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Organization/ Address:	New York State Department of Environmental Conservation Division of Environmental Remediation 625 Broadway, 11th Floor Albany, New York 12233-7015 (518) 402-9621	**Date:**	January 31, 2008
Re:	Final Work Plan – Solvent Finishers (Site No. 1-30-172)		
Job #:	0897-59317-Task1		

Via: *Mail:* *Overnight:* X *Courier:*

Enclosed please find: Final Site Characterization Work Plan for Solvent Finishers

For your information	X	**Approved**	
For your review		**Approved as noted**	
For your signature		**Returned to you for correction**	

Message:

Enclosed please find three copies of the Final Site Characterization Work Plan for Solvent Finishers (Site No. 1-30-172)

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Jessica Beattie

Jessica R. Beattie, P.G.

☑ APPROVED
AI 1/29/08
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FINAL WORK PLAN
SITE CHARACTERIZATION
SOLVENT FINISHERS
(Site No.:1-30-172)
Westbury, New York

Prepared for

New York State Department of Environmental Conservation
Investigation and Design Engineering Services
Standby Contract No. D004437
Work Assignment No. D004437-10

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Section 1
Introduction

This Work Plan for Solvent Finishers (herein referred to as the "Site") located at 601 Cantiague Rock Road in Westbury, Nassau County, New York was prepared by Camp Dresser and McKee Inc. (CDM) for the New York State Department of Environmental Conservation (NYSDEC) under the Engineering Services for Investigation and Design, Standby Contract No. D004437. Background and site information used in the development of this Work Plan was furnished by NYSDEC and from the record search conducted by CDM. The Site is a former dry cleaning facility which is now owned by Rubie's Costume Company who utilizes the building to cut fabric for costumes. The work plan was developed in accordance with the "State Superfund Standby Contract Work Assignment D004437-10, Site Characterization, Solvent Finishers, Site No. 130172."

1.1 Purpose and Objectives

The objective of this work assignment (WA) is to determine if soil and groundwater at the Site have been contaminated by tetracholorethylene (PCE) previously discharged into an on-site dry well and on the ground surface. The investigation will focus on determining groundwater flow direction, the level of contamination, and the possible sources of contamination. The results of the investigation will be used to determine if the site should be listed as a New York State Hazardous Waste Site. Field tasks for this investigation are:

- Perform a geophysical survey to identify subsurface utilities and attempt to pin-point the locations of former drywells on the site. The geophysical survey will also be used to clear the boring locations prior to drilling;
- Perform field screening of soil and groundwater at potential areas of contamination using a membrane interface probe (MIP); the probe will screen for chlorinated compounds and hyrocarbons as well as soil conductivity;
- Perform targeted soil and groundwater sampling using direct push methods;
- Prepare a site survey including general site features as well as investigation locations;
- Disposal of investigation derived waste

1.2 Site Description and Background

1.2.1 Site Description

The Site is located at 601 Cantiague Rock Road in the Town of Oyster Bay, Nassau County, New York as shown on Figure 1-1. More specifically, the Site is bordered by the Cantiague Rock Road to the north and east, a movie theatre and BJs Wholesale club to the south, and a BMW distribution center and dealership to the west. The

facility is built on 3.78 acres of land. The Site is currently occupied by Rubie's Costume Company.

The property is surrounded by industrial, commercial, and residential properties. Located southeast of the Site is Building 609 which is occupied by For Animals in the Hospital Inc., Hassal Inc., and Kraft Foods Inc. Shames Drive Industrial Park is located southwest of the Site.

1.2.2 Operational and Remedial History

The site is currently owned by Rubies Costume Company (Rubies) and operates as a fabric cutting facility for costumes. Prior to Rubies occupancy the site was operated by College House Inc., Solvent Finishers, International Laminations, and Suval Fabrications. Historically the site operated as a manufacturer of artificial leather and plastics (Suval Fabrications), an industrial dry cleaner (Solvent Finishers), a manufacturer of imprinted and embroidered sportswear (College House Inc) and now as a fabric cutting facility (Rubies). This records search and site characterization are being performed under the guidance of the NYSDEC and under the suspicion that the site, while operated by Solvent Finishers, may have contributed to the tetrachloroethene (PCE) contamination found in groundwater down gradient from the site.

The site has been developed and used for industrial operations since as early as 1960. Based on historic Sanborne Fire Insurance maps and Nassau County property cards the site was occupied by Suval Fabrications Inc., a manufacturer of artificial leather and plastics in 1960 when the main building located at 601 Cantiague Rock Road was constructed. Suval Fabrications occupied the site until at least 1966 when the secondary building was constructed (603 Cantiague Rock Road). A site sketch provided by Solvent Finishers to the County Health Department identifies the occupant of 603 Cantiague Roack Road as International Laminations. No additional information on International Laminations was found. It is not known when operations of Suval Fabrications Inc. ceased or when Solvent Finishers Inc. operations began. The earliest documented date indicating Solvent Finishers operated on site is October 1977.

During the period that Solvent Finishers operated as an industrial dry cleaner at the site; they reportedly used up to 11,000 gallons of tetrachloroethylene annually to clean large rolls of fabric on an automated system. Routine inspections by the Nassau County Department of Health identified several violations pertaining to improper liquid waste discharge activities containing levels of PCE that exceed NYSDEC groundwater standards. Waste water was noted as being discharged directly onto the ground surface and into onsite dry wells. A site survey from 1960 identified seven dry wells on the subject property.

On October 19, 1977, NCDOH sampled a discharge pipe at Solvent Finishers located in the rear of the facility under a grate (dry well). The result detected 20,000,000 ppb of PCE in the effluent.

In April of 1978, NCDOH notified Solvent Finishers of the exceeding levels of PCE. Meetings followed this notification led to the installation of an in ground holding tank. The tank was designed to hold liquid waste containing PCE for pickup and removal by a licensed waste management firm. In August, a draft New York State Pollutant Discharge Elimination System (SPDES) Permit was issued for this action. A final SPDES Permit however, was never issued.

In summer of 1978, Solvent Finishers installed a pump and automatic controls on the holding tank. This system was installed to prevent tank overflow; liquid waste would be pumped to the facility cooling tower when tank capacity became alarmingly high. This system would treat the PCE via evaporation. Periodically, wastewater would be pumped out of the holding tank and transported off site by a licensed waste hauler.

NCDOH re-inspected the facility's liquid waste discharge operation from August through November 1978. Inspections indicated that the treatment system was ineffective and occasionally the holding tank and/or cooling tower would overflow onto the surface of the ground. Furthermore, a SPDES Permit for the circulation of waste water to the cooling tower was never submitted and therefore an official "Notice of Violation" was served to Solvent Finishers on December 1, 1978. Discharge of any liquid waste without a SPDES Permit is a direct violation of the New York State Environmental Law, Article 17 Title 8.

In January 1979, NCDOH returned to the site once again. NCDOH sampled the cooling tower and a puddle on the ground suspected to be boiler condensate and runoff. Analytical results detected 160.5 ppb of trichloroethylene (TCE) in the condensate runoff and 47.2 ppb of chloroform in the cooling tower.

On April 26, 1979, NCDOH issued a letter to the New York State Department of Environmental Conservation (NYSDEC) to inform them of Solvent Finishers past liquid waste discharge violations and investigative results. To explain the presence of PCE and TCE, NCDOH proposed that a residue was left from the discharge of contaminated liquid prior to the installation of the holding tank. The letter also stated that NCDOH was unaware of any provisions for containment of overflow from the cooling tower. NCDOH recommended monitoring for PCE regularly until Solvent Finishers demonstrated liquid discharge practices to a confined holding tank or cooling tower.

It is not known when occupancy by Solvent Finishers ceased, however it is known that from 1985 to 1995 The College House Inc. company operated at the subject property. At that time the property owner was the Skodnek Company as indicated on a 1985 permit application to erect a display sign on the property. The specifics of operations while occupied by College House Inc. are not known. No other information regarding the College House Inc. was found.

Following tenancy by The College House Inc. Company, Rubies Costume Company (Rubies) took over occupancy at 601-603 Cantiague Rock Road. Rubies operates as a

costume manufacturing company. At present, the facility is used only in cutting fabrics.

In 1998, while removing an abandoned cesspool and removing/replacing an on site 8-foot diameter by 20-foot deep dry well, approximately 59 tons of PCE contaminated soil was excavated from the subject property. The excavcated material was exported to the Horizon Landfill located in Quebec, Canada. Rubie's notification of intent to export allowed only 40 tons of PCE contaminated soil to be shipped. The United States Environmental Protection Agency (EPA) issued a "Notice of Violation" to Rubie's Costume Company for shipping 19 tons in exceedance of their notification to export. EPA's letter stated the following violations occurred: 1) Failure to submit a written notification of exceedance of the estimated quantity of hazardous waste specified in the original notification; 2) Failure to obtain consent of receiving country to changes in the notification of intent to export prior to shipment.

There are no records of follow up sampling or investigations. It is unknown whether PCE still exists in site soils or is contaminating groundwater.

1.3 Environmental Setting

The Site is relatively flat and lies at an approximate elevation of 160 feet above mean sea level (msl). The ground water table lies at an approximate elevation between 70 and 80 feet above msl at the Site (~80 feet below ground surface).

The water table generally parallels land surface. The groundwater rises from the western part of Long Island to form an east-west trending mound in Nassau County and western Suffolk Counties that is dissected by a low region in west-central Suffolk County beneath the Nissequogue and Connetquot River drainage basins.

1.3.1 Geology

Long Island is comprised of Cretaceous and Pleistocene unconsolidated deposits underlain by Early Paleozoic to Precambrian bedrock. The hydrogeology of Long Island has been well documented over the years by the USGS (Doriski and Wilde-Katz, 1983; Smolensky et al, 1989). Three major aquifers are present on Long Island: the upper glacial aquifer, the Magothy aquifer and the Lloyd aquifer.

Basement

Basement is composed of Precambrian to Early Paleozoic igneous or metamorphic consolidated bedrock. Unconformably overlying the basement is a thick succession of Late Cretaceous deposits: the Raritan and overlying Magothy Formations, both of fluvio-deltaic depositional origin. The Upper Cretaceous deposits are unconformably overlain by a veneer of Pliocene and Pleistocene deposits, chiefly of glacial origin.

Cretaceous

Raritan Formation: The Raritan Formation is divided into the basal Lloyd Sand Member and the overlying Raritan Clay Member. The Lloyd Sand rests unconformably on bedrock and is about 150 feet thick in the vicinity of the Site. The

top of the Lloyd Sand is found at approximately 200-250 feet below msl. It is composed of white and grey fine to coarse sand and gravel, commonly with a clayey matrix. The contact with the overlying clay member is gradational.

The Raritan Clay Member is composed chiefly of bedded variegated clay and silt, locally containing interbedded sands. Lignite fragments and iron and pyrite nodules are common. The clay member is approximately 100 feet thick in the vicinity of the Site (Smolensky, et al. 1989). The Raritan Clay is the most widespread hydrologic confining layer on Long Island. The Raritan's updip erosional pinchout generally is located subparallel to the northern coast of Nassau County. The clay unit dips gently to the south-southeast.

Matawan Group-Magothy Formation (Magothy): The Magothy unconformably overlies the Raritan; the contact is commonly marked by a change from the solid clays of the Raritan Clay Member to coarse sands and gravels of the basal unit of the Magothy. The dominant Magothy lithology generally is fine to medium quartz sand, interbedded clayey sand with silt, clay, and gravel interbeds or lenses. Interbedded clay is more common towards the top of the formation. The thickness of the Magothy varies between 100 feet in the vicinity of the Site to over 800 feet beneath the barrier islands.

Cenozoic-Quaternary

After the Cretaceous, deep erosion of the land surface took place as a response to fluctuations in sea level. Sedimentological evidence indicates that sea level falls exposed the entire Atlantic continental margin during the Miocene epoch, which would have promoted rejuvenation and deep incision of rivers and streams across the Coastal Plain. Later deposition of abundant fluvial and glacial clastic deposits during the Pliocene and Quaternary filled these incised buried valleys. The top of the Cretaceous sequence is marked by a highly irregular erosion surface upon which rests deposits of Pleistocene and, in some places, Pliocene age.

Deposits of Pleistocene age mantle the Cretaceous formations. Within the study area, the Pleistocene deposits include three depositional sequences: the fluvial Jameco Gravel and marine Gardiners Clay; and the much more widespread Late Pleistocene glacial deposits of the Wisconsin glacial stage. Undifferentiated gravels and clays described in buried valleys within southern Long Island have been attributed to the Jameco Gravel and Gardiners Clay units. The Jameco Gravel and Gardiners Clay formations are well-defined, mapable stratigraphic units beneath the southern margin of Long Island where they are of hydrogeological significance. These stratigraphic units are not recognized in the vicinity of the Site. The remainder of the Pleistocene succession belongs to the Wisconsin glacial stage Upper Glacial Deposits.

The thickness of the Pleistocene Upper Glacial Deposits in the study area varies but averages 100 feet. The thickness and distribution of the Pleistocene Upper Glacial Deposits were controlled by the older, now buried paleotopography discussed above. The pattern of stream and river valleys that dissected the surface of Long Island

during the Cenozoic likely was later modified by Pleistocene overriding ice sheets and meltwater erosion and deposition.

1.3.2 Hydrogeology

The hydrogeology of Long Island has been well documented over the years by the USGS and others. Three major aquifers are present on Long Island: the Upper Glacial aquifer, the Magothy aquifer and the Lloyd aquifer.

Lloyd Aquifer

The Lloyd Sand Member of the Raritan Formation of the Late Cretaceous Age overlies the saprolitic bedrock surface and is Long Island's deepest aquifer. The Lloyd sand was deposited as a series of braided streams and deltaic deposits consisting of white and pale yellow sand with interbedded lenses of gravel and white clay (Smolensky et al, 1989). The aquifer does not outcrop on Long Island and is believed to extend to the north beneath Long Island Sound in eastern Nassau County and in Suffolk County, and offshore to the south, beyond the barrier beaches. The Lloyd aquifer is confined in most places, except where the overlying Raritan clay has been eroded away. The thickness of the Lloyd aquifer varies from 0 feet where it is not present along the north shore of Nassau County, to more than 500 feet in the southeastern areas of Nassau County. The average horizontal hydraulic conductivity is reported to be approximately 40 ft/day with a 10:1 vertical anisotropy.

Raritan Clay

Overlying the Lloyd aquifer is the Cretaceous Age clay member of the Raritan Formation, referred to as the Raritan clay. The Raritan clay is the major confining unit on Long Island, ranging between 150 and 250 feet in thickness. Like the Lloyd aquifer, the Raritan clay is absent from areas of northern Queens and northern Nassau County where it had been eroded. The Raritan clay outcrops in parts of Queens, and is believed to be present north of the island beneath Long Island Sound, and south of the island, beneath the barrier islands. This confining unit consists of solid, multicolored, compact clay (gray, white, red, or tan) with interbedded lenses of sand. The average vertical hydraulic conductivity is reported to be approximately 0.001 ft/day.

Magothy Aquifer

The Magothy aquifer is an upward fining sequence of the Cretaceous Age Matawan Group consisting of fine to medium grained quartz sand, silt, clay, and gravel and is up to 1,100 feet thick. The base of the Magothy is very coarse, having been deposited in a high-energy environment involving stream and deltaic deposition. This high-energy deposition abruptly ended as fine sands, silts and clays form the majority of the unit. The Magothy Aquifer is unconfined in the site area. The Magothy aquifer is the principal water supply aquifer in Nassau and Suffolk Counties, attributing to its thickness. Its average horizontal hydraulic conductivity is reported to be approximately 50 ft/day with a vertical anisotropy of 100:1 (Smolensky et al, 1989).

Upper Glacial Aquifer

The upper glacial aquifer is the surficial unit on Long Island and is therefore entirely unconfined. Along the Harbor Hill and Ronkonkoma terminal moraines and parts of the north shore, the unit is composed of till consisting of poorly sorted clay, sand, gravel, and boulders. The till is generally poorly permeable and may contain perched water. The outwash deposits that are found are mainly between, and south of, the moraines. The outwash deposits are moderately to highly permeable, consisting of gray, brown, and yellow fine to very coarse sand and gravel. The upper glacial aquifer ranges up to 600 feet thick, however the saturated thickness is often much lower. The estimated average horizontal hydraulic conductivity generally exceeds 225 ft/day.

