GEC

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June 17, 2003

Mr. James X. Ascher
New York State Department of Environmental Conservation
Building 40 – SUNY
Stonybrook, New York 11790-2356

RE: Work Plan for Soil and Groundwater Sampling and Analysis
Jameco Industries, Inc.
248 Wyandanch Avenue
Wyandanch, New York
Order on Consent Index # D1-0001-95-08, Site Code # 1-52-006

Dear Mr. Ascher:

Goldman Environmental Consultants, Inc. (GEC) of Braintree, Massachusetts was contracted by Watts Industries, Inc. (Watts) to develop a soil and groundwater sampling and analysis Work Plan for the former Jameco facility located at 248 Wyandanch, Avenue in Wyandanch, New York. These activities are required as part of the Record of Decision (ROD) for the development and design of remedial alternatives required by the New York State Department of Environmental Conservation (NYSDEC).

The following Work Plan includes the installation of 31 additional soil borings, five of which will be completed as monitoring wells; the replacement of three destroyed monitoring wells, and the collection and laboratory analysis of soil and groundwater samples for various parameters including metals, volatile organic compounds (VOCs), and semi-VOCs. The newly installed monitoring wells will be surveyed and located on the existing site plan. The objective of the Work Plan is to better understand the extent of soil contamination beneath the building and to understand the degree to which contaminated soil is degrading groundwater quality. From this information, GEC will develop an appropriate strategy for the implementation of the remedial alternatives described in the ROD.

WORK PLAN

All proposed activities are to be conducted in accordance with GEC's Standard Operating Procedures and QA/QC Plan, copies of which are attached as Appendix A. All activities are to be conducted in accordance with GEC's Site Specific Health & Safety Plan, presented in Appendix B. Should field activities necessitate air monitoring, it will be conducted in accordance with the NYSDOH Community Air Monitoring Plan (CAMP), presented in Appendix C.

Soil Boring and Monitoring Well Installation

GEC will install up to sixteen shallow soil borings in and around the former metals platting shop area. A portable geoproble drill rig will be utilized to install the borings and to collect representative soil samples. Soil samples will be collected continuously, typically at intervals for 0-4', 4-8' and 8-12' below the floor surface. Samples will be field screened with a photoionization detector (PID) utilizing an 11.7 lamp. Each boring will be documented and the soil type logged in the field book. Boring logs will be developed and include the PID results, soil type, and depth to water if encountered. Given our experience at the Site we anticipate homogeneous soil conditions beneath the building, however, conditions may vary somewhat depending upon the impact of plating activities.

The proposed borings are located on Figure 1, Site Plan. The borings are identified based on their location relative to the building support beam numbering system previously established. For example location L2 (15-20) is located 15 feet north and 20 feet west of support beam L2. Please refer to Figure 1. The actual locations will be determined in the field based on on-going manufacturing activities within the building. No racks or machinery are to be moved and the borings are to be placed within the aisle space. The actual locations are anticipated to be within 10 feet of the locations depicted on the site plan. The work within the building will occur at night or on the weekend to minimize interference with the current owner's activities.

Representative soil samples will be submitted to a New York certified laboratory for nickel, chromium, copper, and zinc via EPA method 6010B/7000, as outlined on Table 1.

Approximately five geoprobe borings will be completed as small diameter Geoprobe wells. Ten feet of slotted PVC screen will be installed straddling the water table. Filter sand will be installed around the well screen to two feet above the screen as feasible. A bentonite seal will be installed above the sand followed by natural backfill and/or cement. A protective roadbox cover will be installed flush with the floor and cemented in place.

GEC will also install fifteen shallow soil borings in the vicinity of the Cutting Oil Release area. These borings will also be installed with a geoprobe drill rig. Soil samples will be collected continuously to approximately 12 to 16 feet below ground surface. Samples will be screened with a PID, and select samples will be submitted to a state certified laboratory for VOCs via EPA method 8260B, and Semi-VOCs via EPA method 8270C, according to Table 1.

Finally, GEC will replace destroyed monitoring wells MW-5, MW-6 and MW-26. These wells will be installed with a conventional truck mounted drill rig and finished with 2-inch diameter PVC well screen and casing. No soil sampling is planned for these locations.

Ground Water Sampling and Surveying

GEC personnel will collect ground water samples from sixteen existing monitoring wells (MW-2, 3, 4, 7, 10, 12, 16, 17, 18, 20, 21, 22, 23, 25, PA-2, and TCE-1), three replacement wells (MW-5R, MW-6R, MW-26R), and five proposed wells (GEC-1 through GEC-5), for a total of twenty-four wells. Please refer to Figure 1 for the location of the proposed monitoring wells. Prior to sample collection the approximate volume of standing water in each well will be determined and a volume of water equal to between three and five times the standing volume will be evacuated from the monitoring well. GEC will utilize dedicated and precleaned standard check-valve bailers or precleaned disposable bailers. GEC may elect to use low-flow sampling techniques as feasible. Note, given the well diameter, low-flow sampling may not be possible in all wells. The samples will be stored on ice in laboratory-issued, preserved, glass containers. All samples will be shipped overnight to a New York State certified laboratory under fully documented chain of custody procedures. Please refer to Table 2 for a summary of the groundwater sampling parameters to be analyzed per well.

Depth-to-water measurements will be recorded in all wells prior to sampling. GEC will calculate the elevation of groundwater and the direction of groundwater flow. GEC will also used disposable bailers to determine whether non-aqueous-phase product (NAPL) is present in observation wells located downgradient of the former cesspools. Based on our previous inspections, NAPL was present in two wells, MW-15 and MW-19.

In order to assure that interference with the current owner's activities is minimized it may take some time to confirm logistics associated with the drilling work. However, we have discussed the sampling activities with the current owner and we are optimistic that these logistical issues can be worked out. As such, we believe that the drilling activities can commence within approximately two weeks of you approval.

If you have any questions, please do not hesitate to contact me at your earliest convenience. I can be reached at 781-356-9140.

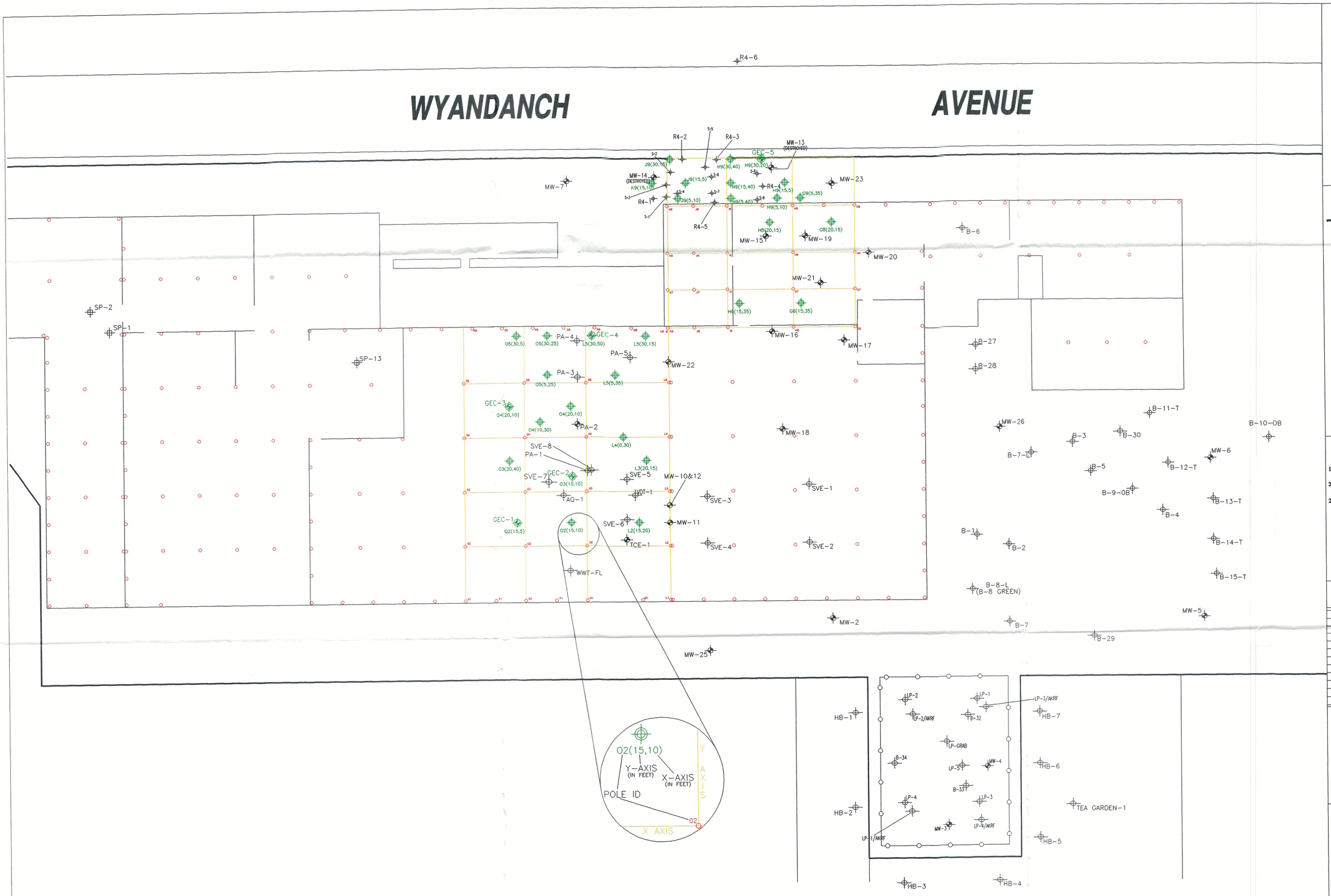
Sincerely,
Goldman Environmental Consultants, Inc.

