limit
LEL - Lower Explosive Limit
°F - degrees Fahrenheit
°C - degrees Celsius

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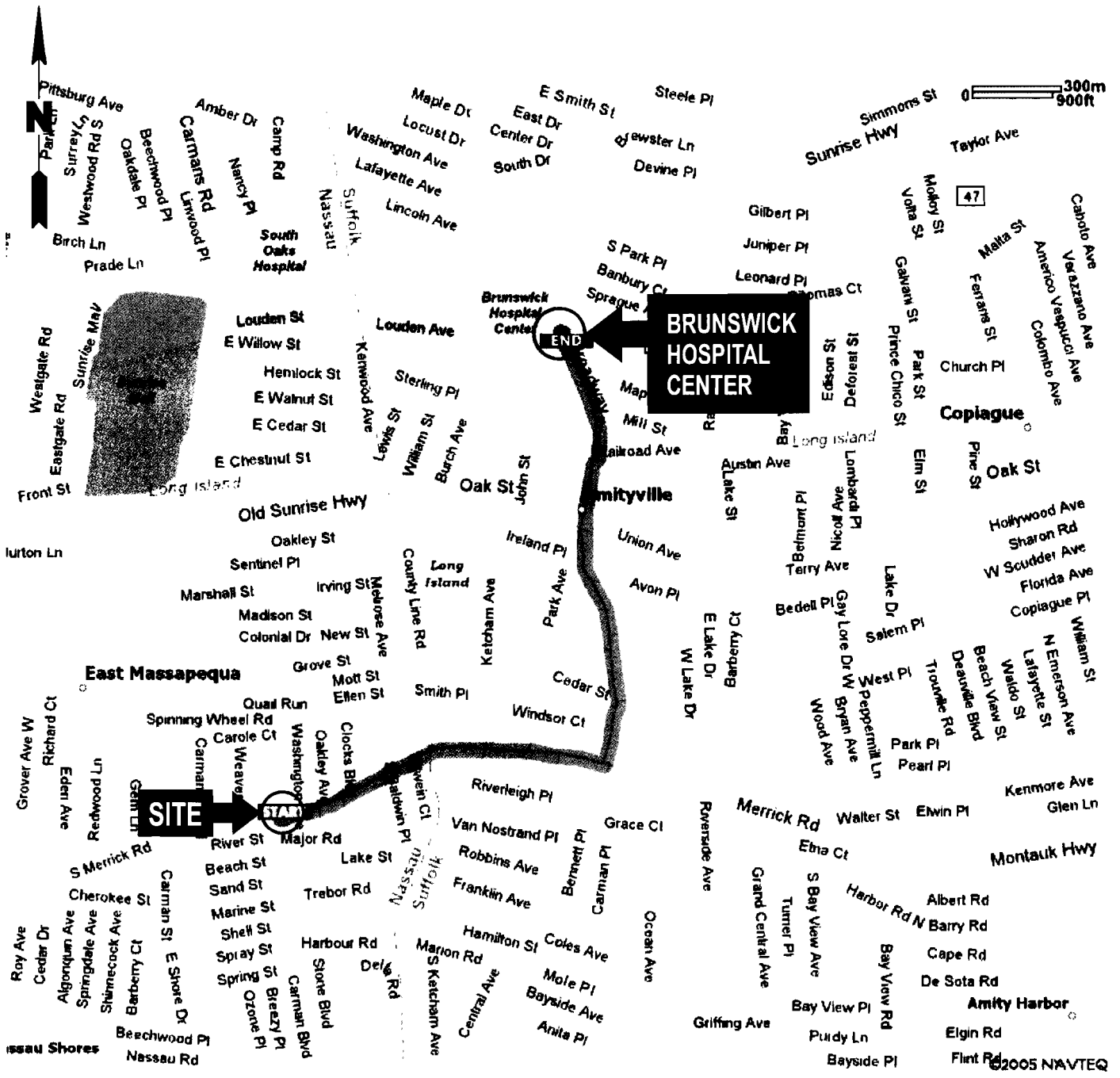

DIRECTIONS TO HOSPITAL

- **Start out going EAST on MERRICK RD / NY-27A (0.6 miles)**
- **Turn LEFT onto BROADWAY / NY-110. (0.9 miles)**
- **End at Brunswick Hospital Center on left 366 Broadway, Amityville, NY 11701-2711, US**

Title:

HOSPITAL ROUTE MAP

BRUNSWICK HOSPITAL CENTER
366 BROADWAY
AMITYVILLE, NEW ORK

5680 MERRICK ROAD
MASSAPEQUA, NEW YORK

Prepared for:

GENT UNIFORM RENTAL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: M.R.		Date: 29AUG05	FIGURE
Prepared by: B.H.C.		Scale: SHOWN	1
Project Mgr.: M.R.		Office: NY	
File No.: GEN0113103.CDR		Project No.: 102001Y	

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APPENDIX A

OSHA 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

U.S. Department of Labor • Occupational Safety and Health Administration • OSHA 3165

APPENDIX B

Field Change Request

HEALTH AND SAFETY FIELD CHANGE REQUEST FORM

SITE SAFETY REVIEW – CHANGES AND OVERALL EVALUATION
(To Be Completed For Each Field Change In Plan)

Was the Safety Plan followed as presented? _____ Yes _____ No

Describe, in detail, all changes to the Safety Plan:

_____

_____

_____

Reasons for changes:

_____

_____

_____

Follow-Up, Review and Evaluation Prepared by _____ Date _____

Discipline _____

Approved by: Site Manager _____ Date _____

Site Safety Officer _____ Date _____

Approved by: Office Health & Safety Supervisor _____ Date _____

Evaluation of Site Safety Plan:

Was the Safety Plan adequate? _____ Yes _____ No

What changes would you recommend?

_____

_____

_____

_____

APPENDIX C

Temperature Hazards

TEMPERATURE HAZARDS

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;
- 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.

APPENDIX D

Incident Reports

INCIDENT REPORT

Site _____

Site Location _____

Report Prepared By _____
Name Printed Title

Incident Category (Check all that apply)

_____ Injury	_____ Illness	_____ Property Damage
_____ Near Miss	_____ On-Site Equipment	_____ Chemical Exposure
_____ Motor Vehicle	_____ Fire	_____ Electrical
_____ Mechanical	_____ Other	

Date and Time of Incident _____

Name of Persons Injured (see end of report for details)

_____

_____

_____

Narrative Report of Incident

(Provide sufficient detail so that the reader may fully understand the actions leading to or contributing to the incident, the incident occurrence, and actions following the incident. Append additional sheets of paper, if necessary.)

_____

_____

_____

_____

_____

Witnesses to Incident

1. Name _____
   Company _____
   Address _____
   Telephone No. _____

2. Name _____
   Company _____
   Address _____
   Telephone No. _____

Property Damage

Brief Description of Property Damage _____

_____

_____

_____

Estimate of Damage _____

Incident Location

_____

_____

Incident Analysis

(Causative agent most directly related to accident (object, substance, material, machinery, equipment, conditions.)

_____

_____

Was weather a factor? _____

Unsafe mechanical/physical/environmental condition at time of incident (be specific, must be answered):

_____

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

_____

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

_____

On-Site Incidents

Level of personal protection equipment required in Site Safety Plan:

_____

_____

_____

Modifications:

_____

_____

Was injured using required equipment?

_____

Incident Follow-Up

Date of Incident:

Brief Description of Incident:

Outcome of Incident:

Physician's Recommendations:

Date Injured Returned to Work:

APPENDIX B

Standard Operating Procedures

Date: May 5, 2000

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to explain the quality control (QC) measures taken to ensure the integrity of the samples collected and to establish the guidelines for the collection of QC samples. The objective of the QC program is to ensure that water-quality data of known and reliable quality are developed.

Because valid water-chemistry data are integral to a hydrogeologic investigation that characterizes water-quality conditions, the data will be confirmed by QC samples. Without checks on the sampling and analytical procedures, the potential exists for contradictory or incorrect results. The acceptance of water-quality data by regulatory agencies and in litigation-support investigations depends heavily on the proper QC program to justify the results presented. The QC sampling requirements must be determined by the project manager and be clearly defined in the work plan. If data validation (for in-house purposes or for compliance with the United States Environmental Protection Agency [USEPA] regulations) is stipulated as part of the hydrogeologic investigation, QC sampling must be conducted.

2.0 QUALITY CONTROL SAMPLES

2.1 Samples taken for analysis of compounds require the use of quality control samples to monitor sampling activities and laboratory performance. Types of quality control samples may include replicate and/or replicate split, trip blank, field equipment blank, matrix spike and matrix spike duplicate, and fortification. A discussion pertaining to each quality control sample follows:

a. Replicate and Replicate Split - Replicate sample analysis is done to check on the reproducibility of results either within a laboratory or between laboratories. A replicate sample is called a split sample when it is collected with or turned over to a second party (e.g., regulatory agency, consulting firm) for an independent analysis. Replicate samples are aliquots (equal portions) from a sample in a common container.

To collect a replicate sample, water from the bailer or pump will be distributed first to fill one container and then to fill the second container. Adequate water should be available to fill the bottles completely before they are capped. If the water is insufficient to fill all the bottles at once, then incrementally fill each bottle with water from two or more bailer volumes or pump cycles.

For some test substances, water may have to be accumulated in a common container and then decanted slowly into the sample bottles. The work plan should be checked for a description of how replicate samples are to be collected. Additionally, in the case of wells that recover slowly and produce insufficient water to fill all the replicate sample containers, the

containers should be filled incrementally and kept on ice in the cooler in between filling periods.

b. Trip Blank - A trip blank sample is a sample bottle that is filled with "clean" (e.g., distilled/deionized) water in the laboratory, and travels unopened with the sample bottles. (The USEPA now uses the phrase "demonstrated analyte free water.") It is opened in the laboratory and analyzed along with the field samples for the constituent(s) of interest to detect if contamination has occurred during field handling, shipment, or in the laboratory. Trip blanks are primarily used to check for "artificial" contamination of the sample caused by airborne volatile organic compounds (VOCs) but may also be used to check for "artificial" contamination of the sample by a test substance or other analyte(s). One trip blank per cooler containing VOC samples, or test substance of other analyte(s) of interest would accompany each day's samples.

c. Field Equipment Blank - A field equipment blank (field blank) sample is collected to check on the sampling procedures implemented in the field. A field blank is made with "clean" (e.g., distilled/deionized/demonstrated analyte free) water by exposing it to sampling processes (i.e., the clean water must pass through the actual sampling equipment). For example, if samples are being collected with a bailer, the field blank would be made by pouring the clean water into a bailer which has been decontaminated and is ready for sampling, and then pouring from the bailer into the sample containers. If a metals equipment blank is to be made, and the water was filtered, then the sample must be filtered (i.e., exposed to the sampling process). One equipment blank would be incorporated into the sampling program for each day's collection of samples and analyzed for the identical suite of constituents as the sample. In some situations one equipment blank will be required for each type of sampling procedure (e.g., split-spoon, bailer, hand auger).

A special type of field blank may be needed where ambient air quality may be poor. This field blank sample would be taken to determine if airborne contaminants will interfere with constituent identification or quantification. This field blank sample is a sample bottle that is filled and sealed with "clean" (e.g., distilled/deionized/demonstrated analyte free) water in the analytical laboratory, and travels unopened with the sample bottles. It is opened in the field and exposed to the air at a location(s) to check for potential atmospheric interference(s). The field blank is resealed and shipped to the contract laboratory for analysis.

d. Matrix Spike and Matrix Spike Duplicate - Spikes of compounds (e.g., standard compound, test substance, etc.) may be added to samples in the laboratory to determine if the ground-water matrix is interfering with constituent identification or quantification, as well as a check for systematic errors and lack of sensitivity of analytical equipment. Samples

for spikes are collected in the identical manner as for standard analysis, and shipped to the laboratory for spiking. Matrix spike duplicate sample collection, and laboratory spiking and analysis is done to check on the reproducibility of matrix spike results.

e. Fortification - A fortification, which is performed in the field, is used to check on the laboratory's ability to recover the test substance (analyte) added as well as its stability between fortification and analysis.

A field fortification (spike) is prepared by filling the container(s) with field or distilled/deionized/demonstrated analyte free water (as specified by the laboratory) to a predetermined volume (as specified by the laboratory) and adding the spike (supplied by the laboratory). The predetermined volume of water is measured with a clean (decontaminated) graduated cylinder. Field spikes will be prepared following the collection, labeling, and sealing of nonspiked samples in a separate cooler. The spike is kept at a safe distance from the sampling point (e.g., in the hotel room).

2.2 The work plan must be referred to for details regarding the type of QC samples to be collected and the QC sample collection method.

3.0 PROCEDURE

3.1 Implement QC sampling as outlined above, depending on the type of QC sample(s) specified in the work plan.

3.2 Ensure unbiased handling and analysis of replicate and blank QC samples by concealing their identity by means of coding so that the analytical laboratory cannot determine which samples are included for QC purposes. Attempt to use a code that will not cause confusion if additional samples are collected or additional monitoring wells are installed. For example, if there are three existing monitoring wells (MW-1, 2 and 3), do not label the QC blank MW-4. If an additional monitoring well were installed, confusion could result.

3.3 Label matrix spike and field fortification (spike) QC samples so that the analytical laboratory knows which samples are to be spiked in the laboratory and which samples were fortified (spiked) in the field, respectively. In certain situations, the field fortification will be "blind" or undisclosed to the laboratory to independently verify their analytical ability.

3.4 Verify that each sample is placed in an individual "zip-lock" bag, wrapped with "bubble wrap," and placed in its appropriate container (holder) in the cooler, and that the cooler has sufficient ice (wet ice or blue packs) to preserve the samples for transportation to the analytical laboratory. Consult the site work plan to determine if a particular ice is specified as the preservative for transportation (e.g., the USEPA prefers the use of wet ice because they claim that blue ice will not hold the samples at 4° Centigrade/Celsius).

3.5 Document the QC samples on the appropriate field form and in the field notebook. On the chain-of-custody form, replicate and blank QC samples will be labeled using the codes (Number 3.2, above), and matrix spike and field fortification QC samples will be identified as such (Number 3.3, above).

3.6 Follow standard shipping procedures for samples (i.e., retain one copy of the chain-of-custody form, secure the cooler with sufficient packing tape and a custody seal, forward the samples via overnight [express] mail or hand deliver to the designated analytical laboratory preferably within 24 hours but no later than 48 hours after sampling). However, check the site work plan for information on the analyte(s), as some have to be analyzed immediately (e.g., CN).

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to provide procedures and standards for record keeping and maintenance, for all field activities conducted by Roux Associates, Inc. (Roux Associates).

Strict quality assurance/quality control (QA/QC) is necessary to properly and accurately document and preserve all project-related information. Quality assurance is implemented to corroborate that quality control procedures are followed. Quality control provides a means to monitor investigation activities (e.g., sampling and laboratory performance) as a check on the quality of the data.

Valid data and information are integral to all aspects of Roux Associates' field activities. These aspects include, but are not necessarily limited to, activities that involve: drilling; sediment, sludge, and soil sampling (lithologic, and soil-quality and analysis); well construction and development; aquifer testing and analysis; water-quality sampling and analysis (surface water and ground water); free-product sampling and analysis; air-quality sampling and analysis; geophysical testing; demolition activities; waste removal operations; engineering installations; etc. The data will be confirmed by QA/QC methods established and set forth in the work plan/scope of work. Without checks on the field and analytical procedures, the potential exists for contradictory results, and associated incomplete or incorrect results from the interpretation of potentially questionable data.