Ground Water

Based on Nassau County regional groundwater information obtained in the *Nassau County Groundwater Monitoring Program, 2002-2003* (NCDPW, 2005) the water table lies at an elevation of 70 to 80 feet above mean sea level (MSL) (~80 ft bgs). Flow in the water table aquifer (Upper Glacial) is complicated by a groundwater divide located approximately 1,000 feet northeast of the site. In general, it is expected that groundwater flow at the site will be to the west/southwest, however because of its proximity to the groundwater divide there is a potential for flow to the north and south from the site as well. In addition, groundwater extraction from local public supply wells can also influence groundwater flow at the site.

Flow in the Magothy Aquifer is more towards the south/southwest near the site. Groundwater flow in the deeper Lloyd Aquifer is expected to be to the southwest.

1.4 Fate and Transport

Tetrachloroethene is a manufactured chemical that is widely used in the dry-cleaning industry. It is also used for degreasing and is found in consumer products including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors. Other names for tetrachloroethene include tetrachloroethylene, perchloroethylene, and PCE.

1.4.1 Fate of PCE

The fate of PCE is dominated by its volatility and degradation. PCE's presence in surface soils or surface water is usually short-lived, providing that a continuing source is not present.

In the atmosphere, PCE is expected to be present primarily in the vapor phase and not sorbed to particulates because of its high vapor pressure of 18 mm Hg. Vapor-phase PCE will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals. Direct photolysis is not expected to be an important environmental fate process since PCE only absorbs light weakly in the environmental ultraviolet (UV) spectrum.

The dominant fate of PCE in soils is volatilization. Based on its K_{oc} value of 265 milliliters per gram (mL/g), PCE is moderately mobile in soils. Consequently, PCE has the potential to migrate through the soil into groundwater. PCE has a specific gravity greater than water (1.62) indicating that pure liquid phase PCE will sink when dissolved in groundwater. The solubility of PCE in water is 150 milligrams per Liter (mg/L). Biodegradation under anaerobic conditions in soil and groundwater may occur at a relatively slow rate with half lives on the order of months or longer. PCE in groundwater can undergo reductive dechlorination catalyzed by anaerobic bacteria. The PCE will tend to degrade to TCE. Subsequent degradation to *cis*-1,2-dichloroethene (DCE) or *trans*-1,2-DCE and then to vinyl chloride can also occur via anaerobic mechanisms. Vinyl chloride can further degrade to ethylene.

Volatilization is also an important fate process of PCE in surface waters based on its Henry's Law constant of 1.73×10^{-2}atm-m^3/mol. PCE is also not expected to adsorb to suspended solids and sediment in water based upon its K_{oc} value. The half-lives in soil and groundwater were reported to be 180-360 days and 270 days respectively. A reported K_{ow} value of 351 in fish suggests that the potential for PCE to bioconcentrate in aquatic organisms is low.

1.4.2 Transport of PCE

Liquid phase PCE discharged directly to the ground surface would be expected to migrate downward through the unsaturated zone in a relatively linear pattern, with minimal dispersion from the discharge location. The unsaturated zone at the site is expected to be primarily sandy material; however the presence of lower permeability silt and clay layers may be encountered which could complicate the migration pathway. The depth to groundwater at the site is about 80 feet bgs, so any PCE entering the unsaturated zone has a significant distance to travel before groundwater is encounterd.

Significant soil vapor contamination may be present in the unsaturated zone. The vapor phase PCE vaporizes upward while the liquid phase migrates downward. Chlorinated solvents in the vapor phase can cause significant indoor air contamination due to residual unsaturated soil contamination or vaporization directly from the groundwater table interface.

Once liquid phase PCE encounters the water table, some of the solvent will become dissolved in the groundwater and begin to move in the direction of groundwater flow. If the quantity of solvent reaching the water table is sufficient, some of the solvent will remain in an undissolved state as a dense non-aqueous phase liquid (DNAPL) and, since PCE is denser than water, the solvent will continue to move downward under the influence of gravity. DNAPL will continue to sink until it encounters a lower permeability zone, which would slow or stop the downward migration. DNAPL could pool or accumulate on top of a lower permeability zone and remain stationary or move in the down-slope direction of the lower permeability zone. If sufficient DNAPL is pooled or trapped in the aquifer, it will act as a continual source of dissolved groundwater contamination. Movement of DNAPL in the

saturated zone can be very complex, with movement controlled by the permeability of subsurface stratigraphic units, the shape and configuration of lower permeability zones, and/or the dip of bedding planes.

At the site, groundwater generally flows toward the west/southwest. However, movement of PCE in the saturated zone at the site may be complicated by the groundwater extraction in the area from several public supply wells.

Section 2
Scope of Work

2.1 Task 1A - Site Visit and Work Plan Development

A site visit was conducted on May 17, 2007. This Work Plan references procedures detailed in the CDM Generic Quality Assurance Project Plan (QAPP) dated March 2007which has been provided to NYSDEC for Contract Number D-00437. The Generic QAPP presents methods that will be used to collect field data including project samples, and focuses on the analytical methods and quality assurance/quality control (QA/QC) procedures that will be used to analyze project samples, ensure the data are of known and acceptable quality, and manage the resultant data. Procedures that are not contained in the current version of the CDM Generic QAPP are provided in Appendix A of this Work Plan.

This Work Plan also includes a site specific Health and Safety Plan (HASP) presented in Appendix B and a Citizen Participation Plan (CPP) presented in Appendix C. The HASP describes the site health and safety for the field activities that will be performed and includes the Community Air Monitoring Plan (CAMP). The CPP provides the primary contacts for the site as well as various public entities and provides ways for citizens to be involved in the project.

2.2 Task 1B - Records Search

A records search was performed to meet the requirements of NYSDEC's *Draft DER-10 Technical Guidance for Site Investigation and Remediation* dated December 2002. Data collected during the records/background search was summarized in a Record Search Report and utilized to develop and design the proposed sampling activities detailed in this Work Plan. The Record Search Report is being provided to NYSDEC as a stand alone document, submitted simultaneously with the Work Plan.

2.3 Task 2 - Site Characterization

A Site Characterization will be conducted at the site in order to determine if soil or groundwater contamination are present at the site which would warrant further investigation. The investigation is ultimately being conducted to determine if the site should be listed as a New York State Hazardous Waste Site.

The investigation activities will include a geophysical survey, soil and groundwater screening using a membrane interface probe (MIP), the collection of direct push soil samples and the collection of groundwater grab samples from the Geoprobe. The objective is to provide groundwater and soil analyses for comparison to NYS Class GA Groundwater Quality Standards and NYSDEC Soil Cleanup Objectives.

The following section presents the field activities proposed for the Solvent Finishers site characterization. Field documentation and sampling procedures are provided in the CDM Generic QAPP referenced above. All applicable procedures contained in the

Generic QAPP will be followed. Procedures not presented in the current version of the Generic QAPP are provided in Appendix A.

2.3.1 Geophysical Survey

A geophysical survey utilizing ground penetrating radar (GPR) and electromagnetic conductivity (EC) will be conducted at the site to identify underground utilities, water lines, underground storage tanks and/or any large anomalies such as conduits. It will also be used to try and identify the locations of former drywells on the site.

The geophysical survey will also be performed to clear boring locations prior to drilling, since the One-Call service does not mark out utilities beyond the street. Subsurface utilities will be marked within 15 feet of each proposed location, to allow for relocation of borings should refusal be encountered during drilling.

2.3.2 Membrane Interface Probe Investigation

Subsurface soil and groundwater will be screened at 11 locations (MIP-1 through MIP-11) to preliminarily characterize the extent of soil and groundwater contamination and identify potential source areas (See Figure 2-1). Sampling locations were selected based on previous and present locations of dry-wells, a storage tank, a cooling tower, cesspool, and catch basins. A membrane interface probe (MIP) attached to a direct push drill rig will be used to screen the subsurface soil and groundwater via direct push technology. The direct push rods will be advanced to the maximum depth achievable by the unit, which is expected to be approximately 100 feet below ground surface (bgs). This would allow screening of the upper 20 feet of the water column. The MIP will be equipped with a photoionization detector (PID), electronic capture detector (ECD), and a flame ionization detector (FID). These detectors will allow screening of the subsurface for chlorinated compounds (e.g PCE, TCE), aromatic hydrocarbons (e.g. BTEX compounds) and straight chained hydrocarbons (e.g. methane, butane). The detector information as well as soil conductivity will be graphed by the field instrument allowing for real-time information at each location. The information will also be provided electronically to CDM for more detailed analysis. The soil conductivity data will be used in conjunction with the chemical data to identify zones of lower permeability soil.

The results of the MIP investigation will be used to select locations for the soil and groundwater direct push and HydroPunch samples. The MIP screening locations are identified on Figure 2-1 The MIP procedure is provided in Appendix A.

2.3.3 Direct Push Soil Sampling

Direct push soil sampling will be conducted to characterize the highest levels of contamination observed during the screening investigation and to determine if contamination is present at the locations of the former solvent tank, cooling tower, and dry wells at the rear of the building and cesspool on the north side of the building. The final direct push soil sampling locations will be selected based upon the results of the MIP investigation. At a minimum, direct push samples will be collected from the locations of the former solvent tank (MIP-8), cooling tower (MIP-9) and dry

well (MIP-7) where contamination was previously identified by NCDOH (Figure 2-1). In addition, a direct push point will also be conducted at the location of the former cesspool (MIP-2). Soil samples will be collected from the unsaturated zone at an interval which exhibit the highest MIP response. In the absence of any MIP response, soil samples will be collected from unsaturated soils at 22 feet bgs at drywell locations (two feet below the reported depth of the wells), 12 feet bgs at the location of the former solvent tank (two feet below the expected bottom of the former tank), and immediately above the water table. The lithology, absence/presence of contamination, and organic vapor (screened by PID) will be recorded for each subsurface soil sample. The direct push soil sampling procedure is provided in the Generic QAPP.

In order to identify the presence of chlorinated compounds as well as other potential contaminants that may be present in the subsurface at the site, soil samples collected during the investigation will be submitted to a subcontracted lab and analyzed for Semi-Volatile Organic Compounds (SVOCs) and Volatile Organic Compounds (VOCs) by EPA Methods 8270 and 8260, respectively.

2.3.4 Groundwater Sample Collection

Similar to the soil investigation, groundwater samples will be collected to characterize the groundwater at the property. Groundwater sampling will be conducted at the direct push soil sample locations and a downgradient location (identified on Figure 2-1). Groundwater samples will be taken the interval with the highest MIP response. In the absence of any MIP response, the groundwater sample will be collected 5 within the upper 5 feet of the water table. Groundwater samples will be analyzed by the laboratory for VOCs and SVOCs by EPA method 8260 and 8270, respectively in order characterize potential groundwater contamination at the site.

2.3.5 Soil Vapor Investigation

A soil vapor investigation will be conducted at the Site in order to assess the potential exposure from contaminated soil vapor to humans or the environment. Up to five (5) locations, coinciding with the direct push sample locations, are proposed for the collection of soil vapor samples, with shallow and deep samples anticipated at each location.

The investigation will include:

- Collecting shallow soil vapor samples at a depth equivalent to that of a typical building foundation (~8 feet below ground surface (bgs)) for VOCs.
- Collecting deep soil vapor samples from about 2 feet above the ground water table (~78 feet bgs) for VOCs

These samples will be collected in accordance with the *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006 and the *Draft Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation*, dated December 2002.

2.3.5.1 Soil Vapor Sample Collection

Soil vapor samples will be collected at up to five (5) locations selected by CDM to ensure full coverage of the property. Soil vapor points will be installed using direct-push drilling methods. The boreholes will be drilled to a depth approximately 8 feet bgs and 2 feet above the water table surface; estimated to be approximately 78 feet bgs at each sampling location.

Once the desired depth is reached, 3/8-inch Teflon®-lined tubing will be connected to a 6-inch double woven stainless steel sampling screen and placed in the borehole. The borehole will then backfilled with sand to a minimum depth of 6 inches above the screen interval followed by 6-inches of dry bentonite. A bentonite slurry will then placed to the ground surface. The bentonite will be allowed to hydrate for a minimum of 24 hours prior to sample collection.

Prior to collection of soil vapor samples, the temporary soil vapor probes will be purged in accordance with the NYSDOH SVI Guidance. One to three implant volumes (i.e. volume of the sample probe and tube) will be purged at a flow rate that does not exceed 200 milliliters (ml) per minute. A tedlar™ bag will be filled toward the end of the purge volume to be screened using a photoionization detector (PID) meter. The PID readings will be observed and recorded on the appropriate field form. The samples will be collected using laboratory-certified clean summa canisters with flow regulators and a vacuum of 28 inches Hg ± 2 inches. A vacuum of 5 inches Hg ± 1 inch must be present when sample collection is terminated. The soil vapor purging procedures are detailed further in the Generic QAPP.

Tracer gas will be used to evaluate short-circuiting of the sampling zone with ambient air. The soil vapor sampling locations will be evaluated with tracer gas in accordance with the NYSDOH SVI guidance. The tracer gas sampling procedure is provided in the Generic QAPP.

Samples will be collected using laboratory certified clean SUMMA canisters with regulators that will allow sample collection at two hours or less. Dedicated Teflon®-lined tubing with an inside diameter of ¼ inch will be used at each sample location. The flow rate during sampling shall not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling. During soil vapor sampling collection, an out door ambient air sample will be collected.

Upon completion of sampling, the sample tubing will be removed and the temporary soil vapor probe location backfilled with bentonite. Each location will then be marked with a stake/flag labeled with the proper sample identification and illustrated on the site map so that it can be surveyed at a later date. Borings performed in paved or concrete areas will be backfilled and refinished at the ground surface with concrete or cold patch.

Soil vapor and ambient air samples will be analyzed by a NYSDOH-approved Environmental Laboratory Approval Program (ELAP) certified lab for volatiles using EPA Method TO-15. A minimum reporting limit of 1 microgram per cubic meter

($\mu g/m^3$) must be achieved for all analytes and all results must be reported in $\mu g/m^3$. A NYSDEC Analytical Services Protocol (ASP) Category B data deliverable will be provided for these analyses. All data shall also be submitted electronically in a standardized format consistent with EPA Region 2's Multimedia Electronic Data Deliverable (MEDD). Table 2-1 presents a summary of the analytical program for the site.

2.3.6 Site Survey

A site plan depicting general site features (i.e., buildings,roadways, utility poles, fences, addresses, etc.) within the vicinity of the site will be prepared by a New York licensed surveyor. The locations of all sample points will be surveyed. The horizontal and vertical positions will be tied into the North American Datum 1983 and UTM Zone 18N coordinate system. The vertical positions will be tied to the North American Vertical Datum 1988 (NAVD88).

2.3.7 Investigative Derived Waste

Soil cuttings and purge water from each sampling location will be containerized in drums or other appropriate vessel and disposed off-site. It is assumed that 5 drums of non-hazardous waste will require off-site disposal. Investigation derived waste containers will be stored on-site at a location determined by NYSDEC until it can be removed by a licensed waste hauler.

2.3.8 Decontamination Procedures

All non-dedicated equipment and tools used to collect samples for chemical analysis will be decontaminated prior to and between each sample interval using an Alconox rinse and potable water rinse prior to reuse. Additional cleaning of the equipment with steam may be needed under some circumstances. Decontamination fluids will be discharged to the ground surface unless a visible sheen or odor is detected either on the equipment or the fluids, at which point the decontamination water will be staged in an appropriate container and disposed of appropriately.

2.4 Task 3 - Field Documentation and Reporting

2.4.1 Field Documentation Procedures

Field notebooks will be used during all on-site work. A dedicated field notebook will be maintained by the field technician overseeing the site activities. In addition to the notebook, any and all original sampling forms, and purge forms used during the field activities, will be submitted to the NYSDEC as part of the final report. Field and sampling procedures, including installation of the sample boreholes, existing monitoring wells, etc., will be photo-documented.