Samuel W. Butcher, CHMM
Vice President, Operations

Brian T. Butler, LSP, PG
Senior Project Manager

Figure 1:	Site Plan with Proposed Sampling Locations
Table1:	Proposed Soil Sampling Locations
Table 2:	Proposed Groundwater Sampling Locations
Appendix A:	GEC's Standard Operating Procedures and QA/QC Plan
Appendix B:	GEC's Site Specific Health & Safety Plan
Appendix C:	NYSDOH Community Air Monitoring Plan (CAMP)

Figures



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Legend

- Site Boundary
- Support Column
- Monitoring Well
- Proposed Monitoring Well
- Boring Location
- Proposed Boring Location

Special Notes

1.) This drawing is a graphical representation only and should not be used as a survey.

2.) Basemap taken from Suffolk County Tax Map Dist. 100 Sect. 82 Block 2 Lot 73.1.

2.) Support Columns based on plan by John Schimenti P.C. Architect, A.I.A. number 8864, A1, dated 1-12-99.

Revisions

Date	Revisions	By	Appr.
March 31, 2003	Update of Engineer's Block	JRF	BTB

Scale

0 50' 100'

1 : 30'

Proposed Sample Locations of

Former Jameco Facility
248 Wyandanch Avenue
Wyandanch, New York

Watts
GEC Project Number 444-408H
GEC Fins Number 032803A

W S N E

1

Figure No.

Tables

TABLE 1
PROPOSED SOIL SAMPLING LOCATIONS
Cutting Oil Release and Metal Plating Shop Area:
248 Wyandanch Avenue
Wyandanch, New York

Boring Identification	0-4' Sample Depth	4-8' Sample Depth	8-12' Sample Depth
G6 (15-35)		VOCs Semi-VOCs	Semi-VOCs
G8 (20-15)			VOCs Semi-VOCs
G9 (05-35)		VOCs Semi-VOCs	Semi-VOCs
H6 (15-35)			VOCs Semi-VOCs
H8 (20-15)		VOCs Semi-VOCs	Semi-VOCs
H9 (05-10)			VOCs Semi-VOCs
H9 (05-40)		VOCs Semi-VOCs	Semi-VOCs
H9 (15-05)			VOCs Semi-VOCs
H9 (15-40)		VOCs Semi-VOCs	Semi-VOCs
H9 (30-20)			VOCs Semi-VOCs
H9 (30-40)		VOCs Semi-VOCs	Semi-VOCs
J9 (05-10)			VOCs Semi-VOCs
J9 (15-05)		VOCs Semi-VOCs	Semi-VOCs
J9 (30-15)			VOCs Semi-VOCs
K9 (15-10)		VOCs Semi-VOCs	Semi-VOCs
L2 (15-20)	Metals[1, 2]		Metals
L3 (20-15)		Metals	Metals
L4 (00-30)	Metals		Metals
L5 (05-35)		Metals	Metals
L5 (30-15)	Metals		Metals
L5 (30-50)		Metals	Metals
O2 (15-10)	Metals		Metals
O3 (10-10)		Metals	Metals
O4 (10-30)	Metals		Metals
O4 (20-10)		Metals	Metals
O5 (05-25)	Metals		Metals
O5 (30-25)		Metals	Metals
Q2 (15-05)	Metals		Metals
Q3 (20-10)		Metals	Metals
Q4 (20-10)	Metals		Metals
Q5 (30-05)		Metals	Metals

1 = Metals include Nickel, Chromium, Copper, and Zinc
2 = Chromium includes both Hexavalent and Trivalent analysis.
VOCs = EPA Method 8260B
Semi-VOCs = EPA Method 8270C
Nickel & Chromium = EPA 6010B/7000s
Hexavalent Chromium = EPA 7196A

Prepared By: BTB
Reviewed By: SWB
Revised: 6/17/03

TABLE 2
PROPOSED GROUNDWATERSAMPLING LOCATIONS:
248 Wyandanch Avenue
Wyandanch, New York

Monitoring Well I.D.	Sample Parameters				
	VOCs	Semi-VOCs	Total RCRA 8 Metals	Copper & Zinc	Chromium[1]
MW-2	X		X	X	X
MW-3	X		X	X	X
MW-4	X		X	X	X
MW-5 Replacement	X	X	X	X	X
MW-6 Replacement	X	X	X	X	X
MW-7	X		X	X	X
MW-10	X		X	X	X
MW-12	X		X	X	X
MW-16	X	X	X	X	X
MW-17	X	X			
MW-18	X		X	X	X
MW-20	X	X			
MW-21	X	X			
MW-22	X		X	X	X
MW-23	X	X			
MW-25	X		X	X	X
MW-26 Replacement	X	X	X	X	X
PA-2			X	X	X
TCE-1			X	X	X
GEC-1[2]			X	X	X
GEC-2			X	X	X
GEC-3			X	X	X
GEC-4			X	X	X
GEC-5		X			

1 = Chromium includes both Hexavalent and Trivalent analysis.

2 = Proposed Wells

VOCs = EPA Method 8260B

Semi-VOCs = EPA Method 8270C

Nickel & Chromium = EPA 6010B/7000s

Hexavalent Chromium = EPA 7196A/SM 3500-Cr

NOTE: Only those wells that are accessible will be sampled

Prepared By: BTB
Reviewed By: SWB
Revised: 6/17/03

Appendix A

GEC's Standard Operating Procedures and QA/QC Plan

Standard Operating Procedure
Field Sampling Protocols
Quality Assurance/Quality Control

The purpose of the GEC QA/QC program is to generate analytical data that is of known and defensible quality. These procedures apply to all projects in which sampling is involved. QA/QC from one project is not transferable to another.

Decontamination

1) Decontamination should be performed on all reusable field sampling equipment and protective gear. Sampling equipment should be decontaminated before the collection of a sample and after sampling has been completed. Protective gear should be decontaminated after the collection of a sample.

2) It is necessary to use the following decontamination solutions in the field:

   - Non-phosphate detergent plus tap water wash.
   - Distilled/ deionized water rinse.
   - 10% Nitric Acid rinse.*
   - Methanol rinse, when sampling volatiles only.
   - Acetone then hexane rinse.**
   - Second distilled/ deionized water rinse. **

   * Only if sample is to be analyzed for metals.
   ** Only if sample is to be analyzed for semi-volatile organics, PCBs or pesticides.

3) Sample bottles and sampling equipment should not be stored near gasoline, solvents, or other potential sources of contamination. If storage near gasoline, etc. is unavoidable, bottles and equipment should be sealed in containers or plastic.

4) Heavy equipment, including hand tools, should be cleaned by steam cleaning or manual scrubbing prior and subsequent to use in hazardous waste investigations.

Measures or Quality Control/Quality Assurance

1) Trip Blanks

   - Trip blanks are used in order to detect additional sources of contamination that might affect analytical results. The following are potential sources of additional contamination:

     a. Sample containers,
     b. Contamination during shipment to and from the site,
     c. Ambient air contact with analytical instrumentation at the laboratory during analysis, or
     d. Laboratory reagent used in analytical procedures.