Documentation will be entered in the field notebook and must be transcribed with extreme care, in a clear and concise manner, as the information recorded will become part of the permanent legal record. Because field notes are the legal record of site activities, they must be taken in a standard and consistent manner. If abbreviations are used, then they must first be spelled out for clarity (i.e., to avoid ambiguity and misunderstanding). All entries must be dated and initialed, and the time (military time) of the entry included. Field notebooks and forms must be assigned to an individual project and properly identified (i.e., client name, project number, location and name of site, individual recording information, dates, times, etc.). Change of possession of field notebooks or forms must be documented with the date and time, and initialed by both individuals. Following each day's entries, the field notebook or form must be photocopied in the event that the original documentation is lost or stolen. All field notebooks must have the company name and address legibly printed in indelible ink along with the message "If found, then please forward to Roux Associates, Inc. at the above address - REWARD OFFERED."

Information must be recorded while onsite because it may be difficult to recall details at a later date. Furthermore, information must be documented immediately as it provides unbiased information which will be used for writing the report when the field activities are completed. Project-related documentation is an irreplaceable, important record for other individuals who may become involved in the project, and provides the project

manager with a complete history of project-related activities. Written information must be accompanied by maps, sketches, and photographs where appropriate, especially if these supplemental sources of information assist in the documentation process. A new page must be used in the field notebook for each new day's entries (i.e., unused portions of a previous page must have an "X" placed through it). The end of the day's records must be initialed and dated.

As part of record keeping and QA/QC activities, state and federal regulatory agencies should be contacted to check if special or different protocols are required and/or if particular or unconventional methods are required for the given field activity. Thus, the record keeping and QA/QC activities implemented by Roux Associates are based on technically sound standard practices and incorporate Roux Associates own, extensive experience in conducting hydrogeologic field activities.

2.0 MATERIALS

In order to track investigation activities, specific materials are required. These materials include the following:

a. A bound, waterproof field notebook.

b. Appropriate Roux Associates' forms (e.g., daily log, geologic log, monitoring well construction log, well sampling data form, location sketch, chain of custody, telephone conversation record, meeting notes, etc.).

c. Appropriate labels (e.g., sample, Roux Associates' Custody Seal, etc.)

d. Work plan/scope of work.

e. Health and safety plan (HASP).

f. Appropriate Roux Associates' SOPs.

g. Black pens, and indelible markers.

h. Camera and film.

3.0 DOCUMENTATION

3.1 Before the Roux Associates personnel leave the field, they must ensure that their field notes include comprehensive descriptions of the hydrogeologic conditions, and all investigation-related activities and results (onsite and offsite). This will safeguard against the inability to reconstruct and comprehend all aspects of the field investigation after its completion, and will serve to facilitate the writing of an accurate report. Properly documented information provides the QA/QC tracking (back-up) required for all Roux Associates' projects. General types of information that must be recorded (where pertinent to the investigation being conducted) include, but may not necessarily be limited to, the following:

a. List of Roux Associates personnel on site.

b. Name, date, and time of arrival on site by Roux Associates personnel, including temporary departures from, and returns to, the site during the work day.

c. Client and project number.

d. Name and location of study area.

e. Date and time of arrival on site by non-Roux Associates personnel (names and affiliation) and equipment (e.g., subcontractors and facility personnel, and drilling equipment, respectively, etc.), including temporary departures from, and returns to, the site during the work day, and departure at the end of the work day.

f. List of non-Roux Associates personnel on site.

g. Weather conditions at the beginning of the day as well as any changes in weather that occur during the working day.

h. Health and safety procedures including level of protection, monitoring of vital signs, frequency of air monitoring, and any change (i.e., downgrade or upgrade) in the level of protection for Roux Associates and other on-site personnel (e.g., subcontractors, facility personnel, etc.).

i. Health and safety procedures not in compliance with the HASP (for all on-site personnel).

j. Site reconnaissance information (e.g., topographic features, geologic features, surface-water bodies, seeps, areas of apparent contamination, facility/plant structures, etc.).

k. Air monitoring results (i.e., photoionization detector [PID], etc. measurements).

l. Task designation and work progress.

m. Work-related and site-related discussions with subcontractors, regulatory agency personnel, plant personnel, the general public, and Roux Associates personnel.

n. Delays, unusual situations, problems and accidents.

o. Field work not conducted in accordance with the work plan/scope of work, and rationale and justification for any change(s) in field procedures including discussions with personnel regarding the change(s) and who authorized the change(s).

p. QA/QC procedures not conducted in accordance with the QA/QC procedures established in the work plan/scope of work and rationale and justification for any change(s) in QA/QC procedures including discussions with personnel regarding the change(s) and who authorized the change(s).

q. Equipment and instrument problems.

r. Decontamination and calibration procedures.

s. Activities in and around the site and work area by any and all on-site personnel which may impact field activities.

t. Sketches, maps, and/or photographs (with dates and times) of the site, structures, equipment, etc. that would facilitate explanations of site conditions.

u. Contamination evidenced as a result of work-related activities (e.g., visible contaminants [sheen] in drilling fluids or on drilling equipment; sheen on, or staining of, sediments; color of, or separate [nonaqueous] phase on, water from borehole or well; vapors or odors emanating from a borehole or well; etc.); make all observations as objectively as possible (e.g., grey-blue, oil-like sheen; black and orange, rust-like stain; fuel-like odor; etc.) and avoid using nontechnical or negative-sounding terms (e.g., slimy, goopy, foul-smelling).

v. Date and time of final departure from the site of all personnel at the end of the work day.

3.2 In addition to the general types of information that must be recorded (as presented in Section 3.1), task-specific information must also be properly documented. Task-specific information which is required is provided in each respective task-oriented SOP, and the documentation procedures outlined in each SOP must be followed.

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to establish guidelines for sample handling which will allow consistent and accurate results. Valid chemistry data are integral to investigations that characterize media-quality conditions. Thus, this SOP is designed to ensure that once samples are collected, they are preserved, packed and delivered in a manner which will maintain sample integrity to as great an extent as possible. The procedures outlined are applicable to most sampling events and any required modifications must be clearly described in the work plan.

2.0 CONSIDERATIONS

Sample containers, sampling equipment decontamination, quality assurance/quality control (QA/QC), sample preservation, and sample handling are all components of this SOP.

2.1 Sample Containers

Prior to collection of a sample, considerations must be given to the type of container that will be used to store and transport the sample. The type and number of containers selected is usually based on factors such as sample matrix, potential contaminants to be encountered, analytical methods requested, and the laboratory's internal quality assurance requirements. In most cases, the overriding considerations will be the analytical methodology, or the state or federal regulatory requirements because these regulations generally encompass the other factors. The sample container selected is usually based on some combination of the following criteria:

a. Reactivity of Container Material with Sample

Choosing the proper composition of sample containers will help to ensure that the chemical and physical integrity of the sample is maintained. For sampling potentially hazardous material, glass is the recommended container type because it is chemically inert to most substances. Plastic containers are not recommended for most hazardous wastes because the potential exists for contaminants to adsorb to the surface of the plastic or for the plasticizer to leach into the sample.

In some instances, however, the sample characteristics or analytes of interest may dictate that plastic containers be used instead of glass. Because some metals species will adhere to the sides of the glass containers in an aqueous matrix, plastic bottles (e.g., nalgene) must be used for samples collected for metals analysis. A separate, plastic container should accompany glass containers if metals analysis is to be performed along with other analyses. Likewise, other sample characteristics may dictate that glass cannot be used. For example, in the

case of a strong alkali waste or hydrofluoric solution, plastic containers may be more suitable because glass containers may be etched by these compounds and create adsorptive sites on the container's surface.

b. Volume of the Container

The volume of sample to be collected will be dictated by the analysis being performed and the sample matrix. The laboratory must supply bottles of sufficient volume to perform the required analysis. In most cases, the methodology dictates the volume of sample material required to complete the analysis. However, individual laboratories may provide larger volume containers for various analytes to ensure sufficient quantities for duplicates or other QC checks.

To facilitate transfer of the sample from the sampler into the container and to minimize spillage and sample disturbance, wide-mouth containers are recommended. Aqueous volatile organic samples must be placed into 40-milliliter (ml) glass vials with polytetrafluoroethylene (PTFE) (e.g., TeflonTM) septums. Non-aqueous volatile organic samples should be collected in the same type of vials or in 4-ounce (oz) wide-mouth jars provided by the laboratory. These jars should have PTFE-lined screw caps.

c. Color of Container

Whenever possible, amber glass containers should be used to prevent photodegradation of the sample, except when samples are being collected for metals analysis. If amber containers are not available, then containers holding samples should be protected from light (i.e., place in cooler with ice immediately after filling).

d. Container Closures

Container closures must screw on and off the containers and form a leak-proof seal. Container caps must not be removed until the container is ready to be filled with the sample, and the container cap must be replaced (securely) immediately after filling it. Closures should be constructed of a material which is inert with respect to the sampled material, such as PTFE (e.g., TeflonTM). Alternately, the closure may be separated from the sample by a closure liner that is inert to the sample material such as PTFE sheeting. If soil or sediment samples are being collected, the threads of the container must be wiped clean with a dedicated paper towel or cloth so the cap can be threaded properly.

e. Decontamination of Sample Containers

Sample containers must be laboratory cleaned by the laboratory performing the analysis. The cleaning procedure is dictated by the specific analysis to be performed on the sample. Sample containers must be

carefully examined to ensure that all containers appear clean. Do not mistake the preservative as unwanted residue. The bottles should not be field cleaned. If there is any question regarding the integrity of the bottle, then the laboratory must be contacted immediately and the bottle(s) replaced.

f. Sample Bottle Storage and Transport

No matter where the sample bottles are, whether at the laboratory waiting to be packed for shipment or in the field waiting to be filled with sample, care must be taken to avoid contamination. Sample shuttles or coolers, and sample bottles must be stored and transported in clean environments. Sample bottles and clean sampling equipment must never be stored near solvents, gasoline, or other equipment that is a potential source of cross-contamination. When under chain of custody, sample bottles must be secured in locked vehicles, and custody sealed in shuttles or in the presence of authorized personnel. Information which documents that proper storage and transport procedures have been followed must be included in the field notebook and on appropriate field forms.

2.2 Decontamination of Sampling Equipment

Proper decontamination of all re-usable sampling equipment is critical for all sampling episodes. The SOP for Decontamination of Field Equipment and SOPs for method-specific or instrument-specific tasks must also be referred to for guidance for decontamination of various types of equipment.

2.3 Quality Assurance/Quality Control Samples

QA/QC samples are intended to provide control over the proper collection and tracking of environmental measurements, and subsequent review, interpretation and validation of generated analytical data. The SOPs for Collection of Quality Control Samples, for Evaluation and Validation of Data, and for Field Record Keeping and Quality Assurance/Quality Control must be referred to for detailed guidance regarding these respective procedures. SOPs for method-specific or instrument-specific tasks must also be referred to for guidance for QA/QC procedures.

2.4 Sample Preservation Requirements

Certain analytical methodologies for specific analytes require chemical additives in order to stabilize and maintain sample integrity. Generally, this is accomplished under the following two scenarios:

a. Sample bottles are preserved at the laboratory prior to shipment into the field.

b. Preservatives are added in the field immediately after the samples are collected.

Many laboratories provide pre-preserved bottles as a matter of convenience and to help ensure that samples will be preserved immediately upon collection. A problem associated with this method arises if not enough sample could be collected, resulting in too much preservative in the sample. More commonly encountered problems with this method include the possibility of insufficient preservative provided to achieve the desired pH level or the need for additional preservation due to chemical reactions caused by the addition of sample liquids to pre-preserved bottles. The use of pre-preserved bottles is acceptable; however, field sampling teams must always be prepared to add additional preservatives to samples if the aforementioned situations occur. Furthermore, care must be exercised not to overfill sample bottles containing preservatives to prevent the sample and preservative from spilling and therefore diluting the preservative (i.e., not having enough preservative for the volume of sample).

When samples are preserved after collection, special care must be taken. The transportation and handling of concentrated acids in the field requires additional preparation and adherence to appropriate preservation procedures. All preservation acids used in the field should be trace-metal or higher-grade.

2.5 Sample Handling

After the proper sample bottles have been received under chain-of-custody, properly decontaminated equipment has been used to collect the sample, and appropriate preservatives have been added to maintain sample integrity, the final step for the field personnel is checking the sample bottles prior to proper packing and delivery of the samples to the laboratory.

All samples should be organized and the labels checked for accuracy. The caps should be checked for tightness and any 40-ml volatile organic compound (VOC) bottles must be checked for bubbles. Each sample bottle must be placed in an individual "zip-lock" bag to protect the label, and placed on ice. The bottles must be carefully packed to prevent breakage during transport. When several bottles have been collected for an individual sample, they should not be placed adjacent to each other in the cooler to prevent possible breakage of all bottles for a given sample. If there are any samples which are known or suspected to be highly contaminated, these should be placed in an individual cooler under separate chain-of-custody to prevent possible cross contamination. Sufficient ice (wet or blue packs) should be placed in the cooler to maintain the temperature at 4 degrees Celsius (°C) until delivery at the laboratory. Consult the work plan to determine if a particular ice is specified as the preservation for transportation (e.g., the United States Environmental Protection Agency does not like the use of blue packs because they claim that the samples will not hold at 4°C). If additional coolers are required, then they should be purchased. The chain-of-custody form should be properly completed, placed in a "zip-lock" bag, and placed in the cooler. One copy must be maintained for the project files. The cooler should be sealed with packing tape and a custody seal. The custody seal number should be noted in the field book. Samples collected from Monday through Friday will be delivered to the laboratory within 24 hours of collection. If Saturday delivery is

not available, samples collected on Friday must be delivered by Monday morning. Check the work plan to determine if certain analytes require a shorter delivery time. If overnight mail is utilized, then the shipping bill must be maintained for the files and the laboratory must be called the following day to confirm receipt.

3.0 EQUIPMENT AND MATERIALS

3.1 General equipment and materials may include, but not necessarily be limited to, the following:

a. Sample bottles of proper size and type with labels.

b. Cooler with ice (wet or blue pack).

c. Field notebook, appropriate field form(s), chain-of-custody form(s), custody seals.

d. Black pen and indelible marker.

e. Packing tape, "bubble wrap", and "zip-lock" bags.

f. Overnight (express) mail forms and laboratory address.

g. Health and safety plan (HASP).

h. Work plan/scope of work.

i. Pertinent SOPs for specified tasks and their respective equipment and materials.

3.2 Preservatives for specific samples/analytes as specified by the laboratory. Preservatives must be stored in secure, spillproof glass containers with their content, concentration, and date of preparation and expiration clearly labeled.

3.3 Miscellaneous equipment and materials including, but not necessarily limited to, the following:

a. Graduated pipettes.

b. Pipette bulbs.

c. Litmus paper.

d. Glass stirring rods.

e. Protective goggles.

f. Disposable gloves.

g. Lab apron.

h. First aid kit.

i. Portable eye wash station.

j. Water supply for immediate flushing of spillage, if appropriate.

k. Shovel and container for immediate containerization of spillage-impacted soils, if appropriate.

4.0 PROCEDURE

4.1 Examine all bottles and verify that they are clean and of the proper type, number, and volume for the sampling to be conducted.