2.4.2 Sample Identification

Each sample collected will be designated by an alphanumeric code that will identify the type of sampling location, matrix sampled, and the specific sample designation (identifier). Each sample shall begin with the NYSDEC Site Number for the Solvent

Finishers site (130172). The following terminology shall be used for the samples collected during this investigation:

Soil:	130172-Boring ID-S -Depth
Water:	130172-Boring ID-GW-Depth
Soil Vapor:	130172-SV-Location ID – S(shallow) or D(deep)
Field Blanks:	130172-FB-DATE
Trip Blanks:	130172-TB-DATE

2.4.3 Sample Location

The screening (MIP) locations were selected base on previous and present locations of dry wells, catch basins, solvent tank, cooling tower and cesspool. The locations of the former dry wells, solvent tank, cooling tower and cesspool are identified on a 1960 Site Survey provided as Figure 2-2. Direct push soil and groundwater sample locations will be selected based upon the results of the MIP investigation. At a minimum, direct push samples will be collected from the locations of the former solvent tank, cooling tower and dry well where contamination was previously identified by NCDOH. In addition, a direct push point will also be conducted at the location of the former cesspool. Groundwater samples will coincide with soil sample locations with an additional downgradient groundwater point proposed.

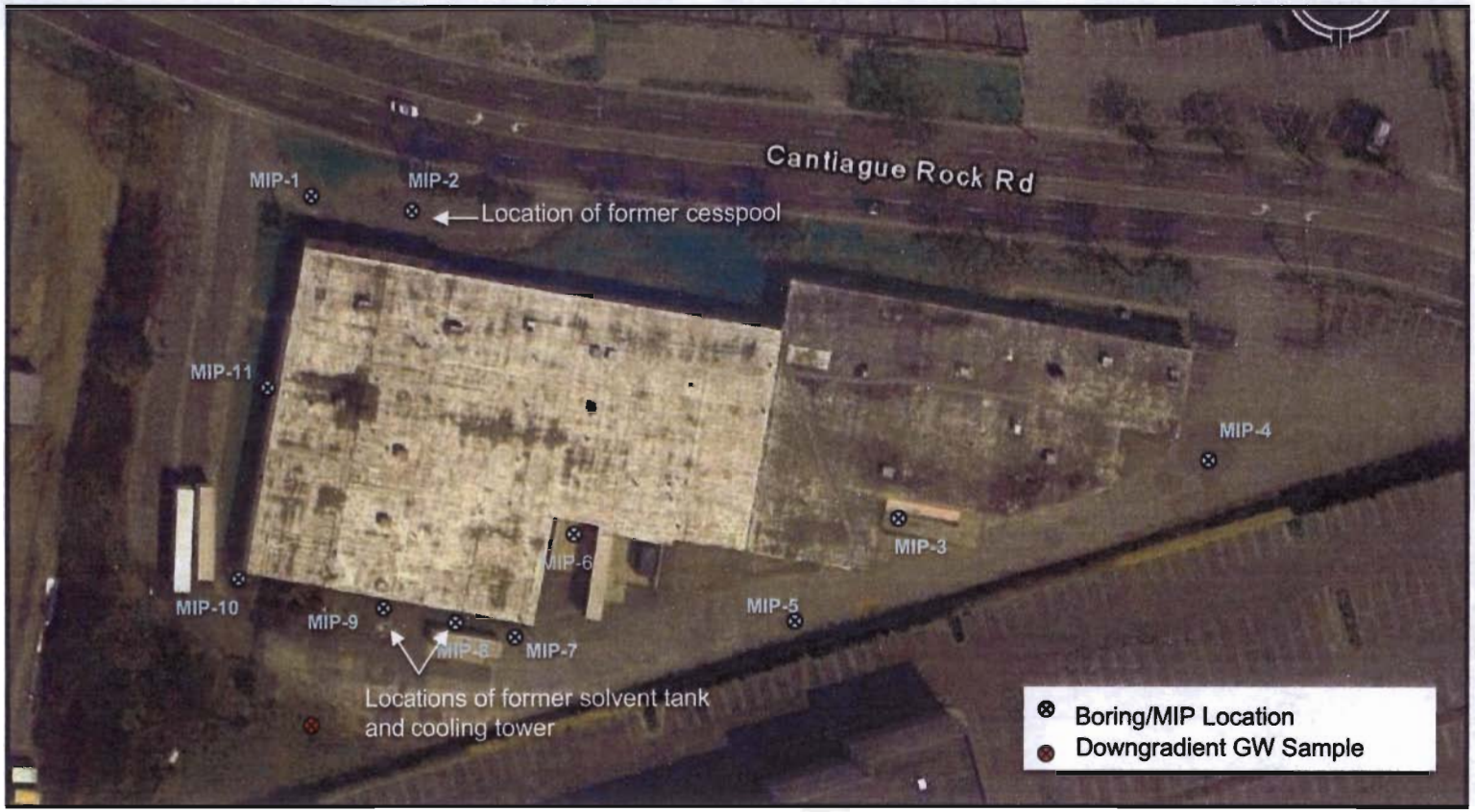
2.4.4 Reporting

One hardcopy and one electronic copy (PDF) of a draft letter report will be submitted to NYSDEC for review and comment. The report will document the work conducted and will present the results of the sample analysis and provide recommendations for further investigation should it be warranted. Upon receipt of the comments, CDM will revise the draft letter report, print the final copy and submit it to NYSDEC. One copy of the final letter report; text, tables, maps, photos, etc., will be submitted as a single pdf file. All electronic files will be submitted to NYSDEC on a compact disc. The site investigation data will be submitted in the most recent version of the NYSDEC Electronic Data Deliverable (EDD) with the final report submission. Currently this is the USEPA Region 2 EDD dated December 2003.

2.4.5 Laboratory Analysis and Validation

All samples will be analyzed by a NYSDOH approved ELAP certified laboratory. Groundwater samples will be analyzed for VOCs by EPA method 8260 and SVOCs by EPA Method 8270. Subsurface soil samples will be analyzed for SVOCs and VOCs by EPA methods 8270 and 8260. Soil vapor samples will be analyzed by EPA Method TO-15. A NYSDEC ASP Category B data deliverable will be provided for these analyses (Table 2-1).

All samples collected will be validated in accordance with NYSDEC Data Usability Summary Report (DUSR) guidance by a party that is independent of the laboratory which performed the analyses and CDM. A usability analysis will be conducted by a qualified data validator and a DUSR will be submitted to the NYSDEC.



NORTH

Figure 2-1
Proposed Sample Locations
Solvent Finishers
Site No. 1-30-172

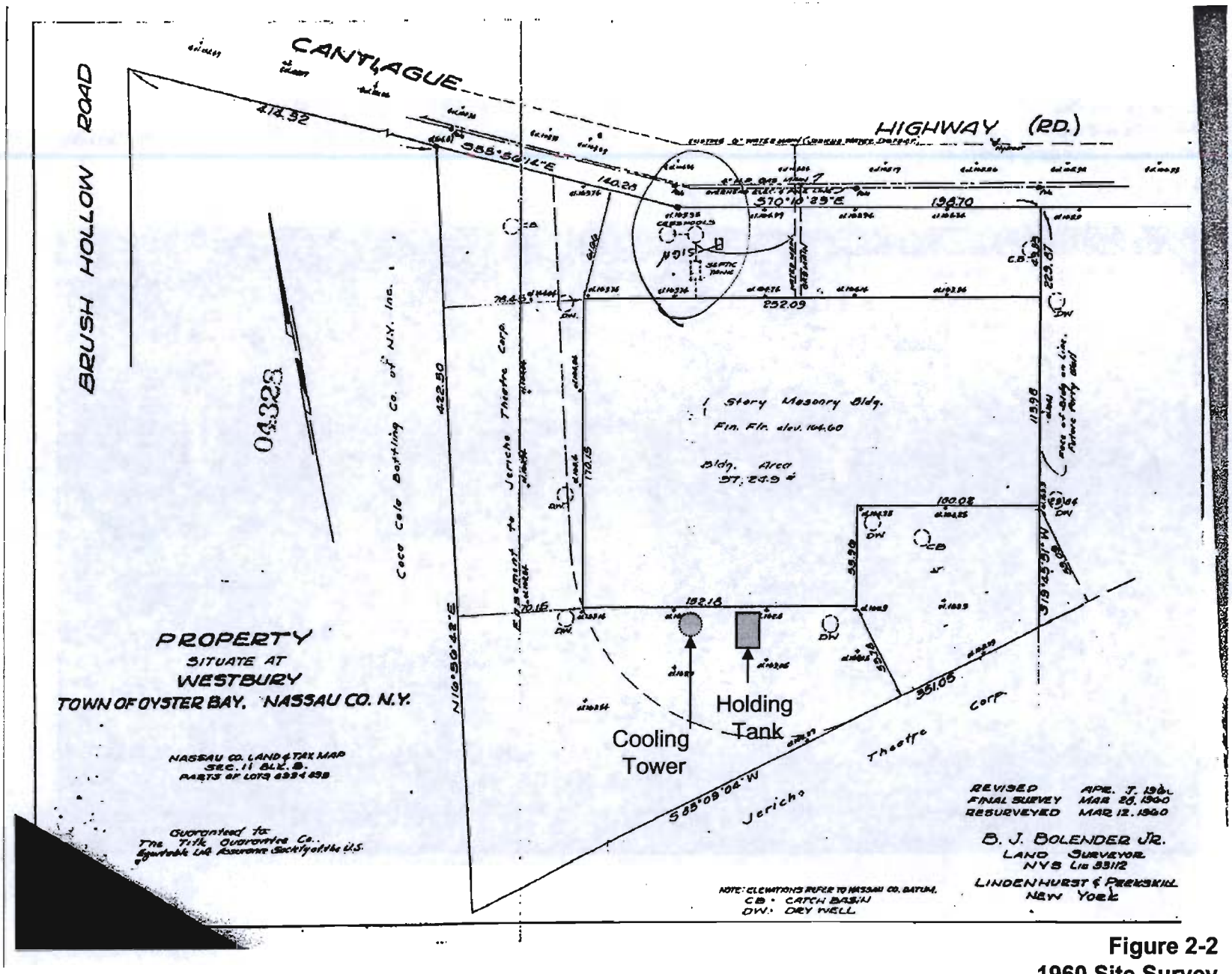


Figure 2-2
1960 Site Survey

Table 2-1
Analytical Program Summary
Solvent Finishers
Wesbury, New York

Analytical Parametar	Sample Matrix	Number of Samples	Analytical Method	Field Duplicates (b)	MS/MSDs	Field Blank/Ambient Air Blank (b)	Trip Blanks (c)	Container	Sample Preservation	Holding Time
GROUNDWATER SAMPLES										
Volatile Organic Compounds (VOCs)	Groundwater	7	EPA 8260	1	1	7	2	3 - 40ml clear glass vial with Teflon septum	HCl to pH <2; Cool to 4°C	14 days
Semi-Volatile Organic Compounds (VOCs)	Groundwater	7	EPA 8270	1	1	7	0	1000 ml	Cool to 4°C	7/40 days
SOIL SAMPLES										
Volatile Organic Compounds (VOCs)	Soil	6	EPA 8260	1	1	7	2	3 - 40 ml glass VOC with plastic cap with Teflon septum with 25 ml methanol (prepared by lab)	Cool to 4°C	14 days
Semi Volatile Organic Compounds (SVOCs)	Soil	6	EPA 8270	1	1	7	0	1 - 8 ounce glass jar with plastic cap	Cool to 4°C	14 days
SOIL VAPOR SAMPLES										
Volatile Organic Compounds (VOCs)	Air	10	EPA TO-15	1		1	0	1.4L SUMMA canisters with flow regulators		30 days

Notes:
(a) A minimum of 5% of all samples will be collected in duplicate.
(b) Field blanks are collected at a frequency of 1 per day.
(c) Trip blanks are collected at a frequency of 1 per sample cooler or 1 per every five days.

Section 3
Project Schedule

The following tabulation provides the proposed project schedule and key milestones for this work assignment. As currently planned, field work will be initiated within two weeks of written receipt of final work plan approval. Field activity duration for the Site Characterization activities is estimated to be three weeks assuming no delays are experienced due to inclement weather, site access problems, or for other unforeseen reason

The scheduled submittal dates for deliverables are based on standard laboratory turnaround times of four weeks, and turnaround for data validation of three weeks.

Project Milestone	Date
Issue Work Assignment (WA)	April 17, 2007
Work Assignment Acceptance	April 24, 2007
Submit Task 1A Draft Workplan and Task 1B Records Search Report	June 28, 2007
DEC/DOH Comment on Draft Work Plan and Records Search Report	October 1, 2007
Submit Task 1A Revised Work Plan Deliverable	October 8, 2007
Submit Task 1A Revised Work Plan Deliverable	December 18, 2007
Submit Task 1A Final Work Plan Deliverable	January 23, 2008
Notice to Proceed (NTP)	January 31, 2008
Commence Task 2 Field Work	February 18, 2008
Task 2 Field Work Completed	March 21, 2008
Task 3 Submit Draft Site Characterization Report	May 5, 2008
Approve Draft Report	30 Days after Draft Report Submitted
Task 3 Submit Final Site Characterization Report	30 Days after Approval of Draft Report

Section 4
Budget Estimates

Estimated Budget and Level of Effort (LOE) Summary
Solvent Finishers
Westbury, New York
Site No. 1-30-172

Task Items	Description/Cost	Dollars
1	Work Plan Development and Record Search	$17,466
2	Site Characterization	$81,679
3	Field Documentation & Reporting	$13,010
	Total Estimate Budget (Tasks 1 - 3)	**$112,135**

Appendix D presents the detailed costs by task and subtask on the NYSDEC schedule 2.11.

General Assumptions:

- Work will be performed in February and March 2008.
- All costs are based upon the scope and schedule provided in this Work Plan. Costs associated with project delays or expedited schedules beyond CDM's control are not assumed.
- CDM will provide one hard copy by mail and one electronic file (pdf) by e-mail for each report submitted to the NYSDEC.

Task 1 and 2 - Work Plan Development and Records Search:

- Only conference calls are anticipated to be necessary for this phase. Meetings are not assumed to be required for this task.
- Only one round of comments received concurrently is anticipated on draft deliverables. The review comments will be consolidated by NYSDEC. It is assumed that comments are minimal in nature and no re-evaluation is required. It is assumed that all comments can be addressed in 8 hours.
- Project management, subcontractor procurement, scheduling, budgeting, administrative activities are included in this task.
- A comprehensive Work Plan will be delivered to the Department submitted as a separate document in conjunction with the Records Search Report.

- The Workplan should include the description of the major tasks and sub-tasks to be performed including pertinent information to conduct field activities, potential areas of concern, analytical methods and sampling methods, a staffing plan identifying key and technical staff, identification of areas of subcontracting, work assignment budget, generic Health and Safety Plan, Citizen participation Plan and Quality Control and Assurance Plan.

- The Records Search report will be submitted as a separate document in conjunction with the Site Specific Work Plan.

- The Records Search report will identify potential sources of contamination and identify sample locations for follow up site characterization investigations.

Task 3 - Site Characterization Investigations:

- A notice to proceed must be received at least one week prior to mobilization.

- NYSDEC will provide access to all sampling and drilling locations.

- Drilling, analytical, surveying and validation services will be subcontracted.

- CDM will provide oversight during field activities, collect samples and maintain sample chain-of-custody.

- No schedule delays are assumed due to inclement weather or equipment failure.

- Delays due to the site owner or public are not assumed.

- Project management, subcontractor procurement, scheduling, budgeting, administrative activities are included in this task.

- Two mobilizations / demobilizations are expected; one mobilization/demobilization with the MIP and one with the geoprobe.

- For costing purposes, CDM assumes that soil and groundwater samples will be collected from 6 of the 11 MIP locations.

- CDM assumes that the MIP investigation will take 5 days, the direct push soil and groundwater sampling will take 7 days, and the soil vapor investigation will take 2 days.

- CDM assumes that all material and equipment staged in access areas will be removed to allow easy access to all sampling locations by the drilling equipment.

- One PID unit will be utilized air monitoring.

- It is assumed that 5 drums will be utilized for IDW.

Task 4 - Field Documentation and Reporting:

- Only conference calls are anticipated to be necessary for this phase. Meetings are not assumed to be required for this task.
- Only one round of comments received concurrently is anticipated on draft deliverables. The review comments will be consolidated by NYSDEC. It is assumed that comments are minimal in nature and no re-evaluation is required. It is assumed that all comments can be addressed within 12 hours.
- During site work, digital photographs and field notes will be kept.
- A letter report will be developed including a description of work conducted with field notes, photos, validated analytical data, figures, field measurements, and summary tables.
- It is assumed that three data tables (one groundwater, one subsurface soil, and one soil vapor) and four figures (identifying MIP detector output, groundwater data, subsurface soil data, and soil vapor data) will be necessary for the letter report.