   - One trip blank is required for every set of samples sent to the lab regardless of job size. Generally, the trip blank should be for VOCs. If, however, VOCs are not a parameter of the sampling round, consult the laboratory as to which parameter should have an associated trip blank.

   - Trip blanks are to be kept with containers used in the sampling round at all times. More specifically, they should accompany the site-specific sampling containers from the time the containers leave the laboratory until they are returned for analysis.

- Obtain containers and trip blanks prepared specifically for each job from the laboratory. Return unused containers to the laboratory upon completion of a project.

2) Field Blanks

- Field blanks are used to indicate potential contamination contracted from ambient air or from sampling equipment. It also serves as a QA/QC for decontamination procedures.

- Collect one set of field blanks for every 20 samples per project. It is not necessary to take a field blank for jobs in which less than 10 samples are collected.

- Procedure

  a. Collect two sets of sample containers to cover all sampling parameters. One set will be full of analyte free water (obtain extra analyte free water to fill two VOA vials). The other set is empty.
  b. Go to the most contaminated area and run the water from the full containers, through the decontaminated sampling equipment and into the associated empty containers.
  c. Send to the lab for analysis.

- Use containers and field blanks prepared specifically for job.

3) Duplicate Samples

- Duplicate samples are collected in order to serve as a laboratory check. Therefore, it is important that the lab does not know which samples are to serve for this purpose.

- Frequency

  a. Obtain one (1) duplicate sample for every 10 samples of each matrix. If less than ten samples are collected of a given matrix, a duplicate must be collected anyway.
  b. If a total of less than 10 samples are collected, collect one (1) duplicate of the majority medium.
  c. If a total of less than five (5) samples are collected, it is not necessary to collect a duplicate sample.

* Note that the frequency as outlined here pertains to the number of samples collected per project, not per location of a given project.

- Procedures

The idea behind the duplicate sample is to collect two samples as close to identical as possible.

a. For Water:

Alternately fill containers for the same parameter with equal amounts of liquid per bailer. Fill duplicate VOC vials from the same bailer of liquid.

b. For Soil:

- VOC samples must be taken from the discreet sampling locations.
- For all other samples, mix the applicable soil in a decontaminated stainless steel or polyethylene bowl or tray. Then fill sample containers with the soil mix.
- When confronted with the option of collecting a water sample or a soil sample, choose the water sample.

- Labeling for the laboratory

  a. Label the containers normally and give the duplicate samples different reference numbers.
  b. Indicate the quantity of duplicates in the "special instructions" or "remarks" portion of the chain of custody and laboratory services sheet, however, do not indicate the reference numbers of the duplicates.
  c. Upon receipt of analytical results, contact the laboratory and convey all data pertaining to the duplicates for their QA/QC.

4) Background samples

- Background samples are taken only if it is required for comparison of site conditions to the surrounding environment. This is to be dictated by client needs on a site to site basis.

5) Performance Evaluation Samples

- The project manger should consider the use of the following performance evaluation samples on a periodic basis. Typically, these will be reserved for larger jobs:

  a. Laboratory performance evaluation samples

  - Collect duplicate samples and send to two different laboratories for comparison. Avoid using soil samples for this procedure.
  - Send a sample of known quantity and quality to the laboratory in order to determine laboratory performance. Such samples can be prepared by any laboratory.

  b. Gas chromatograph (GC) performance evaluation samples

  - Acquire a sample of known quantity and quality from a laboratory. Analyze the sample with the gas chromatograph in order to determine the integrity of GC results.

Field Sampling QA/QC

1) When sampling a well, collect VOA samples first and samples for other analytes last.

2) Start sampling at the presumed least contaminated areas, proceeding to the more contaminated areas.

3) Preservatives

- Consult the laboratory in order to determine which sampling parameters require preservatives. The laboratory will provide sampling containers specific for each job.
- It is necessary to fill the sample container when using preserved bottles; preservative is added with this assumption
- If samples are not collected correctly, they will not pass GEC QA/QC.

4) A chain-of-custody must accompany each set of samples from the job site to the laboratory. Be sure to identify the presence of trip blanks on the chain-of-custody sheets.

5) If possible, use the numbering system outlined on the attached sheet for identifying samples.

Ordering Sample Containers

1) Pre-plan sampling strategy to determine the sample parameters, the number of sample points including QA/QC samples, and the matrix of the given sample points.

2) Call laboratory and tell them:

   - Sample parameters,
   - Number of samples to be collected,
   - The number of container sets needed for trip blanks, field blanks, and duplicates, and
   - The matrix of each sample to be collected.

3) Sample containers should be ordered specifically for each job. Any sample containers unused at the end of the job should be sent back to the laboratory.

Conclusions

1) Pre-planning is crucial.

2) Keep open communication with the laboratory on all matters.

3) If you make a mistake in sampling collection, accept it, and retake the necessary samples.

Standard Operating Procedure
Completion of Field Notes

This protocol is designed to ensure that proper techniques are used during the collection and preparation of field notes. Field notes are collected in field notebooks, which are often the only source of "first hand" information regarding activities that were conducted at a site. Field notes may be called into a court of law; therefore, it is imperative that field notes be maintained in a thorough and proper manner.

All field notes should be completed in a waterproof notebook and should not be completed on loose sheets of paper that might get lost or misplaced. All field notes should be completed in permanent ink, rather than pencil and should be neat and orderly. Use of a pencil for collection of field notes is acceptable only in extremely poor weather conditions. All field notes taken during the field activities should be photocopied immediately after completion of the activities and placed in the project file to preserve a permanent record of the activities. In addition, when conducting field activities, the following information should also be collected:

- the date and time of the field activities (both the start and the finish time) including the time that certain "milestones" are achieved;
- weather conditions on the day of the field activities (in some cases it may also be appropriate to include the weather conditions for the previous day, such as when a heavy snow fall has occurred);
- the names and affiliations of all personnel involved in the field activities;
- the purpose of the field activities (e.g., groundwater sampling, site inspection, UST removal);

The field notes should accurately reflect a chronology of the activities that were conducted at the site. The following are examples of information that should be included in the field notes, but might not be applicable in all situations:

- the time that subcontractors, clients, police details, consultants or other persons arrived and left the site;
- a general site sketch indicating the approximate location of groundwater observation wells to be sampled, borings to be installed, test pits to be performed, utilities to be located or suspected underground storage tanks, abutters (Note: site sketches should be included even when a site plan has been provided. If a site sketch is not feasible, the site plan that is being used to locate structures should be referenced);
- reference to any other documents that are completed during the course of the site activities that may include additional information not included in the field book, including: Chain of Custody forms; Test Boring Reports; Test Pit Reports; Manifests and calibration log books;
- specific site sketch indicating areas where snow cover, vehicles, debris or other obstructions may have limited site inspection, sampling or otherwise prohibited the completion of activities;
- where and when field instruments (e.g., PID, OVA) are being used, all calibration and sampling/screening conditions should be logged;
- any unsafe conditions observed by GEC personnel and presented to on-site personnel or subcontractors;
- observations made during site inspections or field activities including, but not limited to: the locations of stained soils or stressed vegetation; noticeable odors; the presence of nonaqueous-phase liquid.

It is the responsibility of each GEC employee to maintain his/her own field book. All field books are the property of GEC and in the event that the employee terminates employment with GEC the field books are to remain at GEC.

Standard Operating Procedure
Head Space Screening of Soil Samples
with a Thermo-Environmental 580 EZ

Volatile organic compounds (VOCs) adsorbed to soil volatilize from the soil particles into the static headspace created within a container and the soil in direct proportion to the concentration of VOCs adsorbed to the soil. The concentration of VOCs in the headspace can be determined with the 580 EZ, thus providing a relative indication of the concentration of VOCs in the soil.

Screening of soil samples for VOCs via the static headspace method involves seven steps, outlined below.

1) Collect two soil samples and place each in a separate, 8 ounce jar. One jar will be used as a duplicate for quality assurance purposes.

2) Place a layer of aluminum foil over the jar openings to form a seal. Screw the lids onto the jars, covering the aluminum foil.

3) Shake the jars for approximately 15 seconds and then allow the jar to equilibrate to room temperature (60^{o}C to 70^{o}C).

4) Prepare the 580 EZ for operation in accordance with the applicable standard operating procedure.

5) Remove the metal lid from the jar, puncture the aluminum foil and record the highest reading recorded by the 580 EZ.