4.2 Label bottles carefully and clearly with project name and number, site location, sample identification, date, time, and the sampler's initials using an indelible marker.

4.3 Collect samples in the proper manner (refer to specific sampling SOPs).

4.4 Conduct preservation activities as required after each sample has been collected. Field preservation must be done immediately and must not be done later than 30 minutes after sample collection.

4.5 Conduct QC sampling, as required.

4.6 Seal each container carefully and place in an individual "zip lock" bag.

4.7 Organize and carefully pack all samples in the cooler immediately after collection (e.g., bubble wrap). Insulate samples so that breakage will not occur.

4.8 Complete and place the chain-of-custody form in the cooler after all samples have been collected. Maintain one copy for the project file. If the cooler is to be transferred several times prior to shipment or delivery to the laboratory, it may be easier to tape the chain-of-custody to the exterior of the sealed cooler. When exceptionally hazardous samples are known or suspected to be present, this should be identified on the chain-of-custody as a courtesy to the laboratory personnel.

4.9 Add additional ice as necessary to ensure that it will last until receipt by the laboratory.

4.10 Seal the cooler with packing tape and a custody seal. Record the number of the custody seal in the field notebook and on the field form. If there are any exceptionally hazardous samples, then shipping regulations should be examined to ensure that the sample containers and coolers are in compliance and properly labeled.

4.11 Samples collected from Monday through Friday will be delivered to the laboratory within 24 hours of collection. If Saturday delivery is not available,

samples collected on Friday must be delivered by Monday morning. Check the work plan to determine if certain analytes require a shorter delivery time.

4.12 Maintain the shipping bill for the project files if overnight mail is utilized and call the laboratory the following day to confirm receipt.

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose for this standard operating procedure (SOP) is to establish the guidelines for purging a well prior to the collection of a ground-water sample. Purging (evacuating) a well involves the removal of the standing column of water in the well to allow "fresh" (representative) formation water to enter the well. Two conventionally used methods for well purging include: 1) discharge of a specified number of casing volumes of water (which is more commonly used); and 2) pumping until specific indicator parameters (e.g., specific conductance, pH, temperature) stabilize. Wells must be purged prior to sampling to ensure the collection of representative formation ground water for water-quality analysis.

For accepted, existing sampling and analysis programs, the same purging method will be used each time to maintain consistency. For new sampling and analysis programs, the basis for the purging technique(s) will be site-specific field conditions, client input, the experience of Roux Associates, Inc. and regulatory agency(ies) guidelines (e.g., some states permit purging a low-yield well to dryness while others insist that some water remains in the well).

2.0 EQUIPMENT AND MATERIALS

2.1 The following equipment may be needed to purge a monitoring well before sampling:

a. Bailers.

b. Centrifugal pumps.

c. Electrical submersible pumps.

d. Peristaltic pumps.

e. Positive gas-displacement devices.

f. Bladder pumps.

g. Hand-operated diaphragm or bilge pump(s).

h. Teflon™ tape, electrical tape.

i. Tape measure (stainless steel, steel, fiberglass) with 0.01-foot measurement increments and chalk (e.g., blue carpenter's) or m-scope.

j. Appropriate discharge hose and valves.

k. Appropriate discharge tubing (e.g., polypropylene) if using a peristaltic pump.

l. Appropriate compressed gas if using bladder-type or gas-displacement device.

m. Extension cord(s) or portable generator (and fuel) if using an electric submersible pump.

n. Non-absorbent cord (e.g., polypropylene, etc.), cotton (absorbent) cord.

o. Tripod(s).

p. Water Well Handbook.

q. Explosimeter.

r. Flow meter.

2.2 Bailers or centrifugal pumps are recommended for shallow, small diameter monitoring wells. For deep wells, or large diameter wells, a submersible pump is recommended.

3.0 DECONTAMINATION

Each piece of equipment that is used to evacuate wells (e.g., bailers, pumps, hoses) will be decontaminated thoroughly prior to the introduction of the equipment into the well and prior to leaving the site. Additionally, disposable items (e.g., cord, tubing) will be changed between each well purged and discarded in an appropriate manner.

4.0 PROCEDURE

4.1 The depth to water (DTW) is measured and subtracted from the sounded (total) depth of the well to calculate the length of the column of standing water in the well (in feet).

4.2 The volume of the standing water in the well is calculated by multiplying the length of standing water by a coefficient which equates the diameter of the well to gallons per linear foot. (Refer to the attached table from the Water Well Handbook for the coefficient or use the following equation [V=(7.48 gal/ft3)(r2h), where V is volume of water in gallons, r is the radius of the well casing in feet, and h is the height of the water column in the well in feet].)

4.3 If purging is performed by evacuating a specified number of casing volumes, then three to five volumes are purged (typical regulatory agency requirement).

4.4 If wells are screened in low permeability formations, then the well may go dry prior to removing the specified volume of water. If the recovery rate is fairly rapid and time allows, then remove more than one casing volume; otherwise, the

evacuation of one casing volume may suffice. (Refer to the site sampling and analysis plan [SAP] for details of purging a low-yield well.)

4.5 Evacuation will occur from the top of the water column in the well to ensure that "fresh" formation water enters the bottom of the well through the screen, moves up as standing water is removed from the top, and all standing water is removed (i.e., only representative formation water is in the well).

4.6 The volume of water purged from the well must be measured and can be calculated directly by discharging into containers of known volume or can be calculated by multiplying rate of flow by time.

4.7 If a submersible or centrifugal pump is used, then the intake is set just below the dynamic (pumping) water level in the well. The rate of flow in gallons per minute (gpm) can be measured using a calibrated bucket (e.g., 5-gallon) if the rate is relatively low, or a 55-gallon drum if the rate is relatively high, and a watch capable of measuring time in second intervals. A precalibrated flow meter may also be used if available.

4.8 After the specified number of casing volumes have been evacuated from the well, the pump intake is lifted slowly until it breaks suction to confirm that any standing water above the intake has been purged.

4.9 If a bailer is used, then the bailer is lowered only deep enough to remove water from the top of the water column and a 5-gallon bucket is used to measure the volume of water evacuated.

4.10 If purging is not executed by evacuating a specified number of well volumes, then purging is performed by pumping or bailing the well until specific indicator parameters (e.g., specific conductance, pH, temperature) stabilize. The volume of water removed is documented on an appropriate field form or in the field notebook.

4.11 Water purged from the well will be disposed of in accordance with the appropriate method outlined in the site SAP.

4.12 If historic site data indicate that explosive gases could be present and accumulate in the well, then an explosimeter will be used to check vapor concentrations in wells at the site prior to beginning the purging procedure. Vapor concentrations in a well that exceed the 25 percent lower explosive limit (LEL) will require specific precautionary measures to allow purging the well without danger of explosion or fire (e.g., use of cotton cord for bailers or lowering pumping devices, non-electric powered pumps). These conditions will be addressed in the site health and safety plan (HASP) and/or SAP.

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to establish guidelines for the sampling of ground-water monitoring wells for dissolved constituents. As part of the SOP for the sampling of ground-water monitoring wells, sample collection equipment and devices must be considered, and equipment decontamination and pre-sampling procedures (e.g., measuring water levels, sounding wells, and purging wells) must be implemented. Sampling objectives must be firmly established in the work plan before considering the above.

Valid water-chemistry data are integral to a hydrogeologic investigation that characterizes ground-water quality conditions. Water-quality data are used to evaluate both current and historic aquifer chemistry conditions, as well as to estimate future conditions (e.g., trends, migration pathways). Water-quality data can be used to construct ground-water quality maps to illustrate chemical conditions within the flow system, to generate water-quality plots to depict conditions with time and trends, and to perform statistical analyses to quantify data variability, trends, and cleanup levels.

2.0 EQUIPMENT AND MATERIALS

2.1 In order to sample ground water from monitoring wells, specific equipment and materials are required. The equipment and materials list may include, but not necessarily be limited to, the following:

a. Bailers (Teflon™ or stainless steel).

b. Pumps (centrifugal, peristaltic, bladder, electric submersible, bilge, hand-operated diaphragm, etc.).

c. Gas-displacement device(s).

d. Air-lift device(s).

e. Teflon™ tape, electrical tape.

f. Appropriate discharge hose.

g. Appropriate discharge tubing (e.g., polypropylene, teflon, etc.) if using a peristaltic pump.

h. Appropriate compressed gas if using bladder-type or gas-displacement device.

i. Portable generator and gasoline or alternate power supply if using an electric submersible pump.

j. Non-absorbent cord (e.g., polypropylene, etc.).

k. Plastic sheeting.

l. Tape measure (stainless steel, steel, fiberglass) with 0.01-foot measurement increments and chalk (blue carpenter's).

m. Electronic water-level indicators (e.g., m-scope, etc.) or electric water-level/product level indicators.

n. Non-phosphate, laboratory-grade detergent.

o. Distilled/Deionized water.

p. Potable water.

q. Paper towels, clean rags.

r. Roux Associates' field forms (e.g., daily log, well inspection checklist, sampling, etc.) and field notebook.

s. Well location and site map.

t. Well keys.

u. Stop watch, digital watch with second increments, or watch with a second hand.

v. Water Well Handbook.

w. Calculator.

x. Black pen and water-proof marker.

y. Tools (e.g., pipe wrenches, screwdrivers, hammer, pliers, flashlight, pen knife, etc.).

z. Appropriate health and safety equipment, as specified in the site health and safety plan (HASP).

aa. pH meter(s) and buffers.

bb. Conductivity meter(s) and standards.

cc. Thermometer(s).

dd. Extra batteries (meters, thermometers, flashlight).

ee. Filtration apparatus, filters, pre-filters.

ff. Plasticware (e.g., premeasured buckets, beakers, flasks, funnels).

gg. Disposable gloves.

hh. Water jugs.

ii. Laboratory-supplied sample containers with labels.

jj. Cooler(s).

kk. Ice (wet, blue packs).

ll. Masking, duct, and packing tape.

mm. Chain-of-custody form(s) and custody seal(s).

nn. Site sampling and analysis plan (SAP).

oo. Site health and safety plan (HASP).

pp. Packing material (e.g., bubble wrap)

qq. "Zip-lock" plastic bags.

rr. Overnight (express) mail forms.

3.0 DECONTAMINATION

3.1 Make sure all equipment is decontaminated and cleaned before use (refer to the SOP for Decontamination of Field Equipment for detailed decontamination methods, summaries for bailers and pumps are provided below). Use new, clean materials when decontamination is not appropriate (e.g., non-absorbent cord, disposable gloves). Document, and initial and date the decontamination procedures on the appropriate field form and in the field notebook.

a. Decontaminate a bailer by: 1) wearing disposable gloves, 2) disassembling (if appropriate) and scrubbing in a non-phosphate, laboratory-grade detergent and distilled/deionized water solution, and 3) rinsing first with potable water and then distilled/deionized water.

b. Decontaminate a pump by: 1) wearing disposable gloves, 2) flushing the pump and discharge hose (if not disposable) first with a non-phosphate, laboratory-grade detergent and potable water solution in an appropriate container (clean bucket, garbage can, or 55-gallon drum) and then with

distilled/deionized water or potable water, and 3) wiping pump-related equipment (e.g., electrical lines, cables, discharge hose) first with a clean cloth and detergent solution and then rinsing or wiping with a clean cloth and distilled/deionized water or potable water.

3.2 Note that the decontamination procedures for bailers and pumps are the minimum that must be performed. Check the work plan to determine if chemicals specified by individual state regulatory agencies must also be used for decontamination procedures (e.g., hexane, nitric acid, acetone, isopropanol, etc.).

4.0 CALIBRATION OF FIELD ANALYSIS EQUIPMENT

Calibrate field analysis equipment before use (e.g., thermometers, pH and conductivity meters, etc.). Refer to the specific SOP for field analysis for each respective piece of equipment. Document, and initial and date the calibration procedures on the appropriate field form, in the field notebook, and in the calibration log book.

5.0 PROCEDURE

5.1 Document, and initial and date well identification, pre-sampling information, and problems encountered on the appropriate field form and in the field notebook as needed.

5.2 Inspect the protective casing of the well and the well casing, and note any items of concern such as a missing lock, or bent or damaged casing(s).

5.3 Place plastic sheeting around the well to protect sampling equipment from potential cross contamination.

5.4 Remove the well cap or plug and, if necessary, clean the top of the well off with a clean rag. Place the cap or plug on the plastic sheeting. If the well is not vented, allow several minutes for the water level in the well to equilibrate. If fumes or gases are present, then diagnose these with the proper safety equipment. Never inhale the vapors.

5.5 Measure the depth to water (DTW) from the measuring point (MP) on the well using a steel tape and chalk or an electronic sounding device (m-scope). Refer to the specific SOPs for details regarding the use of a steel tape or a m-scope for measuring water levels. Calculate the water-level elevation. Document, and initial and date the information on the appropriate field form and in the field notebook.

5.6 Measuring the total depth of the well from the MP with a weighted steel tape. Calculate and record the volume of standing water in the well casing on the appropriate field form and in the field notebook.

5.7 Decontaminate the equipment used to measure the water level and sound the well with a non-phosphate, laboratory-grade detergent solution followed by a distilled/deionized water rinse.

5.8 Purge the well prior to sampling (refer to the SOP for Purging a Well). The well should be pumped or bailed to remove the volume of water specified in the work plan. Usually three to five casing volumes are removed if the recharge rate is adequate to accomplish this within a reasonable amount of time.

If the formation cannot produce enough water to sustain purging, then one of two options must be followed. These include: 1) pumping or bailing the well dry, or 2) pumping or bailing the well to "near-dry" conditions (i.e., leaving some water in the well). The option employed must be specified in the work plan and be in accordance with regulatory requirements.

If the well is purged dry, then all the standing water has been removed and upon recovery the well is ready for sampling. However, depending on the rate of recovery and the time needed to complete the sampling round, one of the following procedures may have to be implemented: 1) the well may have to be sampled over a period of more than one day; 2) the well may not yield enough water to collect a complete suite of samples and only select (most important) samples will be collected; or 3) the well may not recover which will preclude sampling. Regardless of the option that must be followed, the sampling procedure must be fully documented. When preparing to conduct a sampling round, review drilling, development and previous sampling information (if available) to identify low-yielding wells in order to purge them first, and potentially allow time for the well to recover for sampling.

5.9 Record the physical appearance of the water (i.e., color, turbidity, odor, etc.) on the appropriate field form and in the field notebook, as it is purged. Note any changes that occur during purging.

5.10 If a bailer is used to collect the sample, then:

a. Flush the decontaminated bailer three times with distilled/deionized water.

b. Tie the non-absorbent cord (polypropylene) to the bailer with a secure knot and then tie the free end of the bailer cord to the protective casing or, if possible, some nearby structure to prevent losing the bailer and cord down the well.

c. Lower the bailer slowly down the well and into the water column to minimize disturbance of the water surface. If a bottom-filling bailer is used, then do not submerge the top of the bailer; however, if a top-filling bailer is used, then submerge the bailer several feet below the water surface.

d. Remove and properly discard one bailer volume from the well to rinse the bailer with well water before sampling. Again, lower the bailer slowly down the well to the appropriate depth depending on the bailer type (as discussed above in 5.11 c). When removing the bailer from the well, do not allow the bailer cord to rest on the ground but coil it on the protective plastic sheeting placed around the well. Certain regulatory agencies require that the first bailer volume collected be utilized for the samples.