Section 5
Staffing Plan

This project management organization for this project is to provide a clear delineation of functional responsibility and authority.

5.1 Program Manager - Michael A. Memoli, P.E., DEE

The primary responsibilities for program management activities rest with the Program Manager (PRM). The Program Manager, Mr. Memoli, will have ultimate contract responsibility for the project, including responsibility for the technical content of all engineering work. Mr. Memoli will direct, review and approve all project deliverables, schedule staff and resources, resolve scheduling conflicts and identify and solve potential program problems. He will be directly accountable to NYSDEC's Division of Hazardous Waste Remediation for program execution. He has authority to assign staff, negotiate and execute contracts and amendments, as well as execute subcontracts. The PRM will communicate directly with CDM's Project Manager.

5.2 Project Manager - Jessica R. Beattie, P.G.

The Project Manager, Ms. Jessica Beattie, will have the overall responsibility for the technical and financial aspects of this project. She will assign technical staff, maintain control of the project budget and schedule, prepare monthly progress reports, review and approve project invoices, evaluate the technical quality of the project deliverables as well as the adherence to QA/QC procedures and manage subcontractors. She will serve as CDM's point of contact for this project.

5.3 Program Quality Assurance Manager - Jeniffer M. Oxford

The Program Quality Assurance Officer, Ms. Jeniffer Oxford, will monitor QC activities of program management and technical staff, as well as identify and report needs of corrective action to the Program Manager. He will also conduct an internal review of all project deliverables prepared by CDM staff and sign off on the final investigation reports.

5.4 Health and Safety Officer - Christopher S. Marlowe, C.I.H., Q.E.P

The Program Health and Safety Officer, Mr. Chris Marlow, will review and make recommendations to the Subcontractors on health and safety plans for compliance with OSHA requirements. He will develop a Health and Safety plan for CDM and NYSDEC employees, handle over-sight activities, evaluate the performance of health and safety officers and maintain required health and safety records. He will report to the Program Manager

5.56 Field Manager/Health and Safety Site Supervisor/Coordinator - Melissa Koberle

The Field Manager, Ms. Melissa Koberle, will be responsible for overseeing and coordinating field activities. This will include, but is not limited to: overseeing the sampling activities, coordinating drill work, coordinating work with other subcontractors and monitoring health and safety conditions in accordance with the approved Health and Safety Plan. She is directly accountable to the Project Manager.

As the Health and Safety Site Supervisor/Coordinator, she will be responsible for ensuring that the Health and Safety Plan is implemented during field activities and that a copy of the site-specific Health and Safety Plan are maintained at the site at all times. He/she is also responsible for upgrading or downgrading personnel protection based on actual conditions at the time of the investigation. The Coordinator must also present an overview of the Health and Safety Plan to field personnel prior to initiating any field activities and is responsible for insuring that field personnel sign off on this plan. She will contact the Program Health and Safety Officer if any questions or issues arise during the field activities that she cannot answer.

Section 6
Subcontracting

Appendix E presents a comparison of quotes from various subcontractors. CDM proposes to engage subcontractors to provide the following services for this work assignment:

6.1 Geophysical Survey (Utility Markout) - Naeva Geophysics

At this time, CDM is proposing to use Naeva Geophysics (Naeva) to perform the geophysical survey work. They are located at 50 N. Harrison Avenue, Suite 11, Congers, NY 10920.

6.2 MIP/Direct Push Drilling - Zebra Environmental Corp.

CDM will be using Zebra Environmental Corp (Zebra) as the direct push subcontractor. They are located at 30 N. Prospect Avenue, Lynbrook, New York 11563.

6.2 Analytical Laboratory - Mitkem Corporation

At this time, CDM is proposing to use Mitkem(MBE) as the analytical laboratory subcontractor. They are located at 175 Metro Center Blvd Warwick, Rhode Island 02886.

6.3 Data Validation - Nancy Potak

At this time, CDM is proposing to use Nancy Potak (WBE) as the data validation subcontractor. She is located at 1796 Craftsbury Road, Greensboro, Vermont 05841.

6.4 M/WBE Reporting - Kenneth Shider

At this time, CDM is proposing to utilize Ken Shider (M/WBE consultant) to prepare the quarterly M/WBE reports that are required by NYSDEC.

6.5 Surveying - YEC, Inc

At this time, CDM is proposing to utilize YEC, Inc as the surveying subcontractor. They are located at 612 Corporate Way, Valley Cottage, New York 10989.

6.6 IDW Disposal - Innovative Recycling Technologies

At this time, CDM is proposing to utilize Innovative Recycling Technologies as the IDW disposal subcontractor. They are located at 690 North Queens Avenue, Lindenhurst, New York 11757

Section 7
MBE/WBE Utilization Plan

To meet the requirements of the MBE/WBE program, CDM has prepared the following utilization plan:

Total Dollar Value of the work assignment	**$112,135**
MBE Percentage Goal	15%
MBE Dollar Value Goal	$16,820
WBE Percentage Goal	5%
WBE Dollar Value Goal	$5,607
Combined MBE/WBE Percentage Goal	20%
Combined MBE/WBE Dollar Value Goal	$22,427

Minority and woman-owned firms are expected to participate as follows:

Services to be Provided	Description of Services	Subcontractor Name and Contact Information	Proposed Subcontract Price
MBE - Laboratory Analysis	Soil and Water Sample Analysis	Mitkem Ed Lawler (401) 732-3400	$12,024
M/WBE Quarterly Reports	M/WBE Quarterly Reports	Kenneth Shider (518) 269-2207	$600
MBE - Survey	Site Survey	YEC, Inc Ed Chen (845) 268-3203	$13,231
WBE - Data Validation	DUSR	Nancy Potak (802) 533-9206	$990
		TOTAL	$26,845

Acronyms

ASP	Analytical Services Protocol
CPP	Citizen Participation Plan
CDM	Camp Dresser and McKee
EDD	Electronic Data Deliverable
EPA	United States Environmental Protection Agency
DCE	dichloroethene
DNAPL	dense non-aqueous phase liquid
ft/day	feet per day
HASP	health and safety plan
mg/L	micrograms per liter
mL/g	milliliter per gram
NYSDEC	New York State Department of Environmental Conservation
PCE	tetrachloroethylene
PID	photoionization detector
ppb	parts per billion
QA/QC	quality control/quality assurance
QAPP	quality assurance project plan
TCE	trichloroethylene
SPDES	State Pollutant Discharge Elimination System
SVOCs	semi-volatile organic compounds
µ/L	micrograms per liter
UV	ultraviolet
VOCs	volatile organic compounds
SVOCs	semi-volatile organic compounds
WA	Work Assignment

Appendix A

MEMBRANE INTERFACE PROBE (MIP) PROCEDURE

Appendix A: MIP Procedure
Solvent Finishers
Westbury, NY
Site No. 1-30-172

This procedure for utilizing a membrane interface probe (MIP) for screening site soil and groundwater was developed for the Solvent Finishers field investigation.

1.0 Membrane Interface Probe (MIP)

1.1 MIP Investigation

In order to provide a screening-level characterization of VOC contamination in subsurface soil in both the vadose and saturated zones, CDM will utilize a MIP to obtain qualitative, depth-continuous, relative instrument response data for VOCs and electrical conductivity data in the subsurface soil.

The MIP utilizes a truck-mounted photo-ionization detector (PID), flame-ionization detector (FID), and an electron-capture devise (ECD). The 1.5-inch diameter MIP will be pushed into the subsurface at a penetration rate of approximately 1-foot per minute. The tip of the probe contains a thermister, which provides a heat source to volatilize VOCs. The gasses that are produced pass into the probe through a permeable membrane and enter a sampling loop. The gasses then are transported to the surface and pass through the PID, FID, and ECD. The MIP will produce a response to all compounds that:

1) Volatilize sufficiently to diffuse through the MIP probe membrane,

2) are carried to the detector in the carrier gas, and

3) produce a response on one or more of the detectors (PID, FID, and ECD).

The total response for each detector is related to the total contaminant concentration and the relative response of the detector to the compounds in the carrier gas stream. Therefore, the MIP is considered to produce qualitative data. The MIP data will be used to establish an instrument response gradient in subsurface soils to identify "hot spots" for sampling during the soil boring investigation.

A number of "performance checks" have been incorporated into the MIP screening program to provide a basis for evaluating MIP performance during subsurface soil screening activities. The following performance checks will be used during the MIP screening activities:

- Ex situ response check - This performance check will be used to test the response of the probe to a known concentration of a target contaminant in a test cell. This check will be performed in accordance with Geoprobe® Systems Technical Bulletin MK3010 (Geoprobe® 2003)

- Reproducibility check - This performance check includes performance of a replicate push within 5 to 10 feet of a selected push. The MIP profiles for the replicate locations will be compared to assess the reproducibility of the data. As a guideline, MIP responses that are within one order of magnitude will be considered to be reasonable evidence of reproducibility.

Ex situ response checks will be run at the following times:

- at the start of each day
- if more than 3 hours elapses between the last response check and the next logging run
- if the MIP probe, membrane, trunk line, dryer, probe rod, or any major components of the MIP system are repaired or replaced.
- Replicate MIP profiles will be run on approximately 1 in 20 samples.

Performance check results will be reviewed for each sample lot to evaluate MIP performance. If MIP performance issues are identified, the MIP subcontractor will take corrective actions to remedy the issues.

The MIP borings will be strategically located to identify "hot spots" that will be sampled during the soil boring, drilling and testing program. Field decisions will be made to relocate MIP borings to identify "hot spots" and VOC concentration gradients only.

1.2 MIP Procedure

Prior to initiating any field activities, the field team will review and discuss, in detail, the QAPP, the HASP and any appropriate background documentation. All monitoring and protective equipment will be thoroughly checked at this time.

All underground and overhead utilities and structures which may interfere with the progress of the work will be located prior to the commencement of subsurface drilling activities.

1.2.1 Field Equipment

The equipment required for sampling with a direct push technology is listed in the CDM Generic QAPP. However, in addition to the equipment listed in Generic QAPP, the following equipment will be required:

- Field Logbook

- 100-foot measuring tape
- Polyethylene sheeting
- Camera and film

1.2.2 Procedures

The MIP soil screening will be conducted using a Geoprobe® rig or equivalent direct push rig (as discussed above) and will follow the general drilling procedures outlined in the CDM Generic QAPP.

At each location the direct push rig will continuously collect data on the lithology and the VOC contamination. The MIP technology will provide a continuous depth qualitative readout of VOC concentrations. This probe will be used until the final depth is reached. The MIP subcontractor will provide CDM with an electronic data file of each push containing qualitative VOC readings and electrical conductivity readings.

The screening point boreholes will be tremie-grouted with a cement-bentonite mixture after all sampling has been completed and the boring locations will be restored to pre-existing conditions.

Appendix B

HEALTH AND SAFETY PLAN (HASP)

SITE MAP: *Show Exclusion, Contamination Reduction, and Support Zones. Indicate Evacuation and Reassembly Points*

The exclusion zone will include all points within 10 feet of the investigation activities or a sampling location. The contamination reduction zone will consist of a ten foot radius outside of the exclusion zone. The support zone will be a 10 foot radius outside of the CRZ. All zones are mobile, established in consideration of the prevailing wind direction and will be established and moved as work crew advances to new locations.

HEALTH AND SAFETY PLAN FORM **CDM Health and Safety Program**	*This document is for the exclusive use of CDM and its subcontractors*	**CAMP DRESSER & McKEE INC.** **PROJECT DOCUMENT #:**

PROJECT NAME	Solvent Finishers Site Site No. 130172	**PROJECT#**	0897-59173	**REGION**	PSG NER
JOBSITE ADDRESS	601 Cantiague Rock Road Jericho, Nassau County, New York	**CLIENT**			NYSDEC
		CLIENT CONTACT			Vivian James
		CLIENT CONTACT PHONE #			(518) 402-9621

( ) AMENDMENT TO EXISTING APPROVED H&SP
( ) H&SP AMENDMENT NUMBER? _____ **( ) DATE EXISTING APPROVED H&SP** _____

OBJECTIVES OF FIELD WORK:
(e.g. collect surface soil samples):

1) Site survey including all sampling locations
2) Subsurface soil sampling within dry well or other suspected underground injection features
3) Soil vapor sampling at ten locations within or around the Site
4) Groundwater profiling and sampling via hydro-punch technology
5) Groundwater sampling of monitoring wells

Type *Check as many as applicable*

Active	(X)	Landfill	( )	Unknown	( )
Inactive	( )	Uncontrolled	( )	Military	( )
Secure	(X)	Industrial	(X)	Other (specify)	(X) Commercial
Unsecure	( )	Recovery	( )		
Enclosed space	( )	Well Field	( )		

All requirements described in the CDM Health and Safety Assurance Manual for Hazardous Waste Operations are incorporated in this health and safety plan by reference.

DESCRIPTION AND FEATURES:

The Solvent Finishers Site was a former dry-cleaning operation, located at 601-603 Cantiague Rock Road, Town of Oyster Bay, Nassau County, New York. The building was built on 3.78 acres in 1960. The facility is bordered by a movie theatre and BJ Wholesale Club to the South, Cantiague Rock Road to the North and East, and Brush Hollow Road and a BMW distribution center and dealership to the West. Presently the building is located within a high commercial/industrial area. Heavy traffic and noise is a concern. Residential areas as well as recreational baseball fields are located to the northeast. The topography is mainly flat and covered by asphalt. Groundwater contours prepared for Nassau County's Groundwater Monitoring Program based on water levels collected in public wells in 2001, 2002, and 2003 indicates that the groundwater in the Upper Glacial aquifer (water table) in the Site area generally flows to the Southwest, but that there may be a Northwest component to the groundwater flow.

SURROUNDING POPULATION: (x) Residential (X) Industrial (x) Commercial ( ) Rural (x) Urban OTHER:

HEALTH AND SAFETY PLAN FORM	*This document is for the exclusive*	CAMP DRESSER & McKEE INC.
CDM Health and Safety Program	*use of CDM and its subcontractors*	**PROJECT DOCUMENT #:**

EMERGENCY CONTACTS	NAME	PHONE
Water Supply		
Site Telephone		NA
EPA Release Report #:		800-424-8802
CDM 24-Hour Emergency #:		732-539-8128
CHEMTREC Emergency #:		800-424-9300
Underground Utility	UFPO	800-962-7962

CONTINGENCY PLANS: *Summarize below*

If CDM work team observes hazards for which they have not prepared, they will withdraw from the area and call the CDM Project Manager

SHSC will designate evacuation routes. Teams will cease work if they see lightning or thunder storms in the area.

CDM may rely on instruments operated by contractor personnel only upon HSM approval. If contractor directs a higher level of protection than this plan does, CDM personnel will wear that level. CDM personnel may choose to wear more potection than directed by this plan.

Contractor will be expected to inspect its equipment and certify its suitability for the project to the CDM site health and safety coordinator.

*As per NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, continuous monitoring at each borehole/MIP location, and hydropunch location will be sufficient to meet the requirements of the Community Air Monitoring Program.