6) Compare the results of the screening for the sample and the duplicate. A difference of up to 20% between the sample and duplicate is acceptable.

Depending on the situation and applicable criteria, the screening procedure outlined above may indicate that further analysis is warranted for a given sample. If so, collect soil samples in accordance with the applicable standard operating procedures.

Standard Operating Procedure
Sample Preservation and Chain of Custody

This protocol is designed to ensure that proper techniques are employed in the preservation and chain-of custody of samples collected for laboratory analyses or for screening. This Protocol is intended to be consistent with Massachusetts Publication #WSC-310-91 (Standard References for Monitoring Wells), and 40 CFR 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants).

The results of screening and/or laboratory analysis of solid, liquid or gaseous media constitute the basis of evaluation of the majority of the disposal sites under investigation. It is therefore imperative that the preservation of the samples be appropriate to the media being analyzed as well as the analysis which is being performed. In addition, the integrity of the sample is dependent upon the premise that a clear chain of responsibility for the sample integrity has been maintained. Without this "Chain-of-Custody", the integrity of the laboratory results may inevitably come into question.

The preservation and Chain-of-Custody (COC) protocols outlined in the following paragraphs are not intended to be all inclusive, and this protocol is written with the understanding that the sampling of certain media or analyses may require specific sample preservation. This protocol is, however, intended to cover the majority of the media and analyses performed as well as the COC procedures employed at the majority of waste disposal sites.

A COC program must be followed during sampling and handling activities from the field through laboratory operations. This program is designed to assure that each sample is accounted for at all times. Field data sheets, COC records, and sample labels must also be completed by the appropriate sampling and laboratory personnel for each sample. The objective of the sample custody identification and control system is to assure, to the extent practical, that:

- all samples are uniquely identified;
- the correct samples are analyzed for the correct parameters and are traceable through their records;
- important sample characteristics are preserved;
- samples are protected from damage or loss;
- any processing of samples (e.g., filtration, preservation) is documented; and
- client confidentially is maintained.

A sample is considered under a COC if it meets all of the following criteria:

- the sample is in your custody,
- the sample is in your view, after being in your possession,
- the sample is in your possession and then you locked it up to prevent tampering, and
- the sample is in a designated, secured area.

The following paragraphs outline GEC's preservation and COC protocol.

1) Prior to initiating any work, the Health and Safety Plan developed for the specific site activities, should be reviewed by all field personnel. The indicated measures on the Plan should be enacted prior to initiation of any sampling activities. Any concerns not addressed in the Plan are to be brought immediately to the attention of the Health and Safety Officer. Personnel participating in the excavations will dress with protective equipment appropriate for the anticipated conditions.

2) Sample integrity is assured by use of containers appropriate to both the matrix to be sampled and the analytes of interest. Sample containers must be prepared in the laboratory in a manner consistent with USEPA protocols. Unless the proper sample bottle preparation and sample preservation measures are taken in the field, sample composition can be altered by contamination, degradation, biological transformation, chemical interaction, and other factors during the time between sample collection and analysis. Prior to sampling GEC personnel will ensure that the sample containers obtained from either a laboratory or a commercial supplier have been prepared in accordance with DEP and EPA protocols.

Sample containers are to be used once and discarded. Under no circumstance should a soil, water or gaseous media which has been collected for analysis be placed in a previously used sample container unless that container has been recleaned and preserved by a certified laboratory.

As part of the COC protocol, sample containers should have prepared labels for each sample. The label should include sample identification, date and time of collection, sample parameters to be analyzed, any preservatives used, and the name of the sample collector.

Upon collection of the sample(s), documentation of chain of custody (i.e. COC form) should be initiated and should include at least the following:

- date and time of sampling;
- sampling locations;
- sample bottle identification;
- and specific sample acquisition measures.

The COC and sample description requires:

- a unique identification of each sample;
- the name(s), address(es) and telephone number(s) of the sampler(s) and the person(s) shipping the samples and all subsequent transfers of custody;
- the type and method of analyses requested;
- the date and time of sample collection and transfer of custody; and the name(s) of those responsible for receiving the samples at the laboratory.

3) In some cases, field filtration of samples may be required. Information regarding the method of filtration should be determined in advance and communicated to the laboratory. Filtering of any sample collected for organic analysis should be avoided. Decanting of a liquid media is a preferred method for the removal of particulate matter. When field filtering is required, an appropriate filter medium must be selected to avoid potential sample contamination during the filtering process.

4) Sample holding times are specified for the initiation of chemical analyses, usually beginning at the time of sample collection but occasionally beginning at the time of sample receipt at the laboratory. This determination must be made prior to sampling to allow proper logistical planning for sample shipments. Holding times also vary with the regulatory basis under sampling take place in order to properly schedule work.

5) Sample containers are most often packed in plastic, insulated "coolers" for shipment. Bottles are to be packed tightly so that only minimal motion of the sample containers is possible. Materials which are considered to be highly hazardous may require special handling and packing for shipment. Ice, or a similar heat transfer fluid, should be placed over the top of the sample containers and should be placed within a water tight plastic bag to assure that the samples are kept as dry as possible. In addition, all applicable paper work should also be enclosed within a second water-tight bag and included in the cooler. The sample cooler should then be taped shut.

6) Upon receipt of the samples at the laboratory, any laboratory identification numbers should also be included on the COC form. Finally, those responsible for receipt of the samples should be indicated on the COC form as well as the date and time of the sample drop-off.

Standard Operating Procedure
Survey of Observation Wells and
Significant Features

The primary purpose of surveying is to provide a permanent record of the location of significant features and to develop plans, including those of the groundwater surface. All observation wells and water table elevations must be surveyed in the field. Surveying includes the measurement of both location and elevation of groundwater and other important features. Accurate measurements are important in all cases, but are paramount in areas where wells may be difficult to locate in the future, or where the groundwater gradient may be particularly shallow. It is recognized that the survey of observation wells by GEC personnel will not, and should neither be represented or construed to be, as accurate as a survey, which would be prepared by a Registered Land Surveyor.

NOTE: A field book, denoting the approximate locations of major features, is important for the purpose of detailing the survey measurements made in the field. In the absence of sophisticated surveying equipment, the horizontal location of wells and other major features is most effectively accomplished through either taping the distance from wells to major features of known location, or by using stadia.

Surveying should be accomplished through the following steps.

1) Choose a benchmark, which is, and will remain, stationary for a reasonable period of time (years) and mark the spot with paint. Do not use road or gate boxes as a benchmark. Concrete transformer pads or street light bases generally make good benchmarks.

2) Set up the leveling instrument and the tripod at a location higher than the benchmark and with a direct line of sight to the benchmark, as well as several of the features to be surveyed. Ideally the leveling instrument should be set up in an area where the chance of the instrument being disturbed by pedestrian or vehicular traffic is minimal. Once set-up, the leveling instrument should not be left unattended.

3) The leveling instrument should be accurately leveled by first extending and firmly tightening the stand's legs. The legs should then be maneuvered such that the leveling instrument is roughly level.

4) Once roughly leveled, precise leveling should be accomplished using the leveling features on the survey instrument itself. Accuracy of the leveling instrument should be confirmed by viewing the "leveling bubble" as the survey instrument is rotated in several different azimuth directions.

5) The leveling instrument cross hairs should be focused such that they form thin and well defined lines when observed through the viewfinder.

6) Using the rod tripod or a rodman, place the base of the stadia rod on the benchmark and extend the rod vertically. It is often helpful to use a pocket transit (Brunton Compass) and assistance from a distant observer (the person manning the leveling instrument) to ensure that the stadia is vertical.

7) Sight with the instrument to the rod and record the height of the instrument (Height), i.e. footage as viewed at the cross hairs to the nearest 0.01-foot. Note: some leveling instruments are equipped with distance measuring cross hairs. These usually appear as smaller cross hairs equidistant above and below the primary cross hairs. If these secondary cross hairs are present on the instrument being used, the height, as viewed through these secondary cross hairs should also be determined as a means of double checking or confirming primary measurements i.e. the primary measurement should be the mean of the two secondary measurements. Also, record the azimuth of the instrument.

8) At each well location, choose **and** mark a point on the well, preferably a point on the PVC riser, to place the stadia rod. If the stadia rod will not fit in the road box, choose **and** mark a point on the road box to place the rod. The point that is marked for the elevation survey MUST also be sued for well gauging. Place the base of the rod on the designated point and extend the rod vertically.