5.11 If a pump is used to collect the sample, then use the same pump used to purge the well and, if need be, reduce the discharge rate to facilitate filling sample containers and to avoid problems that can occur while filling sample containers (as listed in Number 5.14, below). Alternately, the purge pump may be removed and a thoroughly decontaminated bailer can be used to collect the sample.

5.12 Remove each appropriate container's cap only when ready to fill each with the water sample, and then replace and secure the cap immediately.

5.13 Fill each appropriate, pre-labeled sample container carefully and cautiously to prevent: 1) agitating or creating turbulence; 2) breaking the container; 3) entry of, or contact with, any other medium; and 4) spilling/splashing the sample and exposing the sampling team to contaminated water. Immediately place the filled sample container in a ice-filled (wet ice or blue pack) cooler for storage. If wet ice is used it is recommended that it be repackaged in zip-lock bags to help keep the cooler dry and the sample labels secure. Check the work plan as to whether wet ice or blue packs are specified for cooling the samples because certain regulatory agencies may specify the use of one and not the other.

5.14 "Top-off" containers for volatile organic compounds (VOCs) and tightly seal with Teflon™-lined septums held in place by open-top screw caps to prevent volatilization. Ensure that there are no bubbles by turning the container upside down and tapping it gently.

5.15 Filter water samples (Procedure 4.6) collected for dissolved metals analysis prior to preservation to remove the suspended sediment from the sample. If water samples are to be collected for total metals analysis, then collect a second set of samples without field filtering.

In the event that the regulatory agency(ies) want unfiltered samples for metals analysis, a second set of filtered samples should also be collected. Because unfiltered samples are indications of total metals (dissolved and suspended) they are not representative of aquifer conditions because ground water does not transport sediment (except in some rare cases). Thus, the results for dissolved metals in ground water should be based on filtered samples even if both filtered and unfiltered sets are presented in a report.

5.16 Add any necessary preservative(s) to the appropriate container(s) prior to, or after (preferred), the collection of the sample, unless the appropriate preservative(s) have already been added by the laboratory before shipment.

5.17 Collect quality control (QC) samples as required in the work plan to monitor sampling and laboratory performance. Refer to the SOP for Collection of Quality Control Samples.

5.18 Conduct field analyses after sample collection is complete by measuring and recording the temperature, conductivity, pH, etc. (as called for in the work plan). Note and record the "final" physical appearance of the water (after purging and sampling) on an appropriate field form and in the field notebook.

5.19 Wipe the well cap with a clean rag, replace the well cap and protective cover (if present). Lock the protective cover.

5.20 Verify that each sample is placed in an individual "zip-lock" bag, wrapped with "bubble wrap," placed in the cooler, and that the cooler has sufficient ice (wet ice or blue packs) to preserve the samples for transportation to the analytical laboratory.

5.21 Decontaminate bailers, hoses, and pumps as discussed in the decontamination SOP. Wrap decontaminated equipment with a suitable material (e.g., clean plastic bag or aluminum foil). Discard cords, rags, gloves, etc. in a manner consistent with site conditions.

5.22 Complete all necessary field forms, field notebook entries, and the chain-of-custody forms. Retain one copy of each chain-of-custody form. Secure the cooler with sufficient packing tape and a custody seal.

5.23 Samples collected from Monday through Friday will be delivered within 24 hours of collection. If Saturday delivery is not available, samples collected on Friday must be delivered by Monday morning. Consult the work plan to determine if any of the analytes require a shorter delivery time.

END OF PROCUDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to establish guidelines for the collection of soil samples for laboratory analysis. This SOP is applicable to soil samples collected from split-spoon samplers during drilling, hand auger samples, grab samples from stockpiled soils, surface samples, test pit samples, etc.

2.0 CONSIDERATIONS

Soil samples may be collected in either a random or biased manner. Random samples can be based on a grid system or statistical methodology. Biased samples can be collected in areas of visible impact or suspected source areas. Soil samples can be collected at the surface, shallow subsurface, or at depth. When samples are collected at depth the water content should be noted, since generally "soil sampling" is restricted to the unsaturated zone. Equipment selection will be determined by the depth of the sample to be collected. A thorough description of the sampling locations and proposed methods of sample collection should be included in the work plan.

Commonly, surface sampling refers to the collection of samples at a 0 to 6 inch depth interval. Certain regulatory agencies may define the depth interval of a surface sample differently, and this must be defined in the work plan. Collection of surface soil samples is most efficiently accomplished with the use of a stainless steel trowel or scoop. For samples at greater depths a decontaminated bucket auger or power auger may be needed to advance the hole to the point of sample collection. Another clean bucket auger should then be used to collect the sample. To collect samples at depths of greater than approximately six feet the use of a drill rig and split spoon samples will usually be necessary. In some situations, sample locations are accessed with the use of a backhoe.

3.0 MATERIALS/EQUIPMENT

a. A work plan which outlines soil sampling requirements.

b. Field notebook, field form(s), maps, chain-of-custody forms, and custody seals.

c. Decontamination supplies (including: non-phosphate, laboratory grade detergent, buckets, brushes, potable water, distilled water, regulatory-required reagents, aluminum foil, plastic sheeting, etc.).

d. Sampling device (split-spoon sampler, stainless steel hand auger, stainless steel trowel, etc.).

e. Stainless steel spoons or spatulas.

f. Disposable sampling gloves.

g. Laboratory-supplied sample containers with labels.

h. Cooler with blue or wet ice.

i. Plastic sheeting.

j. Black pen and indelible marker.

k. Zip-lock bags and packing material.

l. Tape measure.

m. Paper towels or clean rags.

n. Masking and packing tape.

o. Overnight (express) mail forms.

4.0 DECONTAMINATION

All reusable sampling equipment will be thoroughly cleaned according to the decontamination SOP. Where possible, thoroughly pre-cleaned and wrapped sampling equipment should be used and dedicated to individual sampling locations. Disposable items such as sampling gloves, aluminum foil, and plastic sheeting will be changed after each use and discarded in an appropriate manner.

5.0 PROCEDURE

5.1 Prior to collecting soil samples, ensure that all sampling equipment has been thoroughly cleaned according to the decontamination SOP. If samples are to be collected at depth, then the boring must be advanced with thoroughly cleaned equipment to the desired sampling horizon and a different thoroughly cleaned sampler must be used to collect the sample.

5.2 Using disposable gloves and a pre-cleaned, stainless steel spatula or spoon, extract the soil sample from the sampler, measure the recovery, and separate the wash from the true sample. Where allowed by regulatory agency(ies), disposable plastic spoons may be used.

5.3 Place the sample in a laboratory-supplied, pre-cleaned sample container. This should be done as quickly as possible and this is especially important when sampling for volatile organic compounds (VOCs). Samples to be analyzed for VOCs must be collected prior to other constituents.

5.4 The sample container will be labeled with appropriate information such as, client name, site location, sample identification (location, depth, etc.), date and time of collection, and sampler's initials.

5.5 Using the remaining portion of soil from the sampler, log the sample in detail and record sediment characteristics (color, odor, moisture, texture, density, consistency, organic content, layering, grain size, etc.).

5.6 If soil samples are to be composited in the field, then equal portions from selected locations will be placed on a clean plastic sheet and homogenized. Alternately, several samples may be submitted to the laboratory for compositing by weight. The method used is dependent upon regulatory requirements. Specific compositing procedures shall be approved by the appropriate regulatory agency and described in the work plan. Samples to be analyzed for VOCs will not be composited unless required by a regulatory agency.

5.7 After the sample has been collected, labeled, and logged in detail, it is placed in a zip-lock bag and stored in a cooler at 4°C.

5.8 A chain-of-custody form is completed for all samples collected. One copy is retained and two are sent with the samples in a zip-lock bag to the laboratory. A custody seal is placed on the cooler prior to shipment.

5.9 Samples collected from Monday to Friday are to be delivered to the laboratory within 24 hours of collection. If Saturday delivery is unavailable, samples collected on Friday must be delivered by Monday morning. Check the work plan to determine if any analytes require a shorter delivery time.

5.10 The field notebook and appropriate forms should include, but not be limited to the following: client name, site location, sample location, sample depth, sample identification, date and time collected, sampler's name, method of sample collection, number and type of containers, geologic description of material, description of decontamination procedures, etc. A site map should be prepared with exact measurements to each sample location in case follow-up sampling is necessary.

5.11 All reusable sampling equipment must be thoroughly cleaned in accordance with the decontamination SOP. Following the final decontamination (after all samples are collected) the sampling equipment is wrapped in aluminum foil. Discard any gloves, foil, plastic, etc. in an appropriate manner that is consistent with site conditions.

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to establish guidelines for conducting soil gas surveys utilizing a portable photoionization detector (PID).

2.0 CONSIDERATIONS

The specific procedure and equipment selection will be dependent upon the data objectives of the sampling program. For example, the sampling program may range from a preliminary screening utilizing several random locations to an extensive grid system with numerous horizontal and vertical sampling locations. The soil gas survey plan should be carefully designed and fully described in the work plan or proposal.

A soil gas survey is a method to approximate the distribution of volatile organic compounds (VOCs) in soil or ground water based on the concentration of VOCs in the pore space of the vadose zone. The advantage of a soil gas survey is that a broad site assessment can be conducted at a reduced cost with instantaneous qualitative analytical results. The survey can aid in the decision-making process for future soil sampling and well locations in order to optimize the data collected from these locations. Soil gas surveys can also be performed areas such as buildings and basements where access restrictions limit the use of conventional equipment.

Proper design of a soil gas survey requires an understanding of site features, equipment limitations, and hydrogeologic factors. Many site-specific factors, such as geology, depth to water, soil moisture, contaminant concentration and distribution, weather, natural and man-made migration pathways, organic content of soil, contaminant volatility and solubility, etc. will influence the results of a soil gas survey. Additionally, contaminant ionization potentials and response factors should be considered. It is beyond the scope of this SOP to discuss the specific potential impact of each of these factors. Collection and interpretation of soil gas data requires a thorough understanding of the relationships between these factors. As a result, only experienced personnel should design, conduct, and interpret soil gas surveys.

3.0 MATERIALS/EQUIPMENT

a. A work plan or proposal which outlines soil gas survey requirements.

b. Field book, field form(s) and maps.

c. Decontamination supplies (including non-phosphate, laboratory grade detergent, buckets, brushes, distilled water, potable water, regulatory-required reagents, aluminum foil, plastic sheeting, etc.).

d. Survey stakes or flags.

e. Device to remove surface material (shovel, jack hammer, concrete core drill, electric drill, etc.).

f. Magnetometer.

g. Cable locator.

h. Hand auger.

i. Slam bar.

j. Soil gas probes.

k. Hand sledge hammer.

l. Tool box.

m. Inert tubing of appropriate diameter with screw clamps.

n. Low volume, calibrated vacuum pump.

o. Extension cords.

p. Inorganic clay (modeling).

q. Photoionization meter and charging unit (two units, if possible).

r. Calibration gases and regulators.

s. 100-foot cloth tape measure.

t. 10-foot steel tape measure.

u. Disposable sampling gloves.

v. Backfill and repair materials (clean sand, asphalt patch, concrete patch material, etc.).

w. Broom.

4.0 CALIBRATION

The photoionization meter must be calibrated according to the manufacturer's specifications at a minimum frequency of once per day prior to collecting photoionization readings. In addition, periodic checks with the standard gas (e.g., every 2 hours or every ten samples) will be conducted to confirm that the calibration has not drifted. The time, date and calibration procedure must be clearly documented in the field book. If at any time the photoionization results appear erratic or inconsistent with field observations, then the unit must be recalibrated. If calibration is difficult to achieve, then the unit's

lamp should be checked for dirt or moisture and cleaned, as necessary. During humid or wet conditions, the unit should be calibrated on a more frequent basis as determined by field personnel.

5.0 DECONTAMINATION

All reusable downhole equipment must be thoroughly cleaned according to regulatory-approved procedures. The soil gas probes should be pre-cleaned, wrapped in aluminum foil, and dedicated to an individual sampling location. Equipment such as drill bits, hand augers, slam bars, etc. must be thoroughly decontaminated between sampling locations to prevent cross-contamination. Procedures for cleaning field equipment can be found in the decontamination SOP. Equipment rinsate blanks should be collected to document proper decontamination.

6.0 PROCEDURE

6.1. Utilizing the work plan or proposal, locate soil gas sampling points and mark with a survey flag or nail. Do not use spray paint or solvent-based markers. Verify that the selected locations will achieve the desired data requirements based on the original survey design in the work plan.

6.2. Ensure the absence of subsurface utilities using, as necessary, a utility mark-out service, magnetometer, cable locator, and site reconnaissance.

6.3. Once all soil gas locations have been established, use a calibrated photoionization meter to determine ambient air concentrations (background). If facility operations will impact background readings, then arrangements should be made to conduct the soil gas survey during non-operational times.

6.4. Secure access to the subsurface using shovel, jack hammer, concrete core drill, gas drill, electric drill, etc. Clean surface debris from around the sampling location and utilize plastic sheeting to prevent cross-contamination of equipment.

6.5. Depending upon subsurface materials utilize a hand auger, slam bar, electric drill, etc. to advance the small diameter boring to a depth of 0.5 to 1.0 foot less than the desired sampling depth. Do not use a gasoline-powered drill for advancing the boring.

6.6. Log all geologic materials (if possible) paying special attention to any horizontal stratification or materials which may have preferential permeability.

6.7. Insert a pre-cleaned, stainless steel vapor probe (with perforated end first) into the borehole and drive it 0.5 to 1.0 feet into undisturbed sediments to the desired sampling interval. Refer to the field equipment decontamination SOP for minimum decontamination procedures for all downhole equipment. Pull back on the protective sheath (if present) exposing the perforated portion of the vapor probe.

6.8. Seal the annular space at the surface with inorganic clay (modeling clay) to prevent migration of vapors or surface material from entering the borehole.

6.9. Connect a section of dedicated and disposable teflon tubing to the soil gas probe and clamp off the tubing to establish an air-tight seal. Commercially available manifolds are permitted if properly decontaminated and constructed of stainless steel and/or teflon.

6.10. Connect a vacuum pump to the teflon tubing, release the clamp, and purge the probe to create inflow of potential vapors. Do not allow water to pass through the probe and enter the PID. Reclamp the tubing. The purge volume and rate should be clearly defined in the work plan. The selected rate and volume must remain consistent for all locations for a given survey.

6.11. Connect the calibrated photoionization meter to the teflon tubing creating an air-tight seal, release the clamp, and take a reading. The peak and average readings must be recorded.

6.12. If necessary, reclamp the tubing and secure the location for collection of a duplicate reading at a later time.

6.13. When activities are completed at the location, remove the soil gas probe and thoroughly decontaminate according to regulatory-approved protocols. Backfill the hole using native material or clean fill and restore the surface with appropriate patching material (asphalt, concrete, soil, etc.). Clean the area with a broom and dispose of all non-reusable materials in an appropriate manner.

6.14. Completely document all appropriate information in the field notebook including, but not limited to the following: sample location; sample identification; method of advancing boring; geologic material encountered; documentation of calibration; evacuation procedures including time and volume; photoionization readings including peak, average and time collected; duplicate readings, if any; and any difficulties encountered. A site map should be prepared with exact measurements to sampling points in case future investigation is necessary.

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE.