HEALTH AND SAFETY PLAN APPROVALS

Prepared by Melissa A Koberle Date June 2007

Date _____

HSM Signature **APPROVED** *By Chris Marlowe at 1:57 pm, Jun 28, 2007* Date _____

EMERGENCY CONTACTS	NAME	PHONE
CDM Health and Safety Manager	Chris Marlowe	732-590-4632
CDM Field Manager	Melissa Koberle	212-785-9160
CDM Site Safety Coordinator	Melissa Koberle	212-785-9160
Client Contact	Vivian James	212-402-9621
Other *(specify)*		
Environmental Agency	NYSDEC Region 1	631-444-0204
State Spill Number	New York	800-342-9296
Fire Department		911
Police Department		911
State Police		911
Health Department	Nassau County	516-571-3314
Poison Control Center	Nationwide	800 / 222 - 1222
Occupational Physician	Kenneth Chase	800 / 777 - WOHA

HOSPITAL INFORMATION

Name: North Shore University Hospital
Phone: (516) 876-5200
Address: 972 Brush Hollow Rd # 302, Westbury, NY
Route: Drive Northwest on Cantiague Rock Road
towards Brush Hollow Road
Turn Left at Brush Hollow Road
The hospital is before the Northern State Parkway overpass

HEALTH AND SAFETY PLAN FORM CDM Health and Safety Program	*This document is for the exclusive use of CDM and its subcontractors*	CAMP DRESSER & McKEE INC. PROJECT DOCUMENT #:
DECONTAMINATION PROCEDURES		
ATTACH SITE MAP INDICATING EXCLUSION, DECONTAMINATION, AND SUPPORT ZONES AS PAGE TWO		
Personnel Decontamination *Summarize below or attach diagram;* Team members will remove their protective clothing in the following order: 1. Equipment drop. 2. Glove removal 3. Hand and face wash.	**Sampling Equipment Decontamination** *Summarize below or attach diagram;* Sampling equipment will be decontaminated by: 1. Gross mechanical removal of dirt. 2. Alconox/Water wash. 3. Potable water rinse. 4. Distilled water rinse.	**Heavy Equipment Decontamination** *Summarize below or attach diagram;* Drill rigs and/or geoprobes used for hydropunch and soil vapor sampling will be decontaminated by: 1. Gross mechanical removal of dirt. 2. Alconox/Water wash. 3. Potable water rinse. Heavily contaminated equipment will be steam cleaned
Containment and Disposal Method Disposable protective equipment will be disposed of in CDM dumpster, unless heavily contaminated. If heavily contaminated, disposable equipment will be contained in drums and left on site for proper disposal.	**Containment and Disposal Method** Sampling equipment cleaning water solutions will be allowed to drain to the groundwater. If heavily contaminated, disposable equipment will be contained in drums and left on site for proper disposal.	**Containment and Disposal Method** Decontamination fluids will be released to the ground, unless heavily contaminated. If heavily contaminated, contractor will contain the waste in drums, and left on site for proper disposal.

HEALTH AND SAFETY PLAN FORM	*This document is for the exclusive*	**CAMP DRESSER & McKEE INC.**
CDM Health and Safety Program	*use of CDM and its subcontractors*	**PROJECT DOCUMENT #:**

MONITORING EQUIPMENT: *Specify by task. Indicate type as necessary. Attach additional sheets if needed.*

INSTRUMENT	TASK	ACTION GUIDELINES		COMMENTS *(When and how will you use the monitor?)*
Combustible Gas Indicator	1-2-(3)-(4)-5-6-7-8	0-10% LEL 10-25% LEL >25% LEL 21.0% O2 <21.0% O2 <19.5% O2	*No explosion hazard* *Potential explosion hazard; notify SHSC* *Explosion hazard; interrupt task/evacuat* *Oxygen normal* *Oxygen deficient; notify SHSC* *Interrupt task/evacuate*	( ) Not Needed Needed for all drilling activities which includes hydropunch technology and soil vapor sampling.
Radiation Survey Meter	1-2-3-4-5-6-7-8	3 x Background: >2mR/hr:	*Notify HSM* *Establish REZ*	(X) Not Needed
Photoionization Detector 10.6eV Lamp Type OVM	(1-2-3-4-5)-6-7-8	*Specify:* 0-2 ppm: Level D 2-20 ppm: Level D. checkfor vinyl chloride. > 5 ppm Leave Area . Call HSM		( ) Not Needed Monitor breathing zone continuoulsy. Compare action levels to time-averaged breathing zone measurements.
Flame Ionization Detector Type	1-2-3-4-5-6-7-8	*Specify:*		(X) Not Needed
Single Gas Type: Vinyl Chloride	1-(2-3-4-5)-6-7-8	*Specify:* 0-0.5 ppm: Level D > 0.5 ppm Leave Area . Call HSM		(X) Not Needed Team will draw vinyl chloride detector when PID readings rise.
Respirable Dust Monitor Type	(1-2-3-4-5)-6-7-8	*Specify:* If team observes visible concentrations of airborne dust or dry, windy conditions that dust, team will leave area.		( ) Not Needed
Other *Specify:*	(1-2-3-4-5)-6-7-8	*Specify:* If team notices unusual odors or irritation of the eye or throat, they will leave the area.		

HEALTH AND SAFETY PLAN FORM | *This document is for the exclusive* | **CAMP DRESSER & McKEE INC.**

CDM Health and Safety Program | *use of CDM and its subcontractors* | **PROJECT DOCUMENT #:**

PROTECTIVE EQUIPMENT: *Specify by task. Indicate type and/or material, as necessary. Group tasks if possible. Use copies of this sheet if needed.*

BLOCK A - Primary

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8
LEVEL: A - B - C - D - Modified
(x) Primary ( ) Contingency

Respiratory: (XX) Not needed
( ) SCBA, Airline
( ) APR
( ) Cartridge
( ) Escape Mask
( ) Other:

Head and Eye: ( ) Not needed
(x) Safety Glasses:
( ) Face Shield:
( ) Goggles:
(x) Hard Hat:
( ) Other:

Boots: ( ) Not needed
(x) Steel-Toe
( ) Rubber **(X) Leather**
( ) Overboots: Latex (optional)

Prot. Clothing: (x) Not needed
( ) Encapsulated Suit
( ) Splash Suit
( ) Apron
( ) Tyvek Coverall
( ) Saranex Coverall
( ) Cloth Coverall
(XX) Other: **work clothes**

Gloves: ( ) Not needed
(XX) Undergloves: latex
(X) Gloves: Nitrile Task 4 & 5
( ) Overgloves: Nitrile

Other: specify below
( ) Tick Spray
( ) Flotation Device
(X) Heating Protection
(X) Sun Screen

BLOCK B-Contingency

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
LEVEL: A - B - C - D - Modified
( ) Primary (x) Contingency

Respiratory: ( ) Not needed
( ) SCBA, Airline
( ) APR
( ) Cartridge
( ) Escape Mask
( ) Other:

Head and Eye: ( ) Not needed
( ) Safety Glasses
( ) Face Shield
( ) Goggles
( ) Hard Hat
( ) Other:

( ) Rubber ( ) Leather
( ) Overboots: Latex

Prot. Clothing: ( ) Not needed
( ) Encapsulated Suit
( ) Splash Suit
( ) Apron
( ) Tyvek Coverall
( ) Saranex Coverall
( ) Cloth Coverall
( ) Other:

Gloves: ( ) Not needed
( ) Undergloves: PVC
( ) Gloves: Cotton
( ) Overgloves: Nitrile

( ) Flotation Device
( ) Heating Protection
( ) Sun Screen

Exit Area

BLOCK C

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
LEVEL: A - B - C - D - Modified
(x) Primary ( ) Contingency

Respiratory: ( ) Not needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not needed
( ) Steel-Toe ( ) Steel Shank
( ) Rubber ( ) Leather
( ) Overboots:

Prot. Clothing: ( ) Not needed
( ) Encapsulated Suit:
( ) Splash Suit
( ) Apron:
( ) Tyvek Coverall
( ) Saranex Coverall
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not needed
( ) Undergloves:
( ) Gloves:
( ) Overgloves:

Other: specify below
( ) Tick Spray
( ) Flotation Device
( ) Heating Protection
( ) Sun Screen

BLOCK D

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
LEVEL: A - B - C - D - Modified
( ) Primary (x) Contingency

Respiratory: ( ) Not needed
( ) SCBA, Airline
( ) APR
( ) Cartridge
( ) Escape Mask
( ) Other:

Head and Eye: ( ) Not needed
( ) Safety Glasses
( ) Face Shield
( ) Goggles
( ) Hard Hat
( ) Other:

Boots: ( ) Not needed
( ) Steel-Toe ( ) Steel Shank
( ) Rubber ( ) Leather
( ) Overboots

Prot. Clothing: ( ) Not needed
( ) Encapsulated Suit
( ) Splash Suit
( ) Apron
( ) Tyvek Coverall
( ) Saranex Coverall
( ) Cloth Coverall
( ) Other:

Gloves: ( ) Not needed
( ) Undergloves
( ) Gloves
( ) Overgloves

Other: specify below
( ) Tick Spray
( ) Flotation Device
( ) Heating Protection
( ) Sun Screen

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TASK DESCRIPTION/SPECIFIC TECHNIQUE/SITE LOCATION *(attach additional sheets as necessary)*	**Type**	**Primary**	**Contingency**	**HAZARD & SCHEDULE**
1. Survey sampling locations	Intrusive	A B C (D)	A B C D	Hi Med (Low)
	(Non-intrusive)	Modified	(Exit Area)	Aug-07
2. Subsurface soil sampling	(Intrusive)	A B C (D)	A B C D	Hi Med (Low)
	Non-intrusive	Modified	(Exit Area)	Aug-07
3. Soil vapor sampling (MIP)	(**Intrusive**)	A B C (D)	A B C D	Hi Med (Low)
	Non-intrusive	Modified	(Exit Area)	Aug-07
4. Groundwater profiling and sampling via hydro-punch technology	(**Intrusive**)	A B C (D)	A B C D	Hi Med (Low)
	Non-intrusive	Modified	(Exit Area)	Aug-07
5. Groundwater sampling of monitoring wells	(**Intrusive**)	A B C (D)	A B C D	Hi Med (Low)
	Non-intrusive	Modified	(Exit Area)	Aug-07

PERSONNEL AND RESPONSIBILITIES				
NAME	**FIRM/DIVISION**	**CDM HEALTH CLEARANCE**	**RESPONSIBILITIES**	**On Site?**
Melissa Koberle	CDM/EMP	B-S	H & S Coordinator/Field Manager	(1-2-3-4-5-6)
Jessica Beattie	CDM/EMP	B-S	Project Manager	(1-2-3-4-5-6)
Chris Marlowe	CDM/EMP	C	H&S Manager	No

Buddy system must be complied with either by client, CDM or contractor serving as buddy.

KNOWN CONTAMINANTS	HIGHEST OBSERVED CONCENTRATION	PEL/TLV *ppm or mg/m3 (specify)*	IDLH *ppm or mg/m3 (specify)*	Warning Concentration *(in ppm)*	SYMPTOMS & EFFECTS OF ACUTE EXPOSURE	PHOTO IONIZATION POTENTIAL
Tetrachloroethylene (PCE)	20000 ppm*/ wastewater	25 ppm	150 ppm	47 ppm	Irritated eyes, nose, throat, flushed face & neck, dizziness	9.32
1,1 Dichloroethylene	U / GW	1 ppm	>500 ppm	1.1 ppm	No acute effects	<11.0
1,2 Dichloroethylene	U / GW	200 ppm	1,000 ppm	1.1 ppm	Irritated eyes, CNS depression	10.00
Trichloroethylene	U / GW	50 ppm	1,000 ppm	82 ppm	Vertigo, visual disturbance, headache, drowsiness	9.45
Vinyl chloride	U / GW	1 ppm	Carc.	NA	Weakness, stomach pain, cancer	10.00

* 20,000ppm of PCE was detected in a wastewater sample collected from a discharge pipe located under an on site grate. The sample was collected in 1977 by the Nassau County Department of Health. No formal sampling or investigation has been conducted on site since that time. This HASP will cover the activities associated with the initital site characterization.

Chemicals which detected concentrations at estimated levels are not presented.

NA = Not Available **NE = None Established** **U = Unknown**

Attach, to this plan, an MSDS for each chemical you will use at the site.

S = Soil SW = Surface Water T = Tailings W = Waste TK = Tanks SD = Sediment
A = Air GW = Ground Water SL = Sludge D = Drums L = Lagoons OFF = Off-Site

HEALTH AND SAFETY PLAN FORM **CDM Health and Safety Program**	*This document is for the exclusive use of CDM and its subcontractors*	**CAMP DRESSER & McKEE INC.** **PROJECT DOCUMENT #:**

HAZARDOUS MATERIAL SUMMARY: *Circle waste type and estimate amounts by category.*

CHEMICALS: *Amount/Units:*	**SOLIDS:** *Amount/Units:*	**SLUDGES:** *Amount/Units:*	**SOLVENTS:** *Amount/Units:*	**OILS:** *Amount/Units:*	**OTHER:** *Amount/Units:*
Acids	Flyash	Paints	**Halogenated (chloro, bromo) Solvents**	Oily Wastes	Laboratory
Pickling Liquors	Mill or Mine Tailings	Pigments		Gasoline	Pharmaceutical
Caustics	Asbestos	Metals Sludges	Hydrocarbons	Diesel Oil	Hospital
Pesticides	Ferrous Smelter	POTW Sludge	Alcohols	Lubricants	Radiological
Dyes/Inks	Non-Ferrous Smelter	Aluminum	Ketones	PCBs	Municipal
Phenols	Metals	Distillation Bottoms	Esters	Polynuclear Aromatics	Construction
Halogens	Other *specify:*	Other *specify:*	Ethers	Other *specify:*	Munitions
Metals			Other *specify:* **PCE**		Other *specify:*
Dioxins					
Other *specify:*					

OVERALL HAZARD EVALUATION: ( ) High () Medium (x) Low ( ) Unknown *(Where tasks have different hazards, evaluate each.)*

JUSTIFICATION: The contamination is isolated to a sole source aquifer and the VOC concentration is considered low for human health hazards.

FIRE/EXPLOSION POTENTIAL: ( ) High ( ) Medium (x) Low ( ) Unknown

BACKGROUND REVIEW: (X) Complete ( ) Incomplete

HEALTH AND SAFETY PLAN FORM	*This document is for the exclusive*	CAMP DRESSER & McKEE INC.
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HISTORY: *Summarize conditions that relate to hazard. Include citizen complaints, spills, previous investigations or agency actions, known injuries, etc.*

Solvent Finishers dry-cleaning facility used 11,000 gallons of tetrachloroethylene (PCE) yearly to assist in cleaning large rolls of fabric on an automated system. In 1978, soil samples from a dry-well located in the rear of the facility taken by Nassau County Department of Health (NCDOH) revealed PCE concentrations at 20,000 ppm. A further investigation was conducted by NCDOH which indicated that PCE was being discharged directly into the dry-well and ground surface. A State Pollution Discharge Elimination System (SIDES) permit was granted to Solvent Finishers in August of 1979, permitting them to discharge into an inground holding tank for storage and removal by a license waste scavenger. Any liquid waste discharged which exceeded the capacity of the holding tank would be mechanically pumped into a cooling tower. Re-inspections of this system later in the year indicated that the waste handling operation was not effective and on occasion the tank and/or cooling tower would overflow onto the surface of the ground. Due to continous overflow of waste discharge events the soil became severly contaminated. In the 1990's, Rubies Costume Company bought Solvent Finishers. From October 1998-1999, Rubies Cost

WASTE TYPES: ( ) Liquid ( ) Solid ( ) Sludge ( ) Gas ( ) Unknown (X) Other, specify: contaminated groundwater

Check as many as applicable.

( ) Corrosive	( ) Flammable	( ) Radioactive
( ) Toxic	**(X) Volatile**	( ) Reactive
( ) Inert Gas	( ) Unknown	**(x) Other, specify: PCE in groundwater, soil vapor and subsurface soils**

WORK ZONES: *Describe the Exclusion, Contamination Reduction, and Support Zones in terms on-site personnel will recognize*

The exclusion zone will include all points within 10 feet of the investigation activities or a sampling location. The contamination reduction zone will consist of a ten foot radius outside of the exclusion zone. The support zone will be a 10 foot radius outside of the CRZ. All zones are mobile, established in consideration of the prevailing wind direction and will be established and moved as work crew advances to new locations.