9) Sight with the instrument to the rod and record the footage in the same manner as listed in Step 7.

10) Repeat Steps 8 and 9 for all of the wells and significant features, which can be viewed from one fixed location. Note: for larger sites it may be necessary to "link" several sightings in series in order to collect information for all features.

11) If the true elevation of the benchmark is not known, the benchmark should be assigned an arbitrary elevation of 100.00 feet. All other elevations should be calculated relative to the 100.00-foot benchmark elevation.

12) If several locations are linked the survey should be completed such that several points are measured from multiple locations. The results of the survey should then be calculated and elevation measurements from duplicate sampling points compared. If comparison of duplicate measuring points indicates measurement error the site should be resurveyed.

Standard Operating Procedure
Boring/Well Installation

This protocol is designed to insure that proper techniques are used, safety is considered, and quality assurance maintained during soil boring and well installation.

- DIGSAFE, municipalities and the owner are contacted prior to any soil boring or well installation to minimize chances of damaging underground utilities (DIGSAFE contacts utility companies to mark the location of utilities to the site). The Geologist or Inspector surveys the site visually for markings delineating the location of underground utilities. If warranted, the inspector modifies the drilling program to compensate for field conditions.

- The Geologist or Inspector continuously monitors all drilling activities and is responsible for maintaining independent field notes, well logs and ensuring that proper procedures are followed.

- Drilling equipment is steam cleaned prior to use in any boring and between borings (if necessary), to minimize potential cross contamination. At a minimum the following pieces of equipment are steam cleaned: augers, cutting heads, samplers, drill rods, and forks. The working end of the drill rig is also cleaned and inspected for evidence of hydraulic fluid or diesel fuel leaks.

- Subsurface soil samples are collected at a minimum of five foot intervals in accordance with standard ASTM methods for split spoon sampling. After logging soil characteristics, samples are collected. Two samples are placed in clean jars with an aluminum bladder below the lid for head space screening. Soil sample screening is performed in accordance with the GEC Jar Headspace Screening procedure. Samples with elevated readings (< 10 ppm) soil are quickly transferred into two clean VOA vials with Teflon liners. The vial is half filled and soil particles are removed from the lip of the vial to assure a proper seal with the lid. All samples are labeled in accordance with the GEC standard labeling identification system and handled/stored in compliance with USEPA protocols.

- The split spoon sampler is decontaminated in accordance with GEC's Decontamination Protocol after sample retieval and it is steam cleaned between borings. The Geologist may increase the frequency of steam cleaning as necessary.

- All cuttings from drilling remain on the subject property. If cuttings are designated as uncontaminated fill, via headspace screening, and the boring is not completed as a monitoring well the cuttings are used as backfill.

- Monitoring well screens are set to depths adequate for the required sampling. Monitoring wells are typically constructed with a silica sand filter surrounding and extending a few feet above the screen. The screen extends at least one to two feet above groundwater. The riser extends from the top of the screen to ground level, has a bentonite pellet seal above the screened interval, a cement seal and protective cover at the surface. No glues or solvents are employed in the well construction.

- Soil Logs are to be maintained by the Geologist and should contain the following:
  - Date and Location of boring/well
  - Drilling contractor
  - Job number
  - Depth of sampling
  - Boring number
  - Depth to well point.
  - Soil description includes; soil colors, grain size from greatest percentage to lowest, rock fragments, obvious fill constituents, staining, and odor if obvious.
  - Changes in soil strata and elevation of the water table are also noted.

Revised 4/30/97

Standard Operating Procedure
Observation Well Development

Subsequent to well installation, and prior to sampling or surveying, an observation well must be thoroughly developed. Well development is critical to the success and integrity of later sampling activities and to the life span of the well. Primarily, two techniques are appropriate for the needs of site investigation and groundwater monitoring. Both methods involve reversals, or surges, in flow to prevent clogging of the filter pack which is common where flow is continuous in one direction. Either a decontaminated pump or bailer or both may be used to surge the well and to remove water which may have been in contact with the drilling apparatus. If a pump is used, a source of clean water is necessary to pump down the well. Water should be alternately pumped out of and into the well until water removed is essentially clear, or of constant minimal turbidity. If the well is to be developed with a bailer the following steps will be performed.

1) Gauge the depth to water/product and the depth to the bottom of the well

2) Based on these measurements calculate the volume of water equal to one well volume.

3) Using a precleaned bailer and clean string, repeatedly plunge the filled bailer up and down within the well and periodically remove the water from the well. Water removed from the well should be discarded in a manner consistent with environmentally sound practices.

4) Periodically (approximately once every five bails) dispense the contents of the bailer into a clean one-liter glass container. Using the electronic TLC probe, determine the temperature and conductivity of the water being removed from the well. Once the temperature and conductivity have been determined discard the contents of the jar appropriately.

5) Steps 3 and 4 should be repeated until the following three conditions have been met: 1) three well volumes of water have been removed from the well; 2) temperature and conductivity levels do not vary more than approximately 10% between measurements, and 3) groundwater being removed from the well has a consistent minimal turbidity.

Standard Operating Procedure
Observation Well Sampling
Using a Low Flow Sampler

This protocol is designed to ensure that proper techniques are used, safety is considered, and quality assurance maintained during the performance of observation well sampling using low-flow techniques. A GEC representative is assigned to oversee and/or perform all observation well sampling for the project. The duties of the representative are to ensure that the scope of work is followed.

Sampling of groundwater observation wells using low-flow techniques is the primary means by which the chemical characteristics of groundwater can be determined in an accurate, representative, and repeatable manner. Therefore, it is imperative that care be taken in the development and subsequent sampling of observation wells. Low-flow sampling is considered an improvement over other techniques (e.g., bailers) that may unnecessarily agitate the sediment, enhance colloidal transport, and otherwise misrepresent contaminant levels.

Procedures for performance of groundwater observation well evacuation and sampling using low-flow techniques are outlined in the following paragraphs:

Well Evacuation and Sampling:

1) Prior to initiating any work the Health and Safety Plan, developed for the specific site activities, should be reviewed by all field personnel. The indicated measures on the Plan should be enacted prior to initiation of the sampling activities. Any concerns not addressed in the Plan are to be brought immediately to the attention of the Health and Safety Officer. Personnel participating in the sampling will dress with protective equipment appropriate for the anticipated conditions.

2) Decontaminate all equipment to be used in the performance of the activities in accordance with the protocol for decontamination. Decontamination should at least be performed by alternately rinsing all equipment with methanol and distilled water and vigorously scrubbing the equipment with a clean brush.

3) To the extent that contamination may be known at a given site, observation wells should be sampled in an order from "least contaminated" to "most contaminated".

4) Screen the well headspace with a photoionization detector (PID) or other appropriate instrumentation to confirm that concentrations of potential contaminants are within acceptable limits.

5) Test the well for accumulation of non-aqueous phase product (NAPL) using a pre-cleaned interface probe or transparent disposable bailer. If present, collect a sample of the NAPL and place in an appropriate sample container. This sample should be kept away from other samples.

6) Measure and record the depth to NAPL(if present) and depth to water. If NAPL is present, sampling for dissolved-phase contaminants should generally not be performed. In addition, if sampling is to be performed, appropriate measures should be taken to assure that any water removed from a contaminated well is disposed appropriately.

7) Historic measurements should be utilized to determine the total depths of wells. If a historic measurement is not available, total depth of the well should be gauged to determine the appropriate placement of the variable-speed low-flow sampling pump (pump). Gently lower the pump into the well to a point approximately half way between the top of the measured water elevation and the bottom of the well. If the water level in the well is situated above the top of the screened interval then the pump should be located half way between the top and the bottom of the screened interval. Tie the pump off at the appropriate depth to eliminate further disturbance of the water column.

8) Begin pumping the well at a rate no greater than 0.5 liters per minute (roughly 0.13 gallons or approximately two cups per minute). Provided there is ample room to measure depth to water after placement of the pump down the well, water levels should be monitored on a continuous basis. Drawdown of the water column should

not exceed 0.1 meters. The pumping rate should be adjusted accordingly, based on water column drawdown. If the water level drops more than 0.1 meters, the pumping rate should be decreased.

9) Continuously monitor groundwater parameters including pH, temperature, specific conductance and dissolved oxygen (DO). In some situations it may also be appropriate to monitor turbidity. Record geochemical parameters at the onset of purging, five minutes into purging, and at roughly one-minute intervals thereafter. In some cases longer intervals may be appropriate.