The purpose for this standard operating procedure (SOP) is to establish the guidelines for decontamination of all field equipment potentially exposed to contamination during drilling, and soil and water sampling. The objective of decontamination is to ensure that all drilling, and soil-sampling and water-sampling equipment is decontaminated (free of potential contaminants): 1) prior to being brought onsite to avoid the introduction of potential contaminants to the site; 2) between drilling and sampling events/activities onsite to eliminate the potential for cross-contamination between boreholes and/or wells; and 3) prior to the removal of equipment from the site to prevent the transportation of potentially contaminated equipment offsite.

In considering decontamination procedures, state and federal regulatory agency requirements must be considered because of potential variability between state and federal requirements and because of variability in the requirements of individual states. Decontamination procedures must be in compliance with state and/or federal protocols in order that regulatory agency(ies) scrutiny of the procedures and data collected do not result in non acceptance (invalidation) of the work undertaken and data collected.

2.0 PROCEDURE FOR DRILLING EQUIPMENT

The following is a minimum decontamination procedure for drilling equipment. Drilling equipment decontamination procedures, especially any variation from the method itemized below, will be documented on an appropriate field form or in the field notebook.

2.1 The rig and all associated equipment should be properly decontaminated by the contractor before arriving at the test site.

2.2 The augers, drilling casings, rods, samplers, tools, rig, and any piece of equipment that can come in contact (directly or indirectly) with the soil, will be steam cleaned onsite prior to set up for drilling to ensure proper decontamination.

2.3 The same steam cleaning procedures will be followed between boreholes (at a fixed on-site location[s], if appropriate) and before leaving the site at the end of the study.

2.4 All on-site steam cleaning (decontamination) activities will be monitored and documented by a member(s) of the staff of Roux Associates, Inc.

2.5 If drilling activities are conducted in the presence of thick, sticky oils (e.g., PCBs) which coat drilling equipment, then special decontamination procedures may have to be utilized before steam cleaning (e.g., hexane scrub and wash).

2.6 Containment of decontamination fluids may be necessary (e.g., rinseate from steam cleaning) or will be required (e.g., hexane), and disposal must be in accordance with state and/or federal procedures.

3.0 PROCEDURE FOR SOIL-SAMPLING EQUIPMENT

The following is a minimum decontamination procedure for soil-sampling equipment (e.g., split spoons, stainless-steel spatulas). Soil-sampling equipment decontamination procedures, especially any variation from the method itemized below, will be documented on an appropriate field form or in the field notebook.

3.1 Wear disposable gloves while cleaning equipment to avoid cross-contamination and change gloves as needed.

3.2 Steam clean the sampler or rinse with potable water. If soil-sampling activities are conducted in the presence of thick, sticky oils (e.g., PCBs) which coat sampling equipment, then special decontamination procedures may have to be utilized before steam cleaning and washing in detergent solution (e.g., hexane scrub and wash).

3.3 Prepare a non-phosphate, laboratory-grade detergent solution and distilled or potable water in a clean bucket.

3.4 Disassemble the sampler, as necessary and immerse all parts and other sampling equipment in the solution.

3.5 Scrub all equipment in the bucket with a brush to remove any adhering particles.

3.6 Rinse all equipment with copious amounts of potable water followed by distilled or deionized water.

3.7 Place clean equipment on a clean plastic sheet (e.g., polyethylene)

3.8 Reassemble the cleaned sampler, as necessary.

3.9 Transfer the sampler to the driller (or helper) making sure that this individual is also wearing clean gloves, or wrap the equipment with a suitable material (e.g., plastic bag, aluminum foil.

As part of the decontamination procedure for soil-sampling equipment, state and/or federal protocols must be considered. These may require procedures above those specified as minimum for Roux Associates, Inc., such as the use of nitric acid, acetone, etc. Furthermore, the containment and proper disposal of decontamination fluids must be considered with respect to regulatory agency(ies) requirements.

4.0 PROCEDURE FOR WATER-SAMPLING EQUIPMENT

The following is a decontamination procedure for water-sampling equipment (e.g., bailers, pumps). Water-sampling equipment decontamination procedures, especially any variation from the method itemized below, will be documented on an appropriate field form or in the field notebook.

4.1 Decontamination procedures for bailers follow:

a. Wear disposable gloves while cleaning bailer to avoid cross-contamination and change gloves as needed.

b. Prepare a non-phosphate, laboratory-grade detergent solution and potable water in a bucket.

c. Disassemble bailer (if applicable) and discard cord in an appropriate manner, and scrub each part of the bailer with a brush and solution.

d. Rinse with potable water and reassemble bailer.

e. Rinse with copious amounts of distilled or deionized water.

f. Air dry.

g. Wrap equipment with a suitable material (e.g., clean plastic bag, aluminum foil).

h. Rinse bailer at least three times with distilled or deionized water before use.

4.2 Decontamination procedures for pumps follow:

a. Wear disposable gloves while cleaning pump to avoid cross-contamination and change gloves as needed.

b. Prepare a non-phosphate, laboratory-grade detergent solution and potable water in a clean bucket, clean garbage can, or clean 55-gallon drum.

c. Flush the pump and discharge hose (if not disposable) with the detergent solution, and discard disposable tubing and/or cord in an appropriate manner.

d. Flush the pump and discharge hose (if not disposable) with potable water.

e. Place the pump on clear plastic sheeting.

f. Wipe any pump-related equipment (e.g., electrical lines, cables, discharge hose) that entered the well with a clean cloth and detergent solution, and rinse or wipe with a clean cloth and potable water.

g. Air dry.

h. Wrap equipment with a suitable material (e.g., clean plastic bag).

As part of the decontamination procedure for water-sampling equipment, state and/or federal protocols must be considered. These may require procedures above those specified as minimum for Roux Associates, Inc., such as the use of nitric acid, acetone, etc. Furthermore, the containment and proper disposal of decontamination fluids must be considered with respect to regulatory agency(ies) requirements.

3. Detailed Operation

3.1. General Information

2020 must be calibrated in order to display concentration in ppm or mg/m^3 units equivalent to the calibration gas. First, a supply of zero air which contains no ionizable gases or vapors, is used to set 2020's zero point. Then, calibration gas, containing a known concentration of a photoionizable gas or vapor, is used to set the sensitivity.

Occasionally clean ambient air will be suitable as zero air. Due to 2020's sensitivity, outdoor air is usually unsuitable for calibration. For best results, use a commercial source of zero grade air and a second regulator. Zero air should have not more than 0.1 ppm total hydrocarbons (THC).

If compound threshold limit values (TLVs) are exceeded, you should use a gas bag for sampling and calibration.

To determine the TLV of the compounds contained in the calibration gas, refer to the Material Safety Data Sheet (MSDS) supplied with your calibration gas cylinder.

If you will be using a gas bag for calibration, you should obtain the calibration kit (Photovac Part No. 390033). The calibration kit contains a regulator, a gas sampling bag and a gas bag adapter. See 3.3 for details of calibration using a gas bag.

Note: Disconnect 2020 from the AC adapter before beginning calibration.

Calibration Using the Flow-Match Regulator

3.2.1. Connecting the Flow-Match Regulator to the Cylinder

Warning: Observe proper handling procedure for all gases! See Section 1.2.2.

1. Connect the regulator to the calibration gas cylinder.

   If you are using a portable tank of calibration gas (Photovac Part No. 350012), connect the regulator (Photovac Part No. 350006) directly to the tank.

2. When the regulator is connected properly, you can read the cylinder contents from the regulator gauge.

3. Connect the adapter tubing to the regulator.

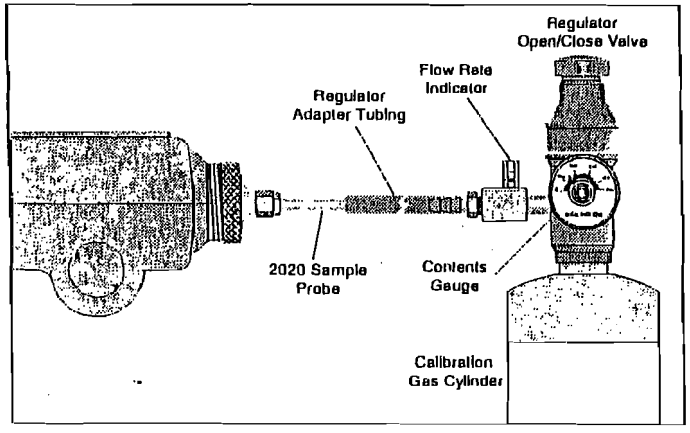

Figure 11 Flow-Match Regulator

3.2.2. Calibrating 2020 with the Flow-Match Regulator

1. Ensure the short sample probe is connected to the 2020 inlet. If you are using the long probe for sampling, then ensure the long probe is connected to 2020.

Note: Ensure the sample probe is free of any contamination as this will effect the calibration

2. Press the ENTER key.

3. Select "Set", "Cal" and then "Mem".

4. Select the desired Cal Memory. 2020 has 15 Cal Memories and can be calibrated with 15 different span gases or response factors if required. Only one Cal Memory can be used at a time. Each Cal Memory stores a different response factor, zero point, sensitivity, and alarm levels.

5. Select "Chng" and then "User". Enter a name for the calibration memory.

   Press the ENTER key and enter a response factor (RF). Refer to Appendix 8.6 for a list of Response Factors. If the compound is not listed in Appendix 8.6 or you are measuring gas mixtures, then enter a value of 1.0. The concentration detected by 2020 will be multiplied by the response factor before it is displayed and logged.

6. Press the ENTER key and enter an alarm level for STEL, TWA and PEAK.

7. Press ENTER and expose 2020 to a supply of zero air.

8. Select "Set", "Cal" and "Zero". Allow 2020 to set its zero point.

9. Select "Set", "Cal" and "Span". 2020 asks for the span gas concentration. Enter the known span gas concentration, without pressing the ENTER key to confirm it.

10. Insert the 2020 sample probe into the adapter tubing from the regulator. See Figure 11.

11. Ensure the calibration gas cylinder is upright and open the regulator by turning the valve counterclockwise. Open the regulator until the ball is 1/8" from its rest position.

Note: Do not set the flow rate too high.

12. Press the ENTER key. 2020 sets its sensitivity.

13. When the display reverts to the default display, 2020 is calibrated and ready for use.

14. Remove the adapter tubing from the inlet and close the regulator.

If you turn off 2020 in the middle of zeroing or spanning, the next time you turn it on it will display a Cal status. This indicates that you need to calibrate 2020.

Note: While the Cal status is active, all alarms are deactivated.

Calibration Using a Gas Bag

3.3.1. Preparing the Calibration Gas Bag and the Zero Air Bag

Use the calibration kit (Photovac Part No. 390033) as follows:

Warning: Observe proper handling techniques for all gases! See Section 1.2.2.

1. Connect the regulator to the calibration gas cylinder.

   If you are using a portable tank of calibration gas, connect the regulator (Photovac Part No. 600649) directly to the tank.

   If you are using a large cylinder of calibration gas, you must obtain a high purity regulator as specified in Section 1.4. Isobutylene in air is usually supplied with a standard CGA 590 cylinder valve outlet. Obtain a regulator with the matching fitting. Connect the regulator to the tank of calibration gas. Tighten the regulator onto the tank with a wrench. Do not over-tighten.

Note: Do not force the connection.

Do not use Teflon tape with CGA fittings. In general, these fittings are designed for metal to metal sealing.

Do not use adapters to connect one CGA fitting to another type of CGA fitting. If the regulator does not match the outlet on your calibration tank, contact your specialty gas supplier.

2. Attach the knurled nut on the gas bag adapter to the regulator. Finger-tighten the fitting.

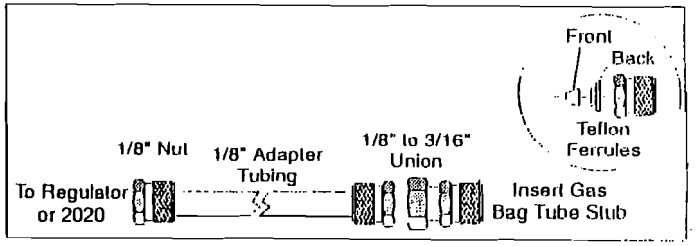

Figure 12 Gas Bag Adapter

3. Loosen the knurled nut on the reducing union of the gas bag adapter.

Note: Do not remove the nut from the union as the Teflon ferrules contained inside the nut may be lost. See Figure 12.

4. Insert the tube stub from the gas bag into the knurled nut. Tighten the knurled nut and ensure the tube stub is secure. If the gas bag is not secure, ensure you have inserted the tube stub far enough into the knurled nut. Do not over-tighten the fitting.

Note: Over-tightening the Teflon ferrules will result in damage to the ferrules!

5. The union should be connected to the gas bag adapter. If it is not, then tighten the nut on the adapter tube to the union.
6. Flush and fill the gas bag. See Appendix 8.5 for instructions.
7. Remove the knurled nut on the adapter tube from the regulator.
8. Repeat this procedure, if necessary, to prepare a bag of zero air.

Note: Do not use the same gas bag or gas bag adapter for the bag of zero air. You will contaminate the bag of zero air.

3.3.2. Calibrating 2020 with a Gas Bag

1. Disconnect the probe from the 2020.
2. Press the ENTER key.
3. Select "Set", "Cal" and then "Mem".

4. Select the desired Cal Memory. 2020 has 15 Cal Memories and can be calibrated with 15 different span gases or response factors if required. Only one Cal Memory can be used at a time. Each Cal Memory stores a different response factor, zero point, sensitivity, and alarm levels.
5. Select "Chng" and then "User". Enter a name for the calibration memory.
6. Press the ENTER key and enter a response factor.
7. Press the ENTER key and enter an alarm level for each mode.
8. Press the ENTER key and enter a response factor. Refer to Appendix 8.6 for a list of Response Factors.

   If the compound is not listed in Appendix 8.6 or you are measuring gas mixtures, then enter a value of 1.0. The concentration detected by 2020 will be multiplied by the response factor before it is displayed and logged.
9. Connect the supply of zero air. If you are using a gas bag with zero air, open the bag and connect the gas bag adapter to the inlet.
10. Select "Set", "Cal" and "Zero". The 2020 sets its zero point.
11. Select "Set", "Cal" and "Span". The 2020 asks for the span gas concentration. Enter the known span gas concentration, without pressing the ENTER key to confirm it.
12. Open the bag and then connect the gas bag adapter to the inlet. Press ENTER. 2020 sets its response factor.

Note: Readings may fluctuate slightly as the gas bag empties. Do not allow 2020 to evacuate the bag completely.

13. When the display reverts to the default display; 2020 is calibrated and ready for use. Remove the span gas bag from the inlet.

If 2020 is powered off in the middle of zeroing or spanning, it will power on displaying a Cal status. This indicates that you need to calibrate 2020. While the Cal status is active, all alarms are inactive.

APPENDIX C

Data Validator Resume

JUDY V. HARRY
P. O. Box 208
120 Cobble Creek Rd.
North Creek, NY 12853

Occupation: Data Validator/Environmental Technical Consultant

Years Experience: 27

Education: B.S., Chemistry, Magna cum laude, 1976, Phi Beta Kappa

Certifications: New York State Woman-Owned Business Enterprise (WBE)

Relevant Work History:

Data Validation Services: September 1989 - present

Sole proprietor of Data Validation Services, providing consultation/validation services to various regulatory and commercial clients.