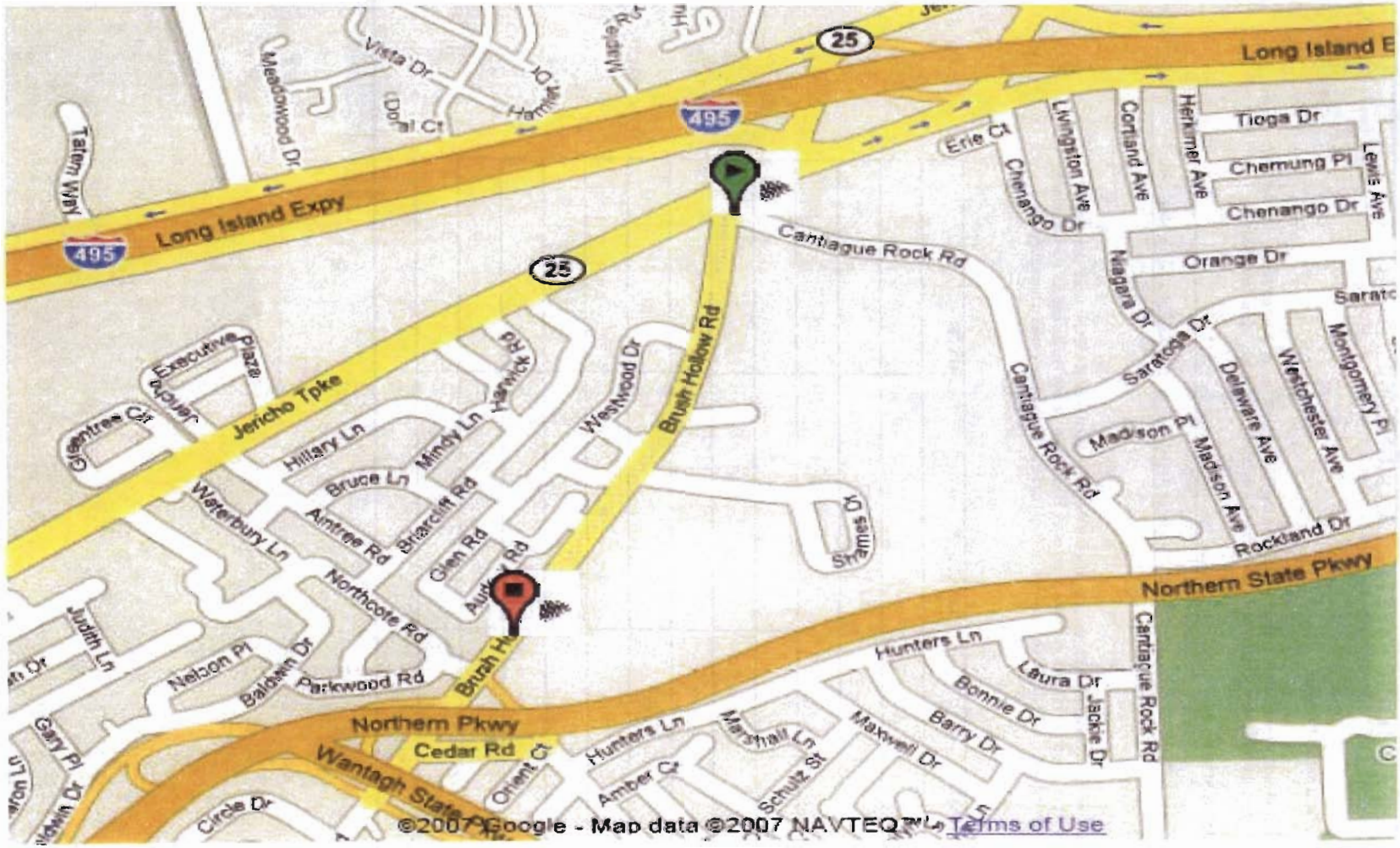
HAZARDS OF CONCERN:

(X) Heat Stress	**(X) Noise**
(X) Cold Stress	( ) Inorganic Chemicals
( ) Explosive/Flammable	**(X) Organic Chemicals**
( ) Oxygen Deficient	**(X) Motorized Traffic**
( ) Radiological	**(X) Heavy Machinery:Drill Rig**
( ) Biological	**(X) Slips, Trips, & Falls**
( ) Other	

FACILITY'S PAST AND PRESENT DISPOSAL METHODS AND PRACTICES:

The Site's past disposal methods include discharging into an inground holding tank and cooling tower. However, the liquid waste discharged often overflowed the holding tank and cooling tower onto ground surface. The Site also has past experience of disposing liquid waste directly to ground surface.

ROUTE TO HOSPITAL MAP:



HEALTH AND SAFETY PLAN SIGNATURE FORM

CDM Health and Safety Program

All site personnel must sign this form indicating receipt of the HASP. Keep this original on site or with the field manager. It becomes part of the permanent project files. Send a copy to the Health and Safety Manager (HSM).

SITE NAME/NUMBER: Solvent Finishers Site Number 130172

DIVISION/LOCATION: 601 Cantiague Rock Road, Jericho, Nassau County, New York

CERTIFICATION:

I understand, and agree to comply with, the provisions of the above referenced HASP for work activities on this project. I agree to report any injuries, illnesses or exposure incidents to the site Health and Safety Coordinator (SHSC). I agree to inform the SHSC about any drugs (legal and illegal) that I take within three days of site work.

PRINTED NAME	SIGNATURE	DATE

May 2007

Generic Community Air Monitoring Plan

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 ground intrusive 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

P:\Bureau\Common\CommunityAirMonitoringPlan (CAMP)\GCAMPR1.DOC

Appendix C

CITIZEN PARTICIPATION PLAN (CPP)

CITIZENS PARTICIPATION PLAN
SOLVENT FINISHERS
(Site No.:1-30-172)
Jericho, New York

Prepared for

New York State Department of Environmental Conservation
Investigation and Design Engineering Services
Standby Contract No. D004437
Work Assignment No. D004437-10

Prepared by

Camp Dresser & McKee
Raritan Plaza I, Raritan Center
Edison, New Jersey

October 2007

CDM

Contents

Section 1
Introduction

This Citizens Participation Plan (CPP) for Solvent Finishers (herein referred to as the "Site") located at 601 Cantiague Rock Road in the Town of Jericho, Nassau County, New York was prepared by Camp Dresser and McKee Inc. (CDM) for the New York State Department of Environmental Conservation (NYSDEC) under the Engineering Services for Investigation and Design, Standby Contract No. D004437. All background and site information used in the development of this CPP was furnished by NYSDEC and by the CDM Record Search. The Site is a former dry cleaning facility which is now owned by Rubie's Costume Company who utilizes the building to cut fabric for costumes. The work plan was developed in accordance with the "State Superfund Standby Contract Work Assignment D004437-10, Site Characterization, Solvent Finishers, Site No. 130172."

1.1 Purpose and Objectives

The objective of this work assignment (WA) is to determine if soil and groundwater at the Site have been contaminated by tetracholorethylene (PCE) previously discharged into an on-site dry well and on the ground surface. The investigation will focus on determining groundwater flow direction, the level of contamination, and the possible sources of contamination. The results of the investigation will be used to determine if the site should be listed as a New York State Hazardous Waste Site. Field tasks for this investigation are:

- Perform a geophysical survey to identify subsurface utilities and attempt to pin-point the locations of former drywells on the site. The geophysical survey will also be used to clear the boring locations prior to drilling;
- Perform field screening of soil and groundwater at potential areas of contamination using a membrane interface probe (MIP); the probe will screen for chlorinated compounds and hyrocarbons as well as soil conductivity;
- Perform targeted soil and groundwater sampling using direct push methods;
- Prepare a site survey including general site features as well as investigation locations;
- Disposal of investigation derived waste

1.2 Site Description and Background

1.2.1 Site Description

The Site is located at 601 Cantiague Rock Road in the Town of Oyster Bay, Nassau County, New York. More specifically, the Site is bordered by the Cantiague Rock Road to the north and east, a movie theatre and BJs Wholesale club to the south, and a

BMW distribution center and dealership to the west. The facility is built on 3.78 acres of land. The Site is currently occupied by Rubie's Costume Company.

The property is surrounded by industrial, commercial, and residential properties. Located southeast of the Site is Building 609 which is occupied by For Animals in the Hospital Inc., Hassal Inc., and Kraft Foods Inc. Shames Drive Industrial Park is located southwest of the Site.

1.2.2 Operational and Remedial History

The site is currently owned by Rubies Costume Company (Rubies) and operates as a fabric cutting facility for costumes. Prior to Rubies occupancy the site was operated by College House Inc., Solvent Finishers, International Laminations, and Suval Fabrications. Historically the site operated as a manufacturer of artificial leather and plastics (Suval Fabrications), an industrial dry cleaner (Solvent Finishers), a manufacturer of imprinted and embroidered sportswear (College House Inc) and now as a fabric cutting facility (Rubies). This records search and site characterization are being performed under the guidance of the NYSDEC and under the suspicion that the site, while operated by Solvent Finishers, may have contributed to the tetrachloroethene (PCE) contamination found in groundwater down gradient from the site.

The site has been developed and used for industrial operations since as early as 1960. Based on historic Sanborne Fire Insurance maps and Nassau County property cards the site was occupied by Suval Fabrications Inc., a manufacturer of artificial leather and plastics in 1960 when the main building located at 601 Cantiague Rock Road was constructed. Suval Fabrications occupied the site until at least 1966 when the secondary building was constructed (603 Cantiague Rock Road). A site sketch provided by Solvent Finishers to the County Health Department identifies the occupant of 603 Cantiague Roack Road as International Laminations. No additional information on International Laminations was found. It is not known when operations of Suval Fabrications Inc. ceased or when Solvent Finishers Inc. operations began. The earliest documented date indicating Solvent Finishers operated on site is October 1977.

During the period that Solvent Finishers operated as an industrial dry cleaner at the site; they reportedly used up to 11,000 gallons of tetrachloroethylene annually to clean large rolls of fabric on an automated system. Routine inspections by the Nassau County Department of Health identified several violations pertaining to improper liquid waste discharge activities containing levels of PCE that exceed NYSDEC groundwater standards. Waste water was noted as being discharged directly onto the ground surface and into onsite dry wells. A site survey from 1960 identified seven dry wells on the subject property.

On October 19, 1977, NCDOH sampled a discharge pipe at Solvent Finishers located in the rear of the facility under a grate (dry well). The result detected 20,000,000 ppb of PCE in the effluent.

In April of 1978, NCDOH notified Solvent Finishers of the exceeding levels of PCE. Meetings followed this notification led to the installation of an in ground holding tank. The tank was designed to hold liquid waste containing PCE for pickup and removal by a licensed waste management firm. In August, a draft New York State Pollutant Discharge Elimination System (SPDES) Permit was issued for this action. A final SPDES Permit however, was never issued.

In summer of 1978, Solvent Finishers installed a pump and automatic controls on the holding tank. This system was installed to prevent tank overflow; liquid waste would be pumped to the facility cooling tower when tank capacity became alarmingly high. This system would treat the PCE via evaporation. Periodically, wastewater would be pumped out of the holding tank and transported off site by a licensed waste hauler.

NCDOH re-inspected the facility's liquid waste discharge operation from August through November 1978. Inspections indicated that the treatment system was ineffective and occasionally the holding tank and/or cooling tower would overflow onto the surface of the ground. Furthermore, a SPDES Permit for the circulation of waste water to the cooling tower was never submitted and therefore an official "Notice of Violation" was served to Solvent Finishers on December 1, 1978. Discharge of any liquid waste without a SPDES Permit is a direct violation of the New York State Environmental Law, Article 17 Title 8.

In January 1979, NCDOH returned to the site once again. NCDOH sampled the cooling tower and a puddle on the ground suspected to be boiler condensate and runoff. Analytical results detected 160.5 ppb of trichloroethylene (TCE) in the condensate runoff and 47.2 ppb of chloroform in the cooling tower.

On April 26, 1979, NCDOH issued a letter to the New York State Department of Environmental Conservation (NYSDEC) to inform them of Solvent Finishers past liquid waste discharge violations and investigative results. To explain the presence of PCE and TCE, NCDOH proposed that a residue was left from the discharge of contaminated liquid prior to the installation of the holding tank. The letter also stated that NCDOH was unaware of any provisions for containment of overflow from the cooling tower. NCDOH recommended monitoring for PCE regularly until Solvent Finishers demonstrated liquid discharge practices to a confined holding tank or cooling tower.

It is not known when occupancy by Solvent Finishers ceased, however it is known that from 1985 to 1995 The College House Inc. company operated at the subject

property. At that time the property owner was the Skodnek Company as indicated on a 1985 permit application to erect a display sign on the property. The specifics of operations while occupied by College House Inc. are not known. No other information regarding the College House Inc. was found.

Following tenancy by The College House Inc. Company, Rubies Costume Company (Rubies) took over occupancy at 601-603 Cantiague Rock Road. Rubies operates as a costume manufacturing company. At present, the facility is used only in cutting fabrics.

In 1998, while removing an abandoned cesspool and removing/replacing an on site 8-foot diameter by 20-foot deep dry well, approximately 59 tons of PCE contaminated soil was excavated from the subject property. The excavcated material was exported to the Horizon Landfill located in Quebec, Canada. Rubie's notification of intent to export allowed only 40 tons of PCE contaminated soil to be shipped. The United States Environmental Protection Agency (EPA) issued a "Notice of Violation" to Rubie's Costume Company for shipping 19 tons in exceedance of their notification to export. EPA's letter stated the following violations occurred: 1) Failure to submit a written notification of exceedance of the estimated quantity of hazardous waste specified in the original notification; 2) Failure to obtain consent of receiving country to changes in the notification of intent to export prior to shipment.

There are no records of follow up sampling or investigations. It is unknown whether PCE still exists in site soils or is contaminating groundwater.

1.3 Environmental Setting

The Site is relatively flat and lies at an approximate elevation of 160 feet above mean sea level (msl). The ground water table lies at an approximate elevation between 70 and 80 feet above msl at the Site (~80 feet below ground surface).

The water table generally parallels land surface. The groundwater rises from the western part of Long Island to form an east-west trending mound in Nassau County and western Suffolk Counties that is dissected by a low region in west-central Suffolk County beneath the Nissequogue and Connetquot River drainage basins.

1.3.1 Geology

Long Island is comprised of Cretaceous and Pleistocene unconsolidated deposits underlain by Early Paleozoic to Precambrian bedrock. The hydrogeology of Long Island has been well documented over the years by the USGS (Doriski and Wilde-Katz, 1983; Smolensky et al, 1989). Three major aquifers are present on Long Island: the upper glacial aquifer, the Magothy aquifer and the Lloyd aquifer.

Basement

Basement is composed of Precambrian to Early Paleozoic igneous or metamorphic consolidated bedrock. Unconformably overlying the basement is a thick succession of Late Cretaceous deposits: the Raritan and overlying Magothy Formations, both of fluvio-deltaic depositional origin. The Upper Cretaceous deposits are unconformably overlain by a veneer of Pliocene and Pleistocene deposits, chiefly of glacial origin.

Cretaceous

Raritan Formation: The Raritan Formation is divided into the basal Lloyd Sand Member and the overlying Raritan Clay Member. The Lloyd Sand rests unconformably on bedrock and is about 150 feet thick in the vicinity of the Site. The top of the Lloyd Sand is found at approximately 200-250 feet below msl. It is composed of white and grey fine to coarse sand and gravel, commonly with a clayey matrix. The contact with the overlying clay member is gradational.

The Raritan Clay Member is composed chiefly of bedded variegated clay and silt, locally containing interbedded sands. Lignite fragments and iron and pyrite nodules are common. The clay member is approximately 100 feet thick in the vicinity of the Site (Smolensky, et al. 1989). The Raritan Clay is the most widespread hydrologic confining layer on Long Island. The Raritan's updip erosional pinchout generally is located subparallel to the northern coast of Nassau County. The clay unit dips gently to the south-southeast.

Matawan Group-Magothy Formation (Magothy): The Magothy unconformably overlies the Raritan; the contact is commonly marked by a change from the solid clays of the Raritan Clay Member to coarse sands and gravels of the basal unit of the Magothy. The dominant Magothy lithology generally is fine to medium quartz sand, interbedded clayey sand with silt, clay, and gravel interbeds or lenses. Interbedded clay is more common towards the top of the formation. The thickness of the Magothy varies between 100 feet in the vicinity of the Site to over 800 feet beneath the barrier islands.

Cenozoic-Quaternary

After the Cretaceous, deep erosion of the land surface took place as a response to fluctuations in sea level. Sedimentological evidence indicates that sea level falls exposed the entire Atlantic continental margin during the Miocene epoch, which would have promoted rejuvenation and deep incision of rivers and streams across the Coastal Plain. Later deposition of abundant fluvial and glacial clastic deposits during the Pliocene and Quaternary filled these incised buried valleys. The top of the Cretaceous sequence is marked by a highly irregular erosion surface upon which rests deposits of Pleistocene and, in some places, Pliocene age.

Deposits of Pleistocene age mantle the Cretaceous formations. Within the study area, the Pleistocene deposits include three depositional sequences: the fluvial Jameco Gravel and marine Gardiners Clay; and the much more widespread Late Pleistocene glacial deposits of the Wisconsin glacial stage. Undifferentiated gravels and clays described in buried valleys within southern Long Island have been attributed to the Jameco Gravel and Gardiners Clay units. The Jameco Gravel and Gardiners Clay formations are well-defined, mapable stratigraphic units beneath the southern margin of Long Island where they are of hydrogeological significance. These stratigraphic units are not recognized in the vicinity of the Site. The remainder of the Pleistocene succession belongs to the Wisconsin glacial stage Upper Glacial Deposits.