10) Purging should continue until geochemical parameters have stabilized. Stabilization shall be considered to have occurred when three consecutive measurements do not vary more than approximately 20% and visual and olfactory characteristics of the purged water do not change appreciably.

11) Record final geochemical parameters.

Well Sampling:

1) Samples at any given well will be collected in order of decreasing order of sensitivity to volatilization (i.e. VOC, total organic carbon, semi-volatile organics (BNA), ammonia, PCBs, pesticides, oil and grease, phenols, cyanide, sulfate and chloride, nitrate and ammonia, metals, and radionuclides)

2) Carefully fill sample containers directly from the pump discharge to the appropriately preserved, pre-labeled containers. Check that the sample containers seal properly and that the cap is sealed tightly. Record applicable information in the field logbook and complete all chain-of-custody documents.

Following Well Sampling

1) Gauge depth to bottom of well.

2) Decontaminate all equipment utilized during well purging and sampling, prior to gauging/sampling next well.

Appendix B

GEC's Site Specific Health & Safety Plan

HEALTH AND SAFETY PLAN
GOLDMAN ENVIRONMENTAL CONSULTANTS

SITE DESCRIPTION

Date of Original Plan: 9/30/94 Project Number: 444-408H
Revision Date: 6/17/03

Site Name: Jameco Industries, Inc.
Site Address: 248 Wyandanch, Avenue
Wyandanch, NY

Site Conditions: Industrial facility with unpaved and paved areas

Entry Objectives: Slug tests; drilling operations; soil and groundwater sampling; survey; excavation activities including but not limited to: test pitting, UST removals, contaminated soil excavations and stockpiling, and trenching; and the installation and operation of remedial systems.

Sketches Attached: Yes [ ] No [X]

Is this a disposal site as defined under the Massachusetts MCP or an uncontrolled hazardous waste site under Superfund, Yes/No? Yes
Listed as a controlled waste site by NYDEC

EMERGENCY INFORMATION

Nearest Phone & Location: Inside building - 516-643-3500

Nearest two-way radio: None Available

	Number	Location
Fire:	643-5300	Wyandanch Vol. F.D.
Police:	854-8100	1st Precinct, Babylon
Ambulance:	911	Wyandanch, F.D.
Hospital:	516-376-3000	1000 Montauk Highway

Does hospital have chemical trauma capability? Yes [X] No [ ]

Directions to Hospital: From the site turn right onto Wyandanch Ave. At end, after approximately one half mile, take a right onto Belmont Avenue. Follow Belmont Ave. to South State Parkway. Follow SS Parkway south to exit 40 (south) and onto Robert Moses Causeway (south). Follow to Exit 27A West and take right off exit onto Montauk Highway. Follow through three traffic lights and hospital is on the left.

SEE MAP ATTACHED

Additional Important Phone Numbers:

Goldman Environmental Consultants	(781) 356-9140
State Agency:	(613) 444-0240
National Response Center	(800) 424-9555
ATSDR	DAY: (404) 498-0120
National Poison Control Center	(800) 222-1212
Pesticide Information Service	(800) 858-7378
U. S. DOT	DAY: (800) 467-4922
LEPC Contact: Not Applicable	

Name: _____ Title: _____
Phone Number _____

SPECIAL LOCAL EMERGENCY PLANNING COMMITTEE REQUIREMENTS (if any)
NA

DIGSAFE INFORMATION (if warranted): To Be Contacted Prior to Any Subsurface Activity:
LILCO No.: _____ Agencies Contacted: _____
Date/Time: _____ _____
_____

PERSONAL PROTECTIVE EQUIPMENT

The following level of protection will be used:

Tasks to be Performed	Level of Protection	Coverall	Latex/Nitrile	Air Purification Cartridge
1. Sample collection, slug tests, drilling and excavation activities, and operations of remedial systems	D	NA	Latex/Nitrile	None
2. Upgrade for all tasks	C	Tyvek	Latex/Nitrile	Organic

Additional Equipment:

Hard Hat	X*
Face Shield	
Safety Glasses	X*
Ear Protection	X*
Steel Toe Boots	X
Rubber Boots	

Other _____

Anticipated Monitoring:

Radiation Meter (A.3)	
Gas Chromatograph (A.4)	
TIP/HNU HW-101	X*
Draegger Tubes	
Oxygen Meter	

Other _____

* Hard hat during drilling and remediation system installation; safety glasses and ear protection when drilling, conducting remediation system installation or while doing work inside; PID when drilling or conducting remediation system installation; traffic cones and safety vests at all times in high traffic areas.

HAZARD DESCRIPTION

Physical Hazards

Heat (A.8) X Cold (A.9) X Noise (A.10) X Underground Utilities X
Utilities X Overhead Utilities X Heavy Equipment X
Confined Spaces _____ Pressurized Airlines _____ Explosive (A.11)
Ladders or Scaffolds _____ Unguarded floor/ground openings
Liquids in open containers, ponds, or lagoons _____ Radiation (A.12)
Physical Hazards (A.13) X Oxygen Deficiency (A.14) _____
Traffic X
Other _____

HAZARD EVALUATION

Suspected Sources of Contamination:

Ground water has been shown to contain petroleum, volatile organic compounds including chlorinated solvents, and metals typical of plating use. Free-phase petroleum has been detected in monitoring wells on the site. Soil and groundwater in rear yard are contaminated with VOC's and metals; petroleum and VOC's are present in northern portion of site; VOC's beneath central portion of building.

Respiratory Hazards:

The chemical contaminants detected on-site can represent an exposure hazard in concentrated form. Inhalation of petroleum vapors emitted from soils or ground water is the primary respiratory hazard. During soil boring and well installation air in the breathing zone will be monitored using a PID calibrated to a benzene equivalent. Readings consistently above 5 ppm TIC threshold limit in the breathing zone will require an upgrade to level C protection. Soil samples collected during soil boring will also be screened with the PID for TICs.

During sample collection, the PID will be used to monitor the breathing zone for TICs. Readings consistently above the 5 ppm TIC threshold limit will require an

upgrade to level C. If such a situation exists, personnel who have not been fit tested for work at level C will remain upwind of the area, where TIC threshold cannot be exceeded. Transient exceedences above the 5 ppm TICs in the breathing zone will require Level D work stoppage until levels return to sub-threshold levels, after which work in level D may resume. During excavation, unless in areas known to have little or no metals, keep soils moist for dust suppression.

Dermal Hazards:

Contact to skin during sample collection will be minimized as protective clothing will be worn by workers. Latex and nitrile gloves should provide sufficient protection from the dermal hazards. Workers will adhere to good personal hygiene practices.

Ingestion Hazards:

Ingestion of contaminated water and soil is considered unlikely as hand to mouth contact will be avoided and face shields will be worn during water sampling. Personal hygiene should be sufficient to prevent ingestion of contaminants.

Physical Hazards:

Heavy equipment and obstacles typical of construction sites may be present. Extreme care will be exercised while conducting all on site work with respect to physical hazards. GEC employees will not enter trenches or excavations deeper than 4 feet.

DECONTAMINATION

Step by Step Decontamination Procedures and Solutions:

Personal Protective Equipment (PPE): Tyvek suits will be disposed as solid waste. All other PPE will be rinsed with soapy water, DI water, and methanol and DI water. For gasoline/oil contaminated PPE/sampling equipment, acetone, then hexane should be substituted for methanol to remove stubborn petroleum residue.

Sampling Equipment: Scrubbed with soapy water, rinsed with DI water and methanol and DI water.

Other Equipment: See sampling equipment

Disposal of waste clothing, decontamination solution, etc.: Decon solutions will be allowed to evaporate, clothing discarded into the dumpster.

MSDS(s) for Methanol, acetone and hexane is/are attached.

WORK LIMITATIONS OR PRECAUTIONS

Describe limitations due to time of day, weather, situations, if any:
On site work may be suspended due to severe weather conditions, and night time work will be avoided.

Sample Preservatives: Acids and caustics used as preservatives should be handled with gloves and safety glasses.