These services include the review of analytical laboratory data for compliance with respect to specific protocols, accuracy and defensibility of data, verification of reported values, and evaluation of quality parameters for analytical usability of results. Approved by USEPA, NYSDEC, NJDEP, and NYCDEP as a data validator for projects, including USEPA Superfund and lead sites, and those contracted through the NYSDEC Division of Hazardous Waste Remediation, Division of Solid Waste, and Division of Water Quality.

Performed validation for compliance with protocols including USEPA OLM, USEPA OLC, USEPA ILM, USEPA DFLM, USEPA SOW3/90, USEPA SOW 7/87 CLP, USEPA SOW 2/88 CLP, USEPA SW846, RCRA, AFCEE, NYS 6 NYCRR Part 360, 40 CFR, air analysis methods, 1989/1991/1995 NYSDEC ASPs, and 1987 NYSDEC CLP. Performed validation according to the USEPA National and Regional SOPs and Functional Guidelines, AFCEE requirements, NYSDEC Validation Scope of Work, and NJDEP Division of Hazardous Site Mitigation/ Publicly Funded Site Remediation SOPs.

Performed validation for USEPA Superfund Sites including Salem Acres, York Oil, Port Washington L-4 Landfill, Bridgeport Rental and Oil Services, MMR/ OTIS AFB, and Peter Cooper site; and for USEPA lead sites including SJ&J Piconne, Maska, Bowe System, and Syossett Landfill, involving CLP, RAS, and SAS protocols.

Contracted for NYSDEC Superfund Standby Contracts with LMS Engineers, Camp Dresser & McKee, Malcolm-Pirnie, Ecology & Environment, and EC Jordan, involving samples collected at NYS Superfund Sites and analyzed under the NYSDEC ASP.

Validated data for NYSDEC Phase II remedial investigations, RI/FS projects, and PRP over-site projects for hazardous waste sites. Was the primary contractor for Lawler, Matusky & Skelly Engineers during fifth and sixth round Phase II investigation, reviewing results for TCL/ TAL analyses performed according to EPA CLP and 1989 NYSDEC ASP. Provided data validation for NYSDEC Phase II investigations for Gibbs & Hill, Inc, reviewing results from TCL/TAL analyses performed in accordance with the 1989 NYSDEC ASP.

Performed validation services for clients conducting RI/FS activities involving samples of many matrices, including waste, air, sludges, leachates, solids/sediments, aqueous, and biota; clients have included Arcadis Geraghty & Miller, Barton & Loguidice, Bergmann Associates, Blasland, Bouck & Lee, Camp Dresser & McKee, C&S Consulting Engineers, Clough Harbour & Associates, Columbia Analytical Services, C.T. Male, Dames & Moore, Day Engineering, EA Engineering, Ecology & Environment, EC Jordan, Environmental Chemical Corporation, EHRT, ENSR Consulting, ERM-Northeast, Fagan Engineers, Fanning Phillips & Molnar, FluorDaniel GTI, Foster Wheeler Environmental Corp, Frontier Technical, Galson Consultants, Geomatrix Consultants, GZA Environmental, Handex of N, H2M Group, IT Corp, JTM Associates, Leader Environmental, Lockwood, Kessler & Bartlett, LMS Engineers, Malcolm-Pirnie, Metcalf & Eddy, O'Brien & Gere Engineers, Parsons Engineering-Science, Plumley Engineering, Prescott Environmental, P. W. Grosser, Rizzo Associates, Roux Associates, Sear Brown Group, SECOR, Shaw Environmental, ThermoRemediation Inc., TRC Environmental, Turnkey Environmental Restoration, TVGA Engineering, URS Consultants, Wehran Emcon, Weston, YEC, and private industries.

Validator for investigations at the Knolls Atomic Power Laboratory site. Validator for NYSDEC and NJDEP sites for samples analyzed according to EPA CLP SOPs, with validation performed according to NJDEP validation procedures. Validator for numerous landfill site investigations for TCL/TAL and NYS 6 NYCRR Part 360 analytes.

Provided consultation services to laboratories regarding analytical procedures and protocol interpretation, and to law firms for litigation support.

Provided services to firms involving audits of environmental analytical laboratories to determine analytical capability, particularly for compliance with NYSDEC ASP and AFCEE requirements.

Guest speaker on a panel discussing Data Review/Compliance and Usability, for an analysts workshop for the New York Association of Approved Environmental Laboratories, 1993.

Adirondack Environmental Services: June 1987 - August 1989

Senior mass spectroscopist for AES. Responsible for GC/MS analyses of environmental samples by USEPA and NYSDEC protocols; development of the GC/MS laboratory, initiating the instrumental and computer operations from the point of installation; and for implementing the procedures and methodologies for Contract Laboratory Protocol.

CompuChem Laboratories: May 1982 - January 1987

Managed a GC/MS production laboratory; developed, implemented, and supervised QA/QC criteria at three different levels of review; and was responsible for the development and production of the analysis of environmental and clinical samples. Directed a staff of 23 technical and clerical personnel, and managed the extraction and GC/MS labs and data review operations.

Research Triangle Institute: December 1979 - May 1982

Worked as an analytical research chemist responsible for development of analytical methods for the EPA Federal Register at RTI. This involved analysis of biological and environmental samples for priority pollutants, primarily relating to wastewaters and to human sampling studies. Method development included modification and interfacing of the initially developed Tekmar volatile purge apparatus to GC/MS, and the analysis and resolution/identification of individual PCB congeners within Aroclor mixtures by capillary column and mass spectra.

Guardsman Chemical Company: February 1977 - November 1979

Performed all quality control functions for the manufacturing plant. Performed research and development on coatings and dyes.

Almay Cosmetics: May 1976 - December 1976

Product evaluation chemist. Responsible for analytical QC of manufactured products.

APPENDIX D

Citizen Participaton Plan

December 19, 2005

CITIZEN PARTICIPATION PLAN

Gent Uniform Rental
Operable Unit 2
Massapequa, New York

Prepared for

GENT UNIFORM RENTAL
5680 Merrick Road
Massapequa, New York 11568

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

ROUX

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

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1.0 INTRODUCTION

On behalf of Gent Uniform Rental Service (Gent), Roux Associates, Inc. (Roux Associates) has prepared this Citizen Participation Plan (CPP) for the Gent Facility located at 5680 Merrick Road, Massapequa, New York (Site; Figure 1). The CPP was developed to provide a site-specific outline and guidance for citizen participation as required by the New York State Department of Environmental Conservation (NYSDEC).

Gent and the NYSDEC are committed to a citizen participation program at the Site. Citizen participation promotes public understanding of the responsibilities and investigation activities associated with this process. Citizen participation provides Gent and the NYSDEC with an opportunity to gain public input to support a comprehensive investigation program that is protective of both public health and the environment. Consequently, the public's suggestions about this CPP and the citizen participation program for the Site are always welcome. Interested parties are encouraged to discuss their ideas and suggestions with project contacts listed in Appendix A of the CPP.

2.0 SITE DESCRIPTION AND HISTORY

The following section provides a physical description and a brief history of the Site.

2.1 Physical Description

The Site is located at 5680 Merrick Road, Massapequa, New York, (Figure 1), which is located in the town of Oyster Bay, Nassau County. The Site is approximately 0.3 acres in size and includes one two-story building and an asphalt-paved parking area. Gent provides services that mainly focus on the supply and washing of uniforms and rugs. A majority of the building onsite is used for washing, drying, and storage of uniforms.

2.2 Site History

Complete Site operational history and Site investigation history are presented in the Remedial Investigation Work Plan. A two-story building was initially constructed on the Site in the early 1930s. In 1970, the property was purchased by Lafra Realty Corporation and Gent began uniform rental operations at the facility in 1972. In 1977, the building was expanded to the south to its current size. In December 1995, the Site was transferred from Lafra Realty Corporation and Gent Uniform Rental Corporation to 5680 Realty Corporation.

In the mid-1980s, the water from a sink in the auto body shop located south of the Site was found to contain a high concentration of the solvent tetrachloroethene (PCE). The private supply well for the auto body shop was reportedly abandoned following the testing. Roux Associates was unable to locate any records maintained by the NYSDEC or the Nassau County Department of Health (NCDH) describing the exact location of this supply well; however, it was reportedly located on the adjacent Crown Tile property to the west (not the auto body or Gent Site).

Investigations on the Gent property were conducted in 1990 and 1992 by ERM-Northeast, in 1996 by Fluor Daniel GTI, and in 1996 by Dvirka and Bartilucci. These investigations found that soil and groundwater on the Gent property were impacted by PCE from an abandoned grease trap located in the Gent Uniform building. Gent has excavated and properly disposed of impacted soil and installed an air sparge/soil vapor extraction system (AS/SVE) to address residual PCE in soil and groundwater.

In 2003, Roux Associates completed a Remedial Investigation at the Site to assess the effectiveness of the AS/SVE system. Based on the data collected during that investigation, the NYSDEC issued a Record of Decision in March 2005 presenting the selected remedy for Operable Unit 1 of the Site. This CPP is prepared for the Remedial Investigation Work Plan for Operable Unit 2 of the Gent Facility. Operable Unit 2, defined as offsite contamination, encompasses groundwater and potential soil vapor contamination attributable to the Site that is found beyond the property borders.

3.0 CITIZEN PARTICIPATION ACTIVITIES

Citizen participation activities are planned to promote communication between the community surrounding the Site, the NYSDEC, and Gent. The citizen participation activities are intended to address the following questions:

- Who is interested in or affected by the Site?
- What issues of public concern relate to the Site?
- What information can the public contribute about the Site?

3.1 Site Contact List

The public contact list established for OU-1 will be used for this CPP. This list is a comprehensive contact list that includes local and state officials, adjacent property owners, occupants and residents, local news media, the public water supplier, and additionally requested contacts. This list will be periodically updated based on public responses, attendance at public meetings, telephone calls from the interest public, and returned mailings that could not be delivered. The Site Contact List, including contact information, is provided in Appendix B to the CPP.

3.2 Document Repositories

The public repositories established for OU-1 will be used for OU-2. These document repositories include the Region 1 office of the NYSDEC and at the Massapequa Public Library. All documents pertaining to citizen participation activities and related notifications will be placed at the document repositories for public review. Site repository locations and hours are included in Appendix C to the CPP.

3.3 Issues of Public Concern

Issues of public concern at the Site include procedures for protection of public health and safety during investigation activities. During subsurface remedial investigation activities, worker and community health and safety activities will be conducted, including:

- Onsite air monitoring for worker protection; and
- Perimeter air monitoring for community protection.

Odor, vapor, and dust controls such as water or foam sprays will be used as required. Details on the Site Health and Safety Plan and the Community Air Monitoring Plan will be part of the Remedial Investigation Work Plan.

3.4 Summary of Required Citizen Participation Activities

The following outlines the citizen participation program, as required by the BCP for this project.

3.4.1 Application Notification

Upon determination by the NYSDEC that the BCP application was complete, WWP provided a formal notification to all entities on the initial application contact list, including local media outlets, prior to the public comment period, which was from October 20, 2004 though November 19, 2004.

The NYSDEC prepared a Proposed Remedial Action Plan for OU-2 and the ROD for OU-2 will be placed in the public repositories, when available. Remedial Design and Remedial Action (RD/RA) work plans and reports, if necessary, will also be placed into the repositories.

3.4.2 Remedial Investigation Work Plan

Gent provided a draft Remedial Investigation Work Plan for OU-2 to the NYSDEC in July 2005 and a revised draft Remedial Investigation Work Plan in November 2005. A draft final Remedial Investigation Work Plan will be placed in the public repository when available. A fact sheet announcing the availability of the draft final Remedial Investigation Work Plan for OU-2 will be distributed once the draft final Remedial Investigation Work Plan for OU-2 is available.

3.4.3 Remedial Investigation Report

Gent, in cooperation with the NYSDEC, will provide a fact sheet to the contact list describing the Remedial Investigation Report once it is available.

3.4.4 Proposed Remedial Action Plan and Record of Decision

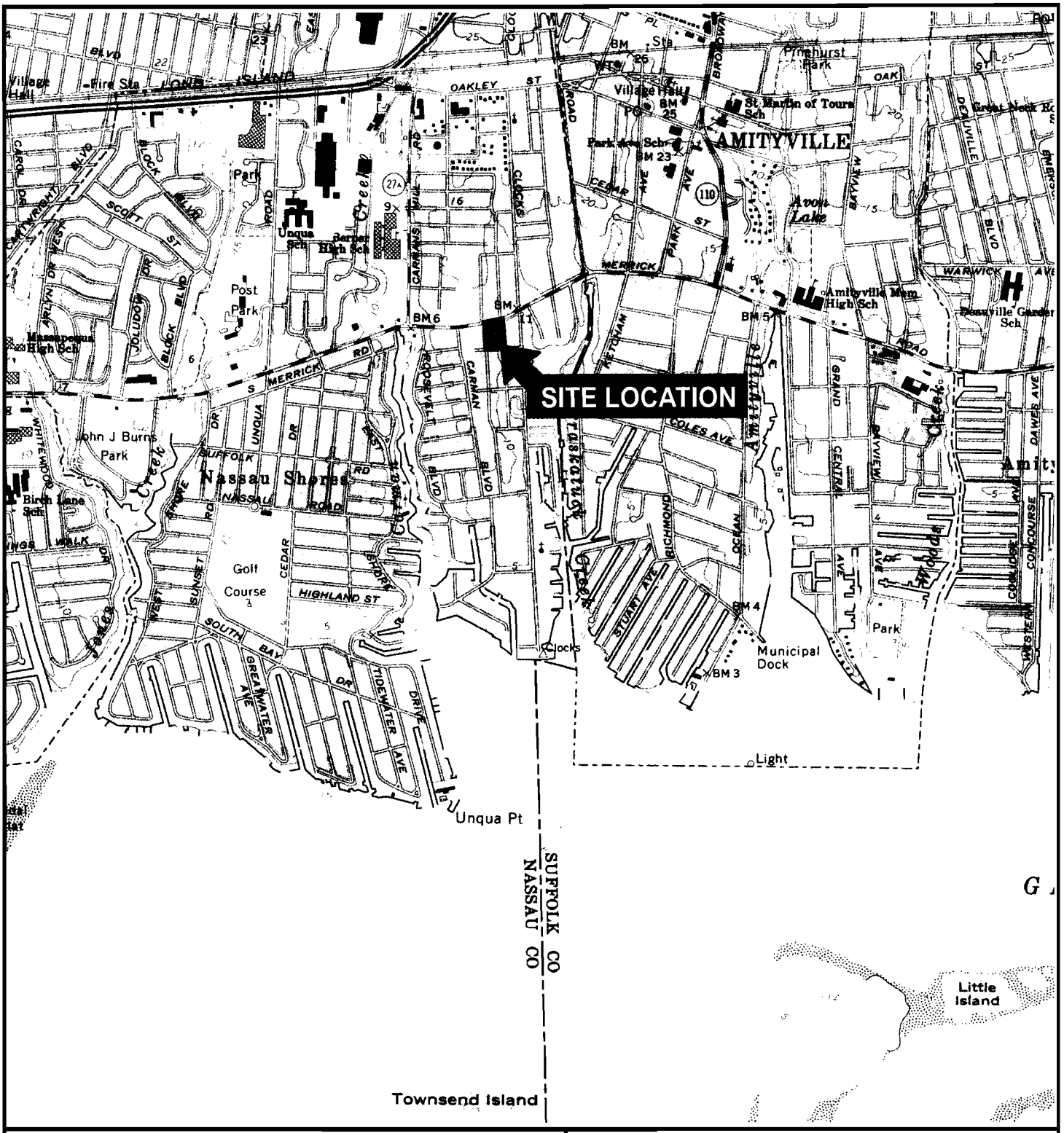
The NYSDEC will place a Proposed Remedial Action Plan and a Record of Decision, as necessary, in the public repositories once completed. A fact sheet will be distributed to the contact list describing the availability of these documents.