The thickness of the Pleistocene Upper Glacial Deposits in the study area varies but averages 100 feet. The thickness and distribution of the Pleistocene Upper Glacial Deposits were controlled by the older, now buried paleotopography discussed above. The pattern of stream and river valleys that dissected the surface of Long Island during the Cenozoic likely was later modified by Pleistocene overriding ice sheets and meltwater erosion and deposition.

1.3.2 Hydrogeology

The hydrogeology of Long Island has been well documented over the years by the USGS and others. Three major aquifers are present on Long Island: the Upper Glacial aquifer, the Magothy aquifer and the Lloyd aquifer.

Lloyd Aquifer

The Lloyd Sand Member of the Raritan Formation of the Late Cretaceous Age overlies the saprolitic bedrock surface and is Long Island's deepest aquifer. The Lloyd sand was deposited as a series of braided streams and deltaic deposits consisting of white and pale yellow sand with interbedded lenses of gravel and white clay (Smolensky et al, 1989). The aquifer does not outcrop on Long Island and is believed to extend to the north beneath Long Island Sound in eastern Nassau County and in Suffolk County, and offshore to the south, beyond the barrier beaches. The Lloyd aquifer is confined in most places, except where the overlying Raritan clay has been eroded away. The thickness of the Lloyd aquifer varies from 0 feet where it is not present along the north shore of Nassau County, to more than 500 feet in the southeastern areas of Nassau County. The average horizontal hydraulic conductivity is reported to be approximately 40 ft/day with a 10:1 vertical anisotropy.

Raritan Clay

Overlying the Lloyd aquifer is the Cretaceous Age clay member of the Raritan Formation, referred to as the Raritan clay. The Raritan clay is the major confining unit on Long Island, ranging between 150 and 250 feet in thickness. Like the Lloyd aquifer, the Raritan clay is absent from areas of northern Queens and northern Nassau County where it had been eroded. The Raritan clay outcrops in parts of

Queens, and is believed to be present north of the island beneath Long Island Sound, and south of the island, beneath the barrier islands. This confining unit consists of solid, multicolored, compact clay (gray, white, red, or tan) with interbedded lenses of sand. The average vertical hydraulic conductivity is reported to be approximately 0.001 ft/day.

Magothy Aquifer

The Magothy aquifer is an upward fining sequence of the Cretaceous Age Matawan Group consisting of fine to medium grained quartz sand, silt, clay, and gravel and is up to 1,100 feet thick. The base of the Magothy is very coarse, having been deposited in a high-energy environment involving stream and deltaic deposition. This high-energy deposition abruptly ended as fine sands, silts and clays form the majority of the unit. The Magothy Aquifer is unconfined in the site area. The Magothy aquifer is the principal water supply aquifer in Nassau and Suffolk Counties, attributing to its thickness. Its average horizontal hydraulic conductivity is reported to be approximately 50 ft/day with a vertical anisotropy of 100:1 (Smolensky et al, 1989).

Upper Glacial Aquifer

The upper glacial aquifer is the surficial unit on Long Island and is therefore entirely unconfined. Along the Harbor Hill and Ronkonkoma terminal moraines and parts of the north shore, the unit is composed of till consisting of poorly sorted clay, sand, gravel, and boulders. The till is generally poorly permeable and may contain perched water. The outwash deposits that are found are mainly between, and south of, the moraines. The outwash deposits are moderately to highly permeable, consisting of gray, brown, and yellow fine to very coarse sand and gravel. The upper glacial aquifer ranges up to 600 feet thick, however the saturated thickness is often much lower. The estimated average horizontal hydraulic conductivity generally exceeds 225 ft/day.

Ground Water

Based on Nassau County regional groundwater information obtained in the *Nassau County Groundwater Monitoring Program, 2002-2003* (NCDPW, 2005) the water table lies at an elevation of 70 to 80 feet above mean sea level (MSL) (~80 ft bgs). Flow in the water table aquifer (Upper Glacial) is complicated by a groundwater divide located approximately 1,000 feet northeast of the site. In general, it is expected that groundwater flow at the site will be to the west/southwest, however because of its proximity to the groundwater divide there is a potential for flow to the north and south from the site as well. In addition, groundwater extraction from local public supply wells can also influence groundwater flow at the site.

Flow in the Magothy Aquifer is more towards the south/southwest near the site. Groundwater flow in the deeper Lloyd Aquifer is expected to be to the southwest.

1.4 Fate and Transport

Tetrachloroethene is a manufactured chemical that is widely used in the dry-cleaning industry. It is also used for degreasing and is found in consumer products including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors. Other names for tetrachloroethene include tetrachloroethylene, perchloroethylene, and PCE.

1.4.1 Fate of PCE

The fate of PCE is dominated by its volatility and degradation. PCE's presence in surface soils or surface water is usually short-lived, providing that a continuing source is not present.

In the atmosphere, PCE is expected to be present primarily in the vapor phase and not sorbed to particulates because of its high vapor pressure of 18 mm Hg. Vapor-phase PCE will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals. Direct photolysis is not expected to be an important environmental fate process since PCE only absorbs light weakly in the environmental ultraviolet (UV) spectrum.

The dominant fate of PCE in soils is volatilization. Based on its K_{oc} value of 265 milliliters per gram (mL/g), PCE is moderately mobile in soils. Consequently, PCE has the potential to migrate through the soil into groundwater. PCE has a specific gravity greater than water (1.62) indicating that pure liquid phase PCE will sink when dissolved in groundwater. The solubility of PCE in water is 150 milligrams per Liter (mg/L). Biodegradation under anaerobic conditions in soil and groundwater may occur at a relatively slow rate with half lives on the order of months or longer. PCE in groundwater can undergo reductive dechlorination catalyzed by anaerobic bacteria. The PCE will tend to degrade to TCE. Subsequent degradation to *cis*-1,2-dichloroethene (DCE) or *trans*-1,2-DCE and then to vinyl chloride can also occur via anaerobic mechanisms. Vinyl chloride can further degrade to ethylene.

Volatilization is also an important fate process of PCE in surface waters based on its Henry's Law constant of 1.73×10^{-2} atm-m^3/mol. PCE is also not expected to adsorb to suspended solids and sediment in water based upon its K_{oc} value. The half-lives in soil and groundwater were reported to be 180-360 days and 270 days respectively. A reported K_{ow} value of 351 in fish suggests that the potential for PCE to bioconcentrate in aquatic organisms is low.

1.4.2 Transport of PCE

Liquid phase PCE discharged directly to the ground surface would be expected to migrate downward through the unsaturated zone in a relatively linear pattern, with minimal dispersion from the discharge location. The unsaturated zone at the site is expected to be primarily sandy material; however the presence of lower permeability

silt and clay layers may be encountered which could complicate the migration pathway. The depth to groundwater at the site is about 80 feet bgs, so any PCE entering the unsaturated zone has a significant distance to travel before groundwater is encounterd.

Significant soil vapor contamination may be present in the unsaturated zone. The vapor phase PCE vaporizes upward while the liquid phase migrates downward. Chlorinated solvents in the vapor phase can cause significant indoor air contamination due to residual unsaturated soil contamination or vaporization directly from the groundwater table interface.

Once liquid phase PCE encounters the water table, some of the solvent will become dissolved in the groundwater and begin to move in the direction of groundwater flow. If the quantity of solvent reaching the water table is sufficient, some of the solvent will remain in an undissolved state as a dense non-aqueous phase liquid (DNAPL) and, since PCE is denser than water, the solvent will continue to move downward under the influence of gravity. DNAPL will continue to sink until it encounters a lower permeability zone, which would slow or stop the downward migration. DNAPL could pool or accumulate on top of a lower permeability zone and remain stationary or move in the down-slope direction of the lower permeability zone. If sufficient DNAPL is pooled or trapped in the aquifer, it will act as a continual source of dissolved groundwater contamination. Movement of DNAPL in the saturated zone can be very complex, with movement controlled by the permeability of subsurface stratigraphic units, the shape and configuration of lower permeability zones, and/or the dip of bedding planes.

At the site, groundwater generally flows toward the west/southwest. However, movement of PCE in the saturated zone at the site may be complicated by the groundwater extraction in the area from several public supply wells.

Section 2
Scope of Work

2.1 Task 1A - Site Visit and Work Plan Development

A site visit was conducted on May 17, 2007. This Work Plan references procedures detailed in the CDM Generic Quality Assurance Project Plan (QAPP) dated March 2007which has been provided to NYSDEC for Contract Number D-00437. The Generic QAPP presents methods that will be used to collect field data including project samples, and focuses on the analytical methods and quality assurance/quality control (QA/QC) procedures that will be used to analyze project samples, ensure the data are of known and acceptable quality, and manage the resultant data. Procedures that are not contained in the current version of the CDM Generic QAPP are provided in Appendix A of this Work Plan.

This Work Plan also includes a site specific Health and Safety Plan (HASP) presented in Appendix B and a Citizen Participation Plan (CPP) presented in Appendix C. The HASP describes the site health and safety for the field activities that will be performed. The CPP provides the primary contacts for the site as well as various public entities and provides ways for citizens to be involved in the project.

2.2 Task 1B - Records Search

A records search was performed to meet the requirements of NYSDEC's *Draft DER-10 Technical Guidance for Site Investigation and Remediation* dated December 2002. Data collected during the records/background search was summarized in a Record Search Report and utilized to develop and design the proposed sampling activities detailed in this Work Plan. The Record Search Report is being provided to NYSDEC as a stand alone document, submitted simultaneously with the Work Plan.

2.3 Task 2 - Site Characterization

A Site Characterization will be conducted at the site in order to determine if soil or groundwater contamination are present at the site which would warrant further investigation. The investigation is ultimately being conducted to determine if the site should be listed as a New York State Hazardous Waste Site.

The investigation activities will include a geophysical survey, soil and groundwater screening using a membrane interface probe (MIP), the collection of direct push soil samples and the collection of groundwater grab samples from the Geoprobe. The objective is to provide groundwater and soil analyses for comparison to NYS Class GA Groundwater Quality Standards and NYSDEC Soil Cleanup Objectives.

The following section presents the field activities proposed for the Solvent Finishers site characterization. Field documentation and sampling procedures are provided in the CDM Generic QAPP referenced above. All applicable procedures contained in the Generic QAPP will be followed. Procedures not presented in the current version of the Generic QAPP are provided in Appendix A.

2.3.1 Geophysical Survey

A geophysical survey utilizing ground penetrating radar (GPR) and electromagnetic conductivity (EC) will be conducted at the site to identify underground utilities, water lines, underground storage tanks and/or any large anomalies such as conduits. It will also be used to try and identify the locations of former drywells on the site.

The geophysical survey will also be performed to clear boring locations prior to drilling, since the One-Call service does not mark out utilities beyond the street. Subsurface utilities will be marked within 15 feet of each proposed location, to allow for relocation of borings should refusal be encountered during drilling.

2.3.2 Membrane Interface Probe Investigation

Subsurface soil and groundwater will be screened at 11 locations (MIP-1 through MIP-11) to preliminarily characterize the extent of soil and groundwater contamination and identify potential source areas. Sampling locations were selected based on previous and present locations of dry-wells, a storage tank, a cooling tower, cesspool, and catch basins. A membrane interface probe (MIP) attached to a direct push drill rig will be used to screen the subsurface soil and groundwater via direct push technology. The direct push rods will be advanced to the maximum depth achievable by the unit, which is expected to be approximately 100 feet below ground surface (bgs). This would allow screening of the upper 20 feet of the water column. The MIP will be equipped with a photoionization detector (PID), electronic capture detector (ECD), and a flame ionization detector (FID). These detectors will allow screening of the subsurface for chlorinated compounds (e.g PCE, TCE), aromatic hydrocarbons (e.g. BTEX compounds) and straight chained hydrocarbons (e.g. methane, butane). The detector information as well as soil conductivity will be graphed by the field instrument allowing for real-time information at each location. The information will also be provided electronically to CDM for more detailed analysis. The soil conductivity data will be used in conjunction with the chemical data to identify zones of lower permeability soil.

The results of the MIP investigation will be used to select locations for the soil and groundwater direct push and HydroPunch samples.

2.3.3 Direct Push Soil Sampling

Direct push soil sampling will be conducted to characterize the highest levels of contamination observed during the screening investigation and to determine if contamination is present at the locations of the former solvent tank, cooling tower, and dry wells at the rear of the building and cesspool on the north side of the building. The final direct push soil sampling locations will be selected based upon the results of the MIP investigation. At a minimum, direct push samples will be collected from the locations of the former solvent tank (MIP-8), cooling tower (MIP-9) and dry well (MIP-7) where contamination was previously identified by NCDOH. In addition, a direct push point will also be conducted at the location of the former

cesspool (MIP-2). Soil samples will be collected from the unsaturated zone at an interval which exhibit the highest MIP response. In the absence of any MIP response, soil samples will be collected from unsaturated soils at 22 feet bgs at drywell locations (two feet below the reported depth of the wells), 12 feet bgs at the location of the former solvent tank (two feet below the expected bottom of the former tank), and immediately above the water table. The lithology, absence/presence of contamination, and organic vapor (screened by PID) will be recorded for each subsurface soil sample. The direct push soil sampling procedure is provided in the Generic QAPP.

In order to identify the presence of chlorinated compounds as well as other potential contaminants that may be present in the subsurface at the site, soil samples collected during the investigation will be submitted to a subcontracted lab and analyzed for Semi-Volatile Organic Compounds (SVOCs) and Volatile Organic Compounds (VOCs) by EPA Methods 8270 and 8260, respectively.

2.3.4 Groundwater Sample Collection

Similar to the soil investigation, groundwater samples will be collected to characterize the groundwater at the property. Groundwater sampling will be conducted at the direct push soil sample locations and a downgradient location. Groundwater samples will be taken the interval with the highest MIP response. In the absence of any MIP response, the groundwater sample will be collected 5 within the upper 5 feet of the water table. Groundwater samples will be analyzed by the laboratory for VOCs and SVOCs by EPA method 8260 and 8270, respectively in order characterize potential groundwater contamination at the site.

2.3.5 Soil Vapor Investigation

A soil vapor investigation will be conducted at the Site in order to assess the potential exposure from contaminated soil vapor to humans or the environment. Up to five (5) locations, coinciding with the direct push sample locations, are proposed for the collection of soil vapor samples, with shallow and deep samples anticipated at each location.

The investigation will include:

- Collecting shallow soil vapor samples at a depth equivalent to that of a typical building foundation (~8 feet below ground surface (bgs)) for VOCs.
- Collecting deep soil vapor samples from about 2 feet above the ground water table (~78 feet bgs) for VOCs

These samples will be collected in accordance with the *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006 and the *Draft Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation*, dated December 2002.

2.3.5.1 Soil Vapor Sample Collection

Soil vapor samples will be collected at up to five (5) locations selected by CDM to ensure full coverage of the property. Soil vapor points will be installed using direct-push drilling methods. The boreholes will be drilled to a depth approximately 8 feet bgs and 2 feet above the water table surface; estimated to be approximately 78 feet bgs at each sampling location.

Once the desired depth is reached, 3/8-inch Teflon®-lined tubing will be connected to a 6-inch double woven stainless steel sampling screen and placed in the borehole. The borehole will then backfilled with sand to a minimum depth of 6 inches above the screen interval followed by 6-inches of dry bentonite. A bentonite slurry will then placed to the ground surface. The bentonite will be allowed to hydrate for a minimum of 24 hours prior to sample collection.

Prior to collection of soil vapor samples, the temporary soil vapor probes will be purged in accordance with the NYSDOH SVI Guidance. One to three implant volumes (i.e. volume of the sample probe and tube) will be purged at a flow rate that does not exceed 200 milliliters (ml) per minute. A tedlar™ bag will be filled toward the end of the purge volume to be screened using a photoionization detector (PID) meter. The PID readings will be observed and recorded on the appropriate field form. The samples will be collected using laboratory-certified clean summa canisters with flow regulators and a vacuum of 28 inches Hg ± 2 inches. A vacuum of 5 inches Hg ± 1 inch must be present when sample collection is terminated. The soil vapor purging procedures are detailed further in the Generic QAPP.