SIGNATURES

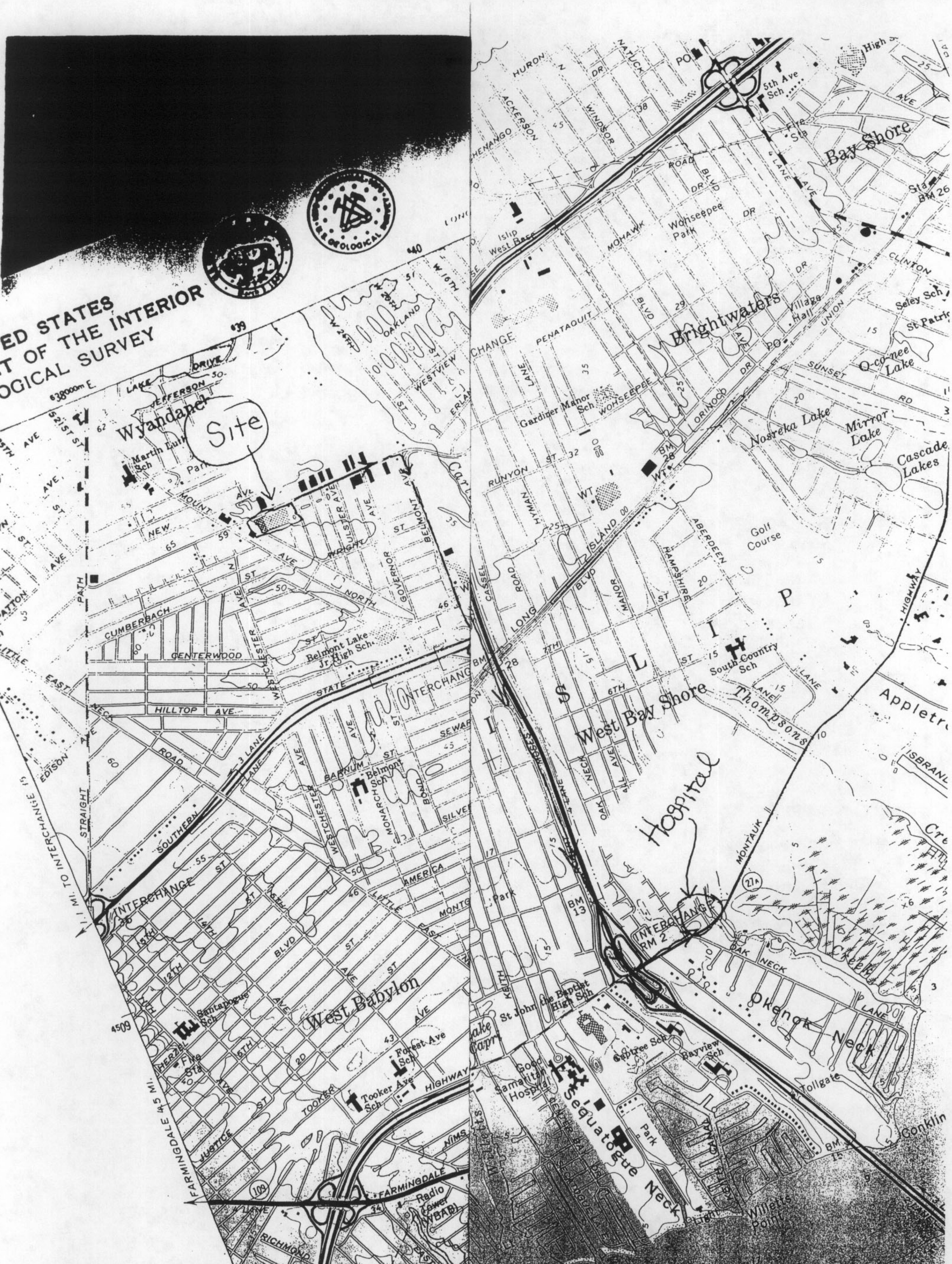
All site personnel have read the above plan and are familiar with its provisions:

Name	Signature

Written by: _____ Date: _____

Approved by: B. T. Ruth Date: 6/17/03

Revised by



ED STATES
T OF THE INTERIOR
OGICAL SURVEY
Site
Hospital
Wyandanch
Martin Luth Sch
Bay Shore
Brightwaters
Islip West Base
Wohseepee Park
Gardiner Manor Sch
Village Hall
5th Ave Sch
Fire Sta
O-co-nee Lake
Nosreka Lake
Mirror Lake
Cascade Lakes
Seley Sch
Golf Course
South Country Sch
West Bay Shore
Thompsons
Appletre
ISLIP
Belmont Lake Jr High Sch
Belmont Sch
West Babylon
Santapogue Sch
Fire Sta
Forest Ave Sch
Tooker Ave Sch
Radio Tower (WBAB)
St John the Baptist High Sch
Good Samaritan Hospital
Captree Sch
Bayview Sch
Sequatogue Neck
Okenok Neck
Willetts Point
Tollgate
Conklin
Park
INTERCHANGE
1.1 MI. TO INTERCHANGE 15
FARMINGDALE 4.5 MI.

A.8
HEAT STRESS

EFFECTS OF HEAT

Heat produced within the body is brought to the surface largely by the blood stream. When at the surface, the heat escapes the body by conduction, radiation and convection. Interference with heat loss leads to a raised body temperature similar to a fever. This accelerates certain body processes which in turn produce more heat, requiring not only the normal elimination of heat, but an extra requirement for heat loss.

When the temperature of the air becomes equal to or higher than the body temperature, the body must rely on losing it's body heat through the sweating process. As the air becomes more humid, this type of heat loss becomes inefficient and heat loss decreases. It is on such days, hot with high humidity, or a succession of such days, that the conditions are ideal for heat stress. Emergencies due to heat stress are described by three categories: heat cramps, heat exhaustion, and heat stroke.

HEAT STRESS SYMPTOMS AND FIRST AID

1) **Heat Cramps**

CAUSE

Profuse sweating leads to a loss of body salts and electrolytes. If these are not replaced, painful cramps occur. Cramps could also occur by drinking ice water or other drinks too quickly or in too large a quantity.

SYMPTOMS

a. Muscle cramps in legs and abdomen.
b. Pain accompanying cramps.
c. Faintness.
d. Profuse perspiration.

FIRST AID

a. Remove individual to a cool place.
b. Give individual sips of Gatorade or equivalent to replace salts and electrolytes.
c. Apply manual pressure to cramped muscle.
d. Remove patient to a hospital if more serious conditions exist.

2) **Heat Exhaustion**

CAUSE

Occurs in individuals working in hot environments, and may be associated with heat cramps. It is brought about by the pooling of blood near the surface of the skin. Heat is transported by the blood to the surface of the skin. This process dilates the skin vessels so that a large amount of blood is pooled in the skin and lower extremities. This condition can lead to an inadequate return of blood to the heart and then to collapse.

SYMPTOMS

Weak pulse; Rapid and unusually shallow breathing; Generalized weakness; Pale and clammy skin; Profuse sweating; Dizziness; Unconscious; Appearance of having fainted.

FIRST AID

a. Remove victim to a cool place and remove as much clothing as possible.
b. Administer cool water, Gatorade, or its equivalent.
c. If possible, fan the victim to remove heat by convection, but do not allow chilling or overcooling.
d. Treat for shock if necessary, and remove to a medical facility if serious conditions persist.

3) **Heat Stroke**

CAUSE

Heat stroke is a profound disturbance of the heat regulating mechanism. It occurs from direct exposure to the sun for prolonged periods. Poor air circulation and poor physical condition add to this threat. This is a serious threat to life and carries a twenty percent mortality rate.

SYMPTOMS

Sudden onset; Dry, hot and flushed skin; Dilated pupils; Early loss of consciousness; Full and fast pulse; Breathing deep at first, later shallow and almost absent; Muscle twitching; Excessively high body temperatures.

FIRST AID

a. Transportation to a medical facility should occur as quickly as possible.
b. Remove patient to a cool environment and remove as much clothing as possible.
c. Assure an open airway.
d. Cool body by dousing with water or wrapping in a wet sheet.
e. Place cold packs or ice under the arms, around the neck, at the ankles, or on forehead.
f. Protect victim from injury during convulsions.

PREVENTIVE MEASURES

a. Assure that all employees drink plenty of fluid. A fluid is needed, such as Gatorade, that will replace body salts and electrolytes. Such fluids should be consumed for a period that includes 12 hours before to 12 hours after the anticipated activities which induce heat stress. Tap water is insufficient to replace body salts and electrolytes under heat stress conditions.
b. Assure frequent breaks to avoid over heating.
c. Revise work schedules, when necessary, to take advantage of the cooler parts of the day.