3.4.5 Remedial Design/Remedial Action Work Plan

Gent, in cooperation with the NYSDEC, will provide a fact sheet to the contact list describing a RD/RA Work Plan, if such a work plan is necessary, and once it is available.

3.4.6 Additional Citizen Participation Activities

Additional citizen participation activities including, but not limited to, public meetings, availability sessions, and mailing of additional fact sheets will occur as determined necessary by the NYSDEC to address public concerns.



QUADRANGLE LOCATION

SOURCE:
USGS; 1979. Amityville, NY
7.5 Minute Topographic Quadrangle

N

0 2000'

Title:

SITE LOCATION MAP

5680 MERRICK ROAD
MASSAPEQUA, NEW YORK

Prepared for:
GENT UNIFORM RENTAL CORPORATION

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: M.R.	Date: 29AUG05	FIGURE
Prepared by: R.K.	Scale: 1:25000	1
Project Mgr.: M.R.	Office: NY	
File No.: GEN102013102.CDR	Project No.: 102001Y	

APPENDIX A

Project Contact List

APPENDIX A

PROJECT CONTACT LIST

Robert R. Stewart
Environmental Engineer I
New York State Department of Environmental Conservation
Division of Environmental Remediation – Region One
Building 40 - SUNY
Stony Brook, New York 11790-2356
Phone (631) 444-0240

Rebecca Mitchell
New York State Department of Health
Bureau of Environmental Exposure Investigation - Room 300
Flanigan Square
547 River Street
Troy, New York 12180-2216
Phone: (518) 402-7870

Michael Roux
Roux Associates, Inc.
Environmental Consulting and Management
209 Shafter Street
Islandia, New York 11749
Phone (631) 757-2927

APPENDIX B

Site Contact List

APPENDIX B

Contact List Information

1. Potentially Interested Civic Organizations

NYPIRG
New York Public Research Group
10 Oakwood Road
Huntington, NY 11743

Ms. Pat Andrews
Baltimore Shores Civic Association
83 Beach Road
Massapequa, NY 11758

Adrienne Esposito
Citizens Campaign for the Environment
225-A Main Street
Farmingdale, NY 11735

Ms. Diane Losurdo
Citizens for Pure Water
7 Pleasant Avenue
South Farmingdale, NY 11735

East End Civic Association
2 Delta Road
Massapequa, NY 11758

League of Women Voters
P.O. Box 526
Jericho, NY 11753

Ms. Fran Kritchek
Long Island Breast Cancer Action Coalition
Adelphi University
Garden City, NY 11530

Neil Lewis, Executive Director
Long Island Neighborhood Network
90 Pennsylvania Avenue
Massapequa, NY 11758

Mr. Christopher O'Conner
Neighborhood Network
90 Pennsylvania Avenue
Massapequa, NY 11758

1. Potentially Interested Civic Organizations (continued)

Ms. Amy Hamlin
New York League of Conservation Voters
Long Island Chapter
P.O. Box 798
Remsenburg, NY 11960

Ms. Rose Hobbins
North Massapequa Civic Association
185 North Hawthorn Street
North Massapequa, NY 11758

Ms. Emi Coppola
Pepper Circle Civic Association
1 Pepper Circle North
Massapequa, NY 11758

Long Island Chapter
Sierra Club
Post Office Box 210
Syosset, NY 11791

Ms. Joan Schultz
Viceroy Civic Association
103 John Street
North Massapequa, NY 11758

Ms. Peggy Kelly
President
West Massapequa Civic Association
39 Beverly Road
Farmingdale, NY 11735

Mr. William Odol
President
Carmen Road Civic Association
Post Office Box 288
Massapequa, NY 11758

Ms. Vicki DeJong
Citizens Committee for Civic Action
800 Captains Gate
Westbury, NY 11590

1. **Potentially Interested Civic Organizations (continued)**

Mr. Paul Granger
Chair
Long Island Water Conference
10 Manetto Hill Road
Plainview, NY 11803

2. **Potentially Interested Commercial Properties**

Berkshire Realty Holding
25 Weaver Drive
Massapequa, NY 11758

Dingle Bay Enterprises Ltd
325 Sunrise Highway
Lindenhurst, NY 11757-2501

Lazarus Realty
5700 Merrick Road
Massapequa, NY 11758

Madelien Developers Inc.
5 Roughriders Court
Cold Spring Harbor, NY 11724

Mr. Vincent Bohn
Vice President of Utilities
New York Water Service Corporation
60 Brooklyn Avenue
Merrick, NY 11566

New York Water Service Corporation
1003 Park Boulevard
Merrick, NY 11566

New York's Mentally Disabled Inc.
32 Beach Street
Massapequa, NY 11758

Regina-Verutes Inc.
18 Peter Lane
New Hyde Park, NY 11040

S and S Merrick Corp.
5640 Merrick Road
Massapequa, NY 11758

3. Potentially Interested Government Representatives

Denise J. D'Ambrosio, Associate Counsel
Division of Environmental Enforcement
New York State Department of Environmental Conservation
Eastern Field Unit
Tarrytown, NY 10591-5805

Mr. Bill Fonda
Citizen Participation Specialist
New York State Department of Environmental Conservation
Region I
Stony Broon, NY 11790-2356

Mr. Robert R. Stewart, Project Manager
New York State Department of Environmental Conservation, Region 1
Division of Environmental Remediation
Stony Brook, NY 11790-2356

Mr. Walter Parish, Regional Haz. Waste Eng.
New York State Department of Environmental Conservation, Region 1
Division of Environmental Remediation
Stony Brook, NY 11790-2356

Mr. Gary A. Litwin, Director
New York State Department of Health
Bureau of Enviro. Exposure Investigation
Troy, NY 12180-2216

Chamber of Commerce Massapequa
P.O. Box 1912
Massapequa , NY 11758

Reference Librarian
Massapequa Public Library
Massapequa Park, NY 11762

Massapequa Water District
Massapequa, NY 11758

Mr. Edward Kennedy
Oyster Bay Department of Parks
977 Hicksville Road
Massapequa, NY 11758

Mr. Richard Blanfein
Oyster Bay Dept. of Planning and Development
54 Audrey Road
Oyster Bay, NY 11771

3. Potentially Interested Government Representatives

Mr. Richard Lenz
Oyster Bay Office of Environmental Control
54 Audrey Avenue
Oyster Bay, NY 11771

Ms. Phyliss Barry
Oyster Bay Public Information Officer
54 Audrey Avenue
Oyster Bay, NY 11771

Mr. Richard Tarello
South Farmingdale Fire Department
819 South Main Street
Farmingdale, NY 11735

Hon. Angelo A. Delligatti, Councilman
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Hon. Anthony D. Macagnone, Councilman
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Hon. Chris J. Coschignano, Councilman
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Hon. Frank DeStefano, Commissioner
Town of Oyster Bay
Planning and Development Department
Town Hall East
Oyster Bay, NY 11771

Mr.Gregory J. Giammalvo, Town Attorney
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Hon. John Venditto, Town Supervisor
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

3. Potentially Interested Government Representatives (continued)

Hon. Joseph D. Muscarella, Councilman
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Hon. Mary A. McCaffery, Councilwoman
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Public Information Office
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Hon. Rose Marie Walker, Councilwoman
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Hon. Steven Labriola, Town Clerk
Town of Oyster Bay
Town Hall East
Oyster Bay, NY 11771

Town of Oyster Bay Housing Authority
355 Newbridge Road
Hicksville, NY 11801

Ms. Cecilia Echols
U.S. Environmental Protection Agency
290 Broadway, Floor 26
New York, NY 10007

Hon. Peter King
United States Congressman
District 3
1003 Park Boulevard
Massapequa Park, NY 11762

Hon. Joseph Saladino
New York State Assembly – District 12
200 Boundary Avenue
Massapequa, NY 11758

3. Potentially Interested Government Representatives (continued)

Hon. Charles J. Fuschillo Jr.
New York State Senate
District 8
Freeport, NY 11520

Mr. Tom Mahr
Nassau County
1 West Street
Mineola, NY 11501

Ms. Karen Murphy
Nassau County Clerk
240 Old Country Road
Mineola, NY 11501

Mr. Peter Sylver
Commissioner
Nassau County Department of Economic Development
400 County Seat Drive
Mineola, NY 11501

Dr. David Ackman
Commissioner
Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501-4250

Ms. Cynthia Brown
Public Information Specialist
Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501-4250

Mr. Bruce Smith
Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501-4250

Mr. Bruce F. Mackay
Nassau County Department of Health
Bureau of Water Supply Protection
240 Old Country Road
Mineola, NY 11501

3. Potentially Interested Government Representatives (continued)

Mr. Joseph DeFranco
Nassau County Department of Health
Bureau of Water Supply Protection
240 Old Country Road
Mineola, NY 11501

Mr. Joseph Davenport, P.E.
Chief Sanitary Engineer
Nassau County Department of Public Works
1550 Franklin Avenue
Mineola, NY 11501

Mr. John Waltz
Commissioner
Nassau County Department of Public Works
1 West Street
Mineola, NY 11501

Hon. Thomas R. Suozzi
Nassau County Executive
One West Street
Mineola, NY 11501

Mr. Joseph Gioino
Executive Director
Nassau County Industrial Development Agency
400 County Seat Drive, Room 139
Mineola, NY 11501

Mr. Peter J. Schmitt
Representative
Nassau County Legislature – District 12
200 Boundary Avenue
Mineola, NY 11501

Ms. Rosemary Konatich
Water Resources Commission
11 Middle Neck Road
Great Neck, NY 11735

4. Local News Media from which the Community Typically Obtains Information

Ms. Jessica Anderson
Anton Community Newspaper
Massapequa Observer
132 East 2nd Street
Mineola, NY 11501

Ms. Eileen Brennan, Executive Editor
Anton Community Newspapers
132 East 2nd Street
Mineola, NY 11501

Farmingdale Observer
132 East 2nd Street
Mineola, NY 11501

La Tribuna Hispaña
48 Main Street, 2nd Floor
Hempstead, NY 11550

Ms. Kathy McCollough
Long Island Business News
2150 Smithtown Avenue
Ronkonkoma, NY 11779

Ms. Carolyn James
Executive Editor
Massapequa Post
1045B Park Boulevard
Massapequa Park, NY 11762

Ms. Carolyn James, Executive Editor
Massapequa Post
1045B Park Boulevard
Massapequa, NY 11762

Mr. Ken Dickman, Assignment Editor
News 12 Long Island
One Media Crossways
Woodbury, NY 11797

Mr. Daniel Fagin
Newsday
235 Pinelawn Avenue
Melville, NY 11747

LI News Editor
Newsday
235 Pinelawn Road
Melville, NY 11747-4250

Ms. Vicki Metz
WABC-TV
100 Supreme Court Drive
Mineola, NY 11501-4815

4. Local News Media from which the Community Typically Obtains Information (continued)

Assignment Desk
WCBS Channel 2
524 West 57th Street
New York, NY 10019

Assignment Desk
WNBC Channel 4
30 Rockefeller Plaza
New York, NY 10112

5. Residents, Owners, and Occupants of Properties Near the Site

Mr. Edward Aldrich
61 Wellington Road
Garden City, NY 11530

A. Russo
14 River Street
Massapequa, NY 11758

Mr. Abiodun J. Olasoji
7 Stone Boulevard
Massapequa, NY 11758

Mr. Aldo Gervasio
5661 Merrick Road
Massapequa, NY 11758

Mr. Alex Levine
304 Syosset Woodbury Road
Woodbury, NY 11797

Mr. Alexander Trollinger Jr
500 Clocks Boulevard
Massapequa, NY 11758

Mr. Angelo Paoli
23 Beach Street
Massapequa, NY 11758

Ms. Ann Marie Holdgruen
425 Clocks Boulevard
Massapequa, NY 11758

Ms. Anna Muller Sylvester
11 Carmen Boulevard
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Ms. Anne Lieberman
3 Delta Road
Massapequa, NY 11758

Mr. Anthony Nuzzo
477 Clocks Boulevard
Massapequa, NY 11758

Ms. April Cody
50 Carman Boulevard
Massapequa, NY 11758

Mr. Argiro J. Martinez
51 Stone Boulevard
Massapequa, NY 11758

Mr. Armando Rodriguez
17 Quail Run
Massapequa, NY 11758

Ms. Barbara Wheatly
52 Trebor Road
Massapequa, NY 11758

Mr. Barber Pitts
10 Oakley Avenue
Massapequa, NY 11758

Basil and Lucille Bunting
19 Stone Avenue
Massapequa, NY 11758

Ms. Beatrice Mora Brown
16 Oakley Avenue
Massapequa, NY 11758

Mr. Benitho Louissaint
17 Stone Boulevard
Massapequa, NY 11758

Mr. Benjamin and Joyce Hanson
569 Clocks Boulevard
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Ms. Betty Voughan
22 Stone Boulevard
Massapequa, NY 11758

Mr. Calvin Gordon
399 Clocks Boulevard
Massapequa, NY 11758

Ms. Carla B. Poole
34 Stone Boulevard
Massapequa, NY 11758

Mr. Carlos Toledo
28 Carman Boulevard
Massapequa, NY 11758

Carmela Yodia and Lucille Flora
7 Delta Road
Massapequa, NY 11758

Carmelo and Alejandrina Henriquez
667 Clocks Boulevard
Massapequa, NY 11758

Ms. Carol Thompson
16 Carman Boulevard
Massapequa, NY 11758

Catherine and Pierre Louis
4 Roosevelt Avenue
Massapequa, NY 11758

Charles and Rebecca Fowler
58 Stone Boulevard
Massapequa, NY 11758

Mr. Chester Robinson
23 Quail Run
Massapequa, NY 11758

Mr. Christopher Nocella
3 River Street
Massapequa, NY 11758

Ms. Chrystalin Singleton
28 Beach Street
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Mr. Clemuel F. Marteena
42 Carmen Boulevard
Massapequa, NY 11758

Clifford C. and Lurline E. Dixon
1 Stone Boulevard
Massapequa, NY 11758

Colin and Deborah Moore
40 Sand Street
Massapequa, NY 11758

Ms. Collete P. Speller
41 Oaley Avenue
Massapequa, NY 11758

Ms. Constance Davis
577 Clocks Boulevard
Massapequa, NY 11758

Mr. Crescencio Parkins
37 Oakley Avenue
Massapequa, NY 11758

Current Owner
24 Beach Street
Massapequa, NY 11758

Curtis and Joyce Small
74 Oakley Avenue
Massapequa, NY 11758

Mr. Curtiss L. Courts
58A Carmen Boulevard
Massapequa, NY 11758

Mr. Dale McLoughlin
44 Carmen Boulevard
Massapequa, NY 11758

Mr. Daniel Colletti
64 Beecher Avenue
East Islip, NY 11730

Mr. David Clements
55 Stone Boulevard
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Mr. David E. Fowler
2 Major Road
Massapequa, NY 11758

Mr. David Levin
687 Clocks Avenue
Massapequa, NY 11758

Dawn and Frank Jacons
647 Clocks Boulevard
Massapequa, NY 11758

Ms. Deborah Mapp
47 Oakley Avenue
Massapequa, NY 11758

Ms. Dionne Archer
13 River Street
Massapequa, NY 11758

Donald and Clavel McKenzie
32 Carman Boulevard
Massapequa, NY 11758

Mr. Donald Cardwell
P.O. Box 716
Amityville, NY 11701

Ms. Doris E. Phillips
54 Sand Street
Massapequa, NY 11758

Ms. Dorothy R. Rosenbusch
60 Carmen Boulevard
Massapequa, NY 11758

Ms. Dorris M. Campbell
13 Oakley Avenue
Massapequa, NY 11758

Ms. Dulcie McKenzie
1 Trebor Road
Massapequa, NY 11758

Mr. Earl H. Johnson
25 Harbor Road
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Ms. Edna Bell
14 Stone Boulevard
Massapequa, NY 11758

Edward and Helen Horn
15 Major Road
Massapequa, NY 11758

Edward H. and Helene Yarkin
35 S. Merrick Road
Massapequa, NY 11758

Edwin and Dessice Mercado
6 Carmen Boulevard
Massapequa, NY 11758

Ms. Eileen Frankel
4 Carmen Boulevard
Massapequa, NY 11758

Ms. Elaine Bennet
94 Stone Boulevard
Massapequa, NY 11758

Ms. Elaine Merenda
480 Clocks Boulevard
Massapequa, NY 11758

Eldan and Juanita McKelvin
451 Clocks Boulevard
Massapequa, NY 11758

Ella and Glenda Williams
11 Major Road
Massapequa, NY 11758

Mr. Emerson Boardman
545 Clocks Boulevard
Massapequa, NY 11758

Ernest Downs and Cynthia Sabrina Law
59 Stone Boulevard
Massapequa, NY 11758

Ms. Eva L. Cooper
2 Carmen Boulevard
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Fabio and Mildred Tovar
26 Beach Street
Massapequa, NY 11758

Mr. Felicito Encarnacion
P.O. Box 710054 – Laguardia Station
Flushing, NY 11371

Ms. Florence B. Allen
509 Clocks Boulevard
Massapequa, NY 11758

Frank and Simone Pasler
1 Roosevelt Boulevard
Massapequa, NY 11758

Mr. Frank Hoyle, Jr.
102 Roosevelt Avenue
Massapequa, NY 11758

Mr. Frank J. Recco, Jr
113 Ledgewood Drive
Smithtown, NY 11787

Ms. Gail Santoianmi
417 Clocks Boulevard
Massapequa, NY 11758

Mr. Garfield Duhaney
1 Delta Road
Massapequa, NY 11758

Mr. Garth Muirhead
11 Harbor Road
Massapequa, NY 11758

Mr. Gary P. Wetterer
387 Clocks Boulevard
Massapequa, NY 11758

Mr. George S. Johnson
367 Clocks Boulevard
Massapequa, NY 11758

Mr. Gerald Buckvar
47 Park Lane
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Gerol and Bacien Petica
74 Stone Boulevard
Massapequa, NY 11758

Mr. Harmon A. Baldwin
57 Algonquin Avenue
Massapequa, NY 11758

Mr. Harold Cotton
691 Clocks Avenue
Massapequa, NY 11758

Mr. Henry Branche
493 Clocks Boulevard
Massapequa, NY 11758

Ms. Hercie Cleophat Joachim
52 Snad Street
Massapequa, NY 11758

Mr. Howard M. Mafetone
9 River Street
Massapequa, NY 11758

Mr. Israer Kuch, Jr.
673 Clocks Boulevard
Massapequa, NY 11758

J. Jones
27 Oakley Avenue
Massapequa, NY 11758

Mr. J. Stephen Pecairaro
10 Stone Boulevard
Massapequa, NY 11758

James and Laurie Hawthorne
45 Stone Boulevard
Massapequa, NY 11758

Mr. James Highsmith
8 Trebor Road
Massapequa, NY 11758

James L. and Sharon A. Shepherd
29 Beach Street
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Jason J. and Susan E. Krompier
34 Carmen Boulevard
Massapequa, NY 11758

Jeffery and Kim Nimmons
415 Clocks Boulevard
Massapequa, NY 11758

Mr. Jeffery Hamlet
46 Sand Street
Massapequa, NY 11758

Mr. Jesse Fulton
11 Trebor Road
Massapequa, NY 11758

Mr. Jesse Gilbert
9 Harbor Road
Massapequa, NY 11758

Ms. Joan Bonaventura
7 River Street
Massapequa, NY 11758

Ms. JoAnn Dammacco
30 Stone Boulevard
Massapequa, NY 11758

John and Albertha Gordon
54 Stone Avenue
Massapequa, NY 11758

John and Carmen Powell
43 Oakley Avenue
Massapequa, NY 11758

John and Carol Darville
437 Clocks Boulevard
Massapequa, NY 11758

Mr. John D. Muller
20 Carmen Boulevard
Massapequa, NY 11758

Mr. Jose DeJesus
10 River Street
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Mr. Jose Ramirez
12 Trebor Road
Massapequa, NY 11758

Joseph and Betsy Worrell
677 Clocks Avenue
Massapequa, NY 11758

Joseph and John Dignataro
22 Beach Street
Massapequa, NY 11758

Joseph and Lillian Cruz
2 Trebor Avenue
Massapequa, NY 11758

Josephine Jackson and Bessie Low
657 Clocks Boulevard
Massapequa, NY 11758

Ms. Juliet West
27 Beach Street
Massapequa, NY 11758

K. Boone
18 Major Road
Massapequa, NY 11758

Mr. Kaley D. Sherred
525 Clocks Boulevard
Massapequa, NY 11758

Ms. Karen Leach Hardy
22 Carman Boulevard
Massapequa, NY 11758

Mr. Keith Kellman
90 Stone Boulevard
Massapequa, NY 11758

Mr. Kendrick Cook
66A Oakley Avebue
Massapequa, NY 11758

Mr. Kevin Morris
1 Oakley Avenue
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

L. Lidge
56 Snad Street
Massapequa, NY 11758

Laurence and Sara Berger
21 Beach Street
Massapequa, NY 11758

Lehman and Jimmie Jenkins
17 Oakley Avenue
Massapequa, NY 11758

Leugene and Alberta Whitefield
2 Stone Boulevard
Massapequa, NY 11758

Lincoln G. and Sonia Roberts
78 Stone Boulevard
Massapequa, NY 11758

Ms. Lorna Christian
21 Quail Run
Massapequa, NY 11758

Ms. Louise Lucas
4 Oakley Avebue
Massapequa, NY 11758

Mr. Luc Ferdinand
18 Stone Boulevard
Massapequa, NY 11758

Ms. Lucille Fury
13 Carmen Bulevard
Massapequa, NY 11758

Mr. Ludovic Leroy
56 Carmen Boulevard
Massapequa, NY 11758

Luis and Ana Castillo
15 Oakley Avenue
Massapequa, NY 11758

Luis and Lois Flores
11 River Street
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Luis and Monserrate Bauza
34 Carman Boulevard
Massapequa, NY 11758

Mr. Manuel Pavone
15 Quail Run
Massapequa, NY 11758

Ms. Margaret Cameron
21 Stone Boulevard
Massapequa, NY 11758

Ms. Marielle Cange
70 Oakley Avenue
Massapequa, NY 11758

Ms. Marjorie E. Garner
98 Stone Road
Massapequa, NY 11758

Mark and Shelley McFarlane
42 Sand Street
Massapequa, NY 11758

Marvin and Alene Westman
46 Carmen Boulevard
Massapequa, NY 11758

Ms. Mary E. Adkins
86 Stone Boulevard
Massapequa, NY 11758

Ms. Mary M. Mahepath
15 River Street
Massapequa, NY 11758

Melissa and Michael Cestro
457 Clocks Boulevard
Massapequa, NY 11758

Mr. Michael Sylvester
76 Oakley Ave
Massapequa, NY 11758

Ms. Mildred Arpino
40 Sequams Lane
West Islip, NY 11795

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Ms. Miriam Thomas
37 Stone Boulevard
Massapequa, NY 11758

Mr. Myrdis J. Cargill
47 Stone Boulevard
Massapequa, NY 11758

Ms. Myrtha Lundy
40 Carman Boulevard
Massapequa, NY 11758

Mr. Neil Blake
14 Oakley Avenue
Massapequa, NY 11758

Mr. Norbert Cacho
17 Carmen Boulevard
Massapequa, NY 11758

Mr. Oscar Molina
50 Sand Street
Massapequa, NY 11758

Mr. Otto Wartberg, Jr.
16 Stone Boulevard
Massapequa, NY 11758

Owen and Norma Esterine
100 Roosevelt Avenue
Massapequa, NY 11758

Patricia F.L. Fasion-Ball, Esq.
2407 17th Street
Washington, D.C. 20018-2051

Peter and Patricia Ficarrotto
535 Clocks Boulevard
Massapequa, NY 11758

Mr. Phaiboon Romsartong
10 Club Drive
Massapequa, NY 11758

Raul and Maria Bran
48 Carman Boulevard
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Rene Comeau and Fabienne Joseph
12 Carman Boulevard
Massapequa, NY 11758

Robert and Saundraline Vadnais
8 Carmen Boulevard
Massapequa, NY 11758

Mr. Robert J. Franklin, Jr.
38 Carmen Boulevard
Massapequa, NY 11758

Ms. Rosa Burrowes
30 Carman Boulevard
Massapequa, NY 11758

Ms. Rose Schulere
96 Roosevelt Avenue
Massapequa, NY 11758

Rufus Jr. and Juanita Scott
1 River Avenue
Massapequa, NY 11758

Ms. Ruth Martinez
35 Oakley Avenue
Massapequa, NY 11758

Salvatore and Diane Galletta
20A Carman Boulevard
Massapequa, NY 11758

Ms. Sarah Knight
8 Stone Boulevard
Massapequa, NY 11758

Scott W. and Jeffery T. Erath
4 Perth St.
Copiague, NY 11726

Ms. Sherry J. Hines
11A Oakley Avenue
Massapequa, NY 11758

Mr. Stanley Kzorski
19 Carman Boulevard
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Mr. Stanley Tolcarz
28 Inwood Road
Glen Cove, NY 11542

Mr. Stefan Reznic
119 Ocean Avenue
Massapequa, NY 11758

Mr. Stephen F. Kuhar
16 River Street
Massapequa, NY 11758

Mr. Steven M. Nayman
40 Stone Boulevard
Massapequa, NY 11758

Ms. Susan G. Jimenez
19 Harbor Road
Massapequa, NY 11758

Ms. Susan Manzi
49 Trebor Road
Massapequa, NY 11758

Ms. Sylvia Schiffman
213 Polar Court
Wantagh, NY 11793

T. Byndloss
51 Trebor Road
Massapequa, NY 11758

Theodore and Barbara Dixon
53 Trebor Road
Massapequa, NY 11758

Theresa and Vincent Santoro
12 River Street
Massapequa, NY 11758

Mr. Thomas E. Giles
373 Clocks Boulevard
Massapequa, NY 11758

Mr. Tommie J. Edgecomb
10 Carman Boulevard
Massapequa, NY 11758

5. Residents, Owners, and Occupants of Properties Near the Site (continued)

Tracy M. Harper
637 Clocks Boulevard
Massapequa, NY 11758

Ms. Valerie McDonald-Niel
102 Jefferson Avenue
Amityville, NY 11701

Mr. Victor Procopio
1738 Cornelius Avenue
Wantagh, NY 11793

Mr. Vincent Ruggiero
31 Oakley Avenue
Massapequa, NY 11758

Mr. Wayne A. Francis
7 Harbor Road
Massapequa, NY 11758

Mr. Wilfred M. Furlong
15 Trebor Road
Massapequa, NY 11758

William H. and Anne R. Hamilton
430 Clocks Boulevard
Massapequa, NY 11758

Mr. William Thomas
25 Beach Street
Massapequa, NY 11758

Mr. William Waters
34 Beach Street
Massapequa, NY 11758

Ms.Ann Marie Holdgren
425 Clocks Avenue
Massapequa, NY 11758-7707

6. School/Day Care Administrators Near the Site

Mr. Robert Hackett
Berner Junior High School
50 Carmans Hill Road
Massapequa, NY 11758

6. School/Day Care Administrators Near the Site (continued)

Dr. Gerard Dempsey
Superintendent
Farmingdale Union free School District
50 Van Cott Avenue
Farmingdale, NY 11735

Ms. Carol Giannattasio
President
Massapequa Parent Teachers Association
200 Cedar Shore Drive
Massapequa, NY 11758

Mr. James Brucia
Massapequa Public Schools
4925 Merrick Road
Massapequa, NY 11758

Superintendent
Massapequa Public Schools
4925 Merrick Road
Massapequa, NY 11758

APPENDIX C

Document Repositories

APPENDIX C

Document Repositories

Documents relevant to the environmental activities at the Site will be stored at the following document repositories:

New York State Department of Environmental Conservation
Region One Office
Building 40 - SUNY
Stony Brook, New York 11790-2356
Contact: Robert R. Stewart
Phone: (631) 444-0240
Hours: 8:30 a.m. to 4:45 p.m., Monday to Friday.

Call in advance to make an appointment to view the documents at the NYSDEC office.

Massapequa Public Library
Central Avenue Building
523 Central Avenue
Massapequa, New York 11758
Phone: (516) 798-4607
Hours: 9:00 a.m. to 9:00 p.m., Monday through Thursday
9:00 a.m. to 6:00 p.m., Friday
9:00 a.m. to 5:00 p.m., Saturday
1:00 p.m. to 5:00 p.m., Sunday

APPENDIX E

Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

This Community Air Monitoring Plan (CAMP) provides real-time monitoring for volatile organic compounds (VOCs) in the designated work area during intrusive activities to provide a measure of protection for the downwind community from potential airborne contaminant releases. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown.

This CAMP addresses the scope of work presented in the November 2005 Remedial Investigation Work Plan for Operable Unit 2 of the Gent Uniform Rental facility in Massapequa, New York. The scope of work includes ground intrusive activities including: Geoprobe soil borings and piezometer installation, Geoprobe groundwater sampling, and soil gas monitoring. Previous investigations at the Gent facility have determined that the contaminants of concern are limited to VOCs. Based on the limited nature of ground intrusive activities and known contaminants, only real-time air monitoring for VOCs will be performed.

Upwind VOC concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. Periodic monitoring for VOCs will also be performed during non-intrusive activities (i.e., monitoring while opening a well cap or arriving at a new sampling location). All monitoring will be performed using a PID calibrated at least once per day.

Volatile organic compounds will be monitored in the immediate work area for all ground intrusive activities on a continuous basis. If the ambient air concentration of total organic vapors within the work area exceeds 5 parts per million (ppm) above background for a 15-minute average, work activities will be temporarily halted and monitoring continued. Work activities will resume, with continued monitoring, when total organic vapor levels decrease below 5 ppm over background.

If total organic vapor levels at the downwind perimeter of the immediate work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors will be identified, corrective actions will be taken to abate emissions, and monitoring will be continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the immediate work area or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for New York State Department of Environmental Conservation and New York State Department of Health to review. Instantaneous readings, if any, used for decision purposes will also be recorded.