A.9
COLD EXPOSURE

COLD EXPOSURE SYMPTOMS AND FIRST AID

1) **Hypothermia**

CAUSE

This is a result of the body losing heat faster than it can produce it. Most critical condition for hypothermia is above freezing weather on a wet and windy day. The mind thinks it is too warm for danger and therefore disregards the symptoms. The wetness against the body acts as a conductor, which takes excessive amounts of heat from the body. This heat loss affects the internal organs. Hypothermia sets in when the body temperature reduces to 95 degrees Fahrenheit. (Note- Alcohol and drugs accelerate heat loss through vasodilatation. This means that the blood vessels dilate.)

STAGES AND SYMPTOMS

a. Shivering.
b. Apathy.(Key Symptom)
c. Unconsciousness.
d. Freezing.
e. Death.

FIRST AID

a. Remove individual from the cold.
b. Remove wet clothes, get out of the wind.
c. Rewarm victim:
    1. Actively- Apply heat to the body. This can be done with a powered heat source, the sun, or by the heat of another individuals body heat.
    2. Passively- Wrap individual in a blanket so that they begin to re-warm themselves.

2) **Frostbite**

THREE TYPES

1) Frostnip- Whitened or grayish area of the skin. A burning sensation is experienced.
2) Superficial Frostbite- This is slightly worse than frostnip. The skin is whitened or grayish with a waxy feeling to it. The skin experiences very little pain at this point.
3) Deep Frostbite- Completely frozen area, perhaps to the bone. The area is white and hard. The individual loses sensation in that area.

FIRST AID

1) **For Frostnip and Superficial Frostbite**

a. Remove victim from the cold.
b. Give the individual liquids.
c. Remove clothing from the area.
d. Soak affected area in a warm water bath- 102-108°F.

2) **For Deep Frostbite**

a. Keep area frozen.
b. Get the victim to a doctor as quickly as possible.
c. Do not try to treat this in the field.

PREVENTIVE MEASURES

a. Dress warmly, but do not overdress. Sweating will only form a conduction to take heat away from the body.
b. Don't touch cold metal.
c. Keep moving.
d. Take shelter whenever possible.
e. Drink warm soups and liquids periodically.
f. Wear layered clothing and a hat.
g. Have a spare dry set of clothing on site.

Last Revised: 6/29/89

A.10
NOISE

Exposure Route or Cause

Compressors, machinery, and large equipment.

Suspected Site Specific Sources

Drilling and excavation equipment

Symptoms and Effects

Temporary or permanent hearing loss, aural pain, nausea, reduced muscular control (when exposures are severe), distraction, and interference with communication.

Measurement or Measure Devices

Sound levelmeter and octave band analyzer.

Prevention

a. Shielding or enclosure of source.
b. Distance/ isolation.
c. Substitution of equipment/machines generating less noise.

Personal Protection

Ear muffs, ear plugs, or noise-insulating earphone

Additional Comments

a. Use of earphones with communication built-in can improve coordination and warnings.
b. Use of earplugs must include consideration of potential indirect chemical exposures if the earplugs become contaminated.

Reference:

Martin, W. F., Lippit, J. M., Prothero, T. G., *Hazardous Waste Handbook for Health and Safety*. Butterworth Publishers, pp. 10-11, 1987. Last Revised: 6/29/89

MATERIAL SAFETY DATA SHEET

4011

DU PONT IS A SUPPLIER OF METHANOL SOLD BY STERLING-CLARK-LURTON CORP.

IDENTIFICATION

Name
Methanol
Grade

Synonyms Methyl alcohol, Wood alcohol, Carbinol
CAS Name
Methanol
I.D. Nos./Codes
NIOSH Registry No. PC1400000
Manufacturer/Distributor
E. I. du Pont de Nemours & Co. (Inc.)

Address
Wilmington, DE 19898

Chemical Family
Alcohol
Formula
CH_3OH
CAS Registry No.
67-56-1
Du Pont Registry No.

Product Information and Emergency Phone
(302) 774-2421

Transportation Emergency Phone
(800) 424-9300

PHYSICAL DATA

Boiling Point, 760 mm Hg
64.7°C (148.5°F)
Specific Gravity
0.792 at 20°C (68°F)

Vapor Density
~1.1 (Air = 1)
% Volatiles by Vol.
100%
Form
Liquid

Appearance
Clear

pH Information

Melting Point
-97.8°C (-144°F)
Vapor Pressure
138 mm Hg at 25°C (77°F)
200 mm Hg at 37.7°C (100°F)
Solubility in H_2O
100%
Evaporation Rate (Butyl Acetate = 1) >1

Color
Colorless

Odor
Faint alcoholic

Octanol/Water Partition Coefficient

HAZARDOUS COMPONENTS

Material(s)	*Approximate %*
Methanol	100

HAZARDOUS REACTIVITY

Instability
Stable

Incompatibility Reacts vigorously with strong oxidizers, chromic anhydride, lead perchlorate, perchloric acids.
Decomposition
Occurs from heat and reaction with materials above.
Polymerization
Will not occur.

48717 Date: 7/82

RE AND EXPLOSION DATA

Flash Point	*Method*	*Autoignition Temperature*
11°C (52°F)	TCC	385°C (725°F)

Flammable Limits in Air, % by Vol.

Lower 6.0%

Upper 36 %

Fire and Explosion Hazards Flammable. Flame is invisible in daylight. Methanol-water mixtures will burn unless very dilute; mixtures with 25% or more methanol are DOT Class I flammable liquids.

Extinguishing Media

Dry chemical, CO_2, water spray, "alcohol" foam.

Special Fire Fighting Instructions

Use water spray to cool tanks or containers.

HEALTH HAZARD INFORMATION

Exposure Limits

OSHA 8-hour Time Weighted Average (TWA) and ACGIH TLV® TWA = 200 ppm, 260 mg/m^3. ACGIH adds "skin" notation.

Significant Routes and Effects of Exposure

Harmful if inhaled.
May be fatal or cause blindness if swallowed.
Cannot be made nonpoisonous.
May cause irritation.
LD50 (oral, rats) = 12,900 mg/kg; LC50 (rats, 1 hour) = 145,000 ppm.

Safety Precautions

Avoid contact with eyes, skin or clothing.
Avoid prolonged or repeated breathing of vapor.
Wash thoroughly after handling.

First Aid

If swallowed: Induce vomiting immediately by giving two glasses of water and sticking finger down throat.

If inhaled: Remove to fresh air. If not breathing, give artificial respiration; preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

In case of eye contact: Immediately flush with plenty of water for at least 15 minutes. Call a physician.

In case of skin contact: Flush with water.

PROTECTION INFORMATION

Ventilation

Good general ventilation should be provided to keep vapor concentrations below exposure limits.

Personal Protective Equipment

Have available and wear where appropriate: Safety spectacles (side shields preferred), chemical splash goggles, hard hat with brim, face shield (full length), neoprene coated cotton gloves, solvent resistant gloves, rubber safety shoes or rubber overshoes, rubber apron, appropriate respiratory protection (See Reference 2, page 4).

Other

DISPOSAL INFORMATION

Aquatic Toxicity

TLm 96: > 1000 ppm

Spill, Leak or Release

Dike large spills. Flush spill area with plenty of water. Do not flush to sewer. Comply with federal, state, and local regulations on reporting releases.

Waste Disposal

Comply with federal, state and local regulations. If approved, incineration, bio-oxidation, subsurface injection, or disposal contractor may be used.

SHIPPING INFORMATION

Transportation

DOT Hazard Class.:* Flammable Liquid

IMCO Class.: 3.2

DOT Shipping Name:* Methyl Alcohol

UN No.: 1230

NA No.:

RQ Quantity:*

*49 CFR 172.101

Shipping Containers

Barge, railroad tank cars, tank trucks.

Storage Conditions

Keep away from heat, sparks and flame. Keep container tightly closed. Do not store or mix with strong oxidizers, chromic anhydride, lead perchlorate or perchloric acid. Store in adequately ventilated area.

ADDITIONAL INFORMATION AND REFERENCES

Reference 1) Du Pont Methanol Properties, Uses, Storage and Handling Bulletin.

2) DHEW (NIOSH) Publication No. 76-189" A Guide to Industrial Respiratory Protection", available from Dept. HHS/NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226, phone (513) 684-4287.

Appendix C

NYSDOH Community Air Monitoring Plan (CAMP)

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all <u>ground intrusive</u> activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone 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 State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

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