Tracer gas will be used to evaluate short-circuiting of the sampling zone with ambient air. The soil vapor sampling locations will be evaluated with tracer gas in accordance with the NYSDOH SVI guidance. The tracer gas sampling procedure is provided in the Generic QAPP.

Samples will be collected using laboratory certified clean SUMMA canisters with regulators that will allow sample collection at two hours or less. Dedicated Teflon®-lined tubing with an inside diameter of ¼ inch will be used at each sample location. The flow rate during sampling shall not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling. During soil vapor sampling collection, an out door ambient air sample will be collected.

Upon completion of sampling, the sample tubing will be removed and the temporary soil vapor probe location backfilled with bentonite. Each location will then be marked with a stake/flag labeled with the proper sample identification and illustrated on the site map so that it can be surveyed at a later date. Borings performed in paved or concrete areas will be backfilled and refinished at the ground surface with concrete or cold patch.

Soil vapor and ambient air samples will be analyzed by a NYSDOH-approved Environmental Laboratory Approval Program (ELAP) certified lab for volatiles using EPA Method TO-15. A minimum reporting limit of 1 microgram per cubic meter ($\mu g/m^3$) must be achieved for all analytes and all results must be reported in $\mu g/m^3$. A NYSDEC Analytical Services Protocol (ASP) Category B data deliverable will be provided for these analyses. All data shall also be submitted electronically in a standardized format consistent with EPA Region 2's Multimedia Electronic Data Deliverable (MEDD).

2.3.6 Site Survey

A site plan depicting general site features (i.e., buildings,roadways, utility poles, fences, addresses, etc.) within the vicinity of the site will be prepared by a New York licensed surveyor. The locations of all sample points will be surveyed. The horizontal and vertical positions will be tied into the North American Datum 1983 and UTM Zone 18N coordinate system. The vertical positions will be tied to the North American Vertical Datum 1988 (NAVD88).

2.3.7 Investigative Derived Waste

Soil cuttings and purge water from each sampling location will be containerized in drums or other appropriate vessel and disposed off-site. It is assumed that 5 drums of non-hazardous waste will require off-site disposal. Investigation derived waste containers will be stored on-site at a location determined by NYSDEC until it can be removed by a licensed waste hauler.

2.3.8 Decontamination Procedures

All non-dedicated equipment and tools used to collect samples for chemical analysis will be decontaminated prior to and between each sample interval using an Alconox rinse and potable water rinse prior to reuse. Additional cleaning of the equipment with steam may be needed under some circumstances. Decontamination fluids will be discharged to the ground surface unless a visible sheen or odor is detected either on the equipment or the fluids, at which point the decontamination water will be staged in an appropriate container and disposed of appropriately.

2.4 Task 3 - Field Documentation and Reporting

2.4.1 Field Documentation Procedures

Field notebooks will be used during all on-site work. A dedicated field notebook will be maintained by the field technician overseeing the site activities. In addition to the notebook, any and all original sampling forms, and purge forms used during the field activities, will be submitted to the NYSDEC as part of the final report. Field and sampling procedures, including installation of the sample boreholes, existing monitoring wells, etc., will be photo-documented.

2.4.2 Sample Identification

Each sample collected will be designated by an alphanumeric code that will identify the type of sampling location, matrix sampled, and the specific sample designation (identifier). Each sample shall begin with the NYSDEC Site Number for the Solvent Finishers site (130172). The following terminology shall be used for the samples collected during this investigation:

Soil:	130172-Boring ID-S -Depth
Water:	130172-Boring ID-GW-Depth
Soil Vapor:	130172-SV-Location ID – S(shallow) or D(deep)
Field Blanks:	130172-FB-DATE
Trip Blanks:	130172-TB-DATE

2.4.3 Sample Location

The screening (MIP) locations were selected base on previous and present locations of dry wells, catch basins, solvent tank, cooling tower and cesspool. The locations of the former dry wells, solvent tank, cooling tower and cesspool are identified on a 1960 Site Survey. Direct push soil and groundwater sample locations will be selected based upon the results of the MIP investigation. At a minimum, direct push samples will be collected from the locations of the former solvent tank, cooling tower and dry well where contamination was previously identified by NCDOH. In addition, a direct push point will also be conducted at the location of the former cesspool. Groundwater samples will coincide with soil sample locations with an additional downgradient groundwater point proposed.

2.4.4 Reporting

One hardcopy and one electronic copy (PDF) of a draft letter report will be submitted to NYSDEC for review and comment. The report will document the work conducted and will present the results of the sample analysis and provide recommendations for further investigation should it be warranted. Upon receipt of the comments, CDM will revise the draft letter report, print the final copy and submit it to NYSDEC. One copy of the final letter report; text, tables, maps, photos, etc., will be submitted as a single pdf file. All electronic files will be submitted to NYSDEC on a compact disc. The site investigation data will be submitted in the most recent version of the NYSDEC Electronic Data Deliverable (EDD) with the final report submission. Currently this is the USEPA Region 2 EDD dated December 2003.

2.4.5 Laboratory Analysis and Validation

All samples will be analyzed by a NYSDOH approved ELAP certified laboratory. Groundwater samples will be analyzed for VOCs by EPA method 8260 and SVOCs by EPA Method 8270. Subsurface soil samples will be analyzed for SVOCs and VOCs by EPA methods 8270 and 8260. Soil Vapor samples will be ananlyzed bv EPA Method TO-15. A NYSDEC ASP Category B data deliverable will be provided for these analyses.

All samples collected will be validated in accordance with NYSDEC Data Usability Summary Report (DUSR) guidance by a party that is independent of the laboratory which performed the analyses and CDM. A usability analysis will be conducted by a qualified data validator and a DUSR will be submitted to the NYSDEC.

Section 3
Project Schedule

The following tabulation provides the proposed project schedule and key milestones for this work assignment. As currently planned, field work will be initiated within two weeks of written receipt of final work plan approval. Field activity duration for the Site Characterization activities is estimated to be three weeks assuming no delays are experienced due to inclement weather, site access problems, or for other unforeseen reason

The scheduled submittal dates for deliverables are based on standard laboratory turnaround times of four weeks, and turnaround for data validation of three weeks.

Project Milestone	Date
Issue Work Assignment (WA)	April 17, 2007
Work Assignment Acceptance	April 24, 2007
Submit Task 1A Draft Workplan and Task 1B Records Search Report	June 28, 2007
DEC/DOH Comment on Draft Work Plan and Records Search Report	October 1, 2007
Submit Task 1A Revised Work Plan Deliverable	October 8, 2007
Submit Task 1A Revised Work Plan Deliverable	December 18, 2007
Submit Task 1A Final Work Plan Deliverable	January 23, 2008
Notice to Proceed (NTP)	January 31, 2008
Commence Task 2 Field Work	February 18, 2008
Task 2 Field Work Completed	March 21, 2008
Task 3 Submit Draft Site Characterization Report	May 5, 2008
Approve Draft Report	30 Days after Draft Report Submitted
Task 3 Submit Final Site Characterization Report	30 Days after Approval of Draft Report

Section 4
Contacts

4.1 Key Project Contacts

It is the expressed intent of NYSDEC and the Town of Jericho, NY to provide information to the public in a timely, complete, and accurate manner. Towards this end, the State has compiled a list of individuals to whom the public can address specific requests for information. These contacts are both local and state public officials and are knowledgeable of the proposed investigative activities. This list of contacts is provided below:

Environmental Concerns

Vivian James
Environmental Engineer
Project Manager
NYSDEC Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, NY 12233-7015
(518) 402-9621

Health Related Concerns

Donald W.R. Miles
New York State Department of Health
Public Health Specialist
Chief, Long Island/ATSDR Section
Bureau of Environmental Exposure Investigation
(518) 402-7880

Citizen Participation

William Fonda
NYSDEC Division of Environmental Remediation
Region 1 Office
Loop Road, Building 40
Stony Brook, NY 11790-2356
(631) 444-0350

4.2 Repository

Four document repositories have been established to provide the public with convenient access to important project documents and other information. A copy of the documents relevant to the Remedial Investigation and Feasibility Study, including the Work Plan, will be placed in the repositories to allow interested citizens and groups to review these documents.

All documents pertaining to this site will be available for public review at the following repository locations:

1) ***NYSDEC Division of Environmental Remediation***
625 Broadway, 11th Floor
Albany, NY 12233-7017
Mon-Fri 8:30 am - 4:45 pm
By appointment only
(518) 402-9621

2) ***NYSDEC Region 1 Office - Division of Environmental Remediation***
SUNY Campus, Bldg 40
Stony Brook, NY 11790-2356
Mon-Fri 8:30 am - 4:45 pm
By appointment only
(631) 444-0240

3) ***Jericho Public Library***
1 Merry Lane
Jericho, NY 11753
Mon-Tues & Thurs 9:00 am - 9:00 pm
Wed 10:00 am - 9:00 pm
Fri 9:00am - 6:00 pm
Sat 9:00 am - 5:00 pm
Sundays 12:00 Noon - 5:00 pm
(516) 935-6790

4) ***Oyster Bay - Town Clerk***
Town Hall
54 Audrey Ave
Oyster Bay, NY
Mon-Fri 9:00 am - 4:45 pm
(516) 624-6320

Section 5
Citizen Participation Activities

5.1 Fact Sheet and Mailing List

A Fact Sheet detailing the availability of the Site Characterization Work Plan will be sent out to the residents and other interested parties on the mailing list. This mailing will include information about the document repositories, the name and address of NYSDEC Citizen Participation Specialist, NYSDEC Project Manager and NYS Department of Health contact. Parties who express interest in being placed on or removed from the mailing list will be added or removed as requested.

The Fact Sheet will also serve as an invitation for the public to provide input on the Work Plan or other project related documents via written or oral comments. Additional activities, such as a public meeting and/or Fact Sheet after the site investigation is completed will be added as appropriate.

Appendix D

SCHEDULE 2.11

Schedule 2.11(a)

Summary of Work Assignment Price

Work Assignment Number D004437-10

1) Direct Salary Costs (Schedules 2.10(a) and 2.11(b))	$16,339
2) Indirect Costs (Schedule 2.10(g))	$27,433
3) Direct Non-Salary Costs (Schedules 2.10(b)(c)(d) and 2.11(c)(d))	$3,847

4) Subcontract Costs

Cost-Plus-Fixed-Fee Subcontracts (Schedule 2.10(e) and 2.11(e))

	Name of Subcontractor	Services To Be Performed	Subcontract Price
i)	Ken Schider Consulting	W/MBE Reporting	$600
ii)	YEC, Inc	MBE Surveying	$13,231
iii)			

A) Total Cost-Plus-Fixed-Fee Subcontracts $13,831

Unit Price Subcontracts (Schedule 2.10 (f) and 2.11 (f))

	Name of Subcontractor	Services To Be Performed	Subcontract Price
i)	EDR	Database and Historic Records	$645
ii)	Zebra	Direct Push Driller	$29,620
iii)	Mitkem Corporation	MBE Laboratory	$12,024
iv)	Nancy Potak	WBE Data Validator	$990
v)	Naeva Geophysics	Geophysical Survey	$1,535
vi)	Innovative Recycling Technologie	IDW Removal	$675

B) Total Unit Price Subcontracts $45,489

5) Subcontract Management Fee	$2,132
6) Total Subcontract Costs (lines 4A + 4B + 5)	$61,452
7) Fixed Fee (Schedule 2.10(h))	$3,064
8) Total Work Assignment Price (Lines 1 + 2 + 3 + 6 + 7)	$112,135

Engineer/Contract # D004437-10
Project Name Solvent Finishers
Work Assignment No. D004437-10

Date Prepared: _____

Schedule 2.11(b)
Direct Labor Hours Budgeted

Labor Classification	***IX***		***VIII***		***VII***		***VI***		***IV***		***III***		***II***		***I***		***Admin Support***		***Total No. of Direct Labor Hours and Costs Budgeted***	
*Av. Salary Rate ($) Year 2008	$65.24		$59.42		$52.09		$45.95		$32.86		$28.62		$25.52		$21.12		$21.12		0	
Description	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
Task 1 Record Search & Work Plan Developmen	2	$130.48	4	$237.68	8	$416.72	40	$1,838.00		$0.00	70	$2,003.40	40	$1,020.80		$0	6	$126.72	170	$5,773.80
Task 2 Site Characterization	2	$130.48	2	$118.84	2	$104.18	22	$1,010.90		$0.00	44	$1,259.28	140	$3,572.80		$0	6	$126.72	218	$6,323.20
Task 3 Field Documentation and Reporting	2	$130.48	4	$237.68	8	$416.72	24	$1,102.80		$0.00	60	$1,717.20	20	$510.40		$0	6	$126.72	124	$4,242.00
Total Hours	6		10		18		86		0		174		200		0		18		512	
Total Direct Labor Cost ($) **Year 2008**		$391.44		$594.20		$937.62		$3,951.70		$0.00		$4,979.88		$5,104.00		$0		$380.16		$16,339.00

* For multiple years use one average salary rate row for each year and each years subtotal Labor Cost.

Engineer/Contract # D004437
Project Name Solvent Finishers
Work Assignment No. D004437-10

Date Prepared: _____

Schedule 2.11(b-1)
Direct Administrative Labor Hours Budgeted

Labor Classification		*IX*	*VIII*	*VII*	*VI*	*V*	*IV*	*III*	*II*	*I*	*Admin. Support*	*Total No. of Direct Labor Hrs.*
Task 1	Work Plan Development/Records Search	2	0	0	1	0	0	0	0	0	6	9
Task 2	Site Characterization	2	0	0	0	0	0	0	0	0	6	8
Task 3	Field Documentation and Reporting	2	0	0	0	0	0	0	0	0	6	8
TOTAL HOURS		6	0	0	1	0	0	0	0	0	18	25

Contract/Project administrative hours would include (subject to contract allowability) but not necessarily be limited to the following activities:

1) Work Plan Budget Development
   > Conflict of Interest Check
   > Budget schedules & supporting documentation
2) Review work assignment (WA) progress
   > Conduct progress reviews
   > Prepare monthly project report
   > Update WA progress schedule
   > Prepare M/WBE Utilization Report
3) Contractor Application for Payment (CAP)
   > Oversee and prepare monthly CAP
4) Program Management
   > Prepare monthly cost control report
   > Cost control reviews
<> Staffing Plans
   >Manage subcontracts
   > NSPE list update
   > Equipment inventory
5) Miscellaneous
   > Conduct Health and Safety Reviews
   > Word processing and graphic artists
   > Report editing

Contract/Project Administration hours would **not** inclu
1) QA/QC reviews
2) Techincal oversight by management
3) Develop subcontracts
4) Work plan development
5) Review of deliverables

Schedule 2.11 (c)

Direct Non-Salary Costs
Work Assignment Number **D004437-10**

	Item		Max. Reimbursement * Rate (Specify Unit)	Est. No. of Units	Total Estimated Cost
A)	Other				
	1)	Shipping Task 1	LS	1	$250.00
	2)	Outside Printing Task 1	LS		
	3)	Shipping Task 3	LS	1	$250.00
	4)	Outside Printing Task 3	LS		
				Sub-Total Other	$500.00
B)	Miscellaneous Task 2 - Site Characterization				
	1)	Meals (per day)	$64.00	15	$960.00
	2)	Lodging (per day)	$159.00	8	$1,272.00
	3)	Mileage (per mile)	$0.485	200	$97.00
	4)	PPE (level D) (per day)	$15.00	14	$210.00
	5)	Tolls	$15.00	4	$60.00
	6)	LVE	$1.00	218	$218.00
				Sub-Total Miscellaneous Task 2	$2,817.00
				Total Direct Non-Salary Costs	**$3,317.00**

Work Assignment No. D004437-10

Schedule 2.11(d) 3

Maximum Reimbursement Rate for Vendor Rented Equipment

Item	Max Reimbursement Rate ($)*	Est. Usage (unit of time)	Est. Rental Cost ($) (Col. 2 x 3)
Task 2			
PID (per week	$180.00	2	$360
Horiba U-10 Water Quality meter (per week	$170.00	1	$170
		TOTAL:	**$530**

* Reimbursement will be made at the Maximum Reimbursement rate or the actual rental rate, whichever is less.

Schedule 2.11 (e)

Cost-Plus-Fixed-Fee Subcontracts
Work Assignment Number D004437-10

Name of Subcontractor	Services to be Performed	Subcontract Price
Ken Schider Consulting	M/WBE Reporting	$599.97

A) Direct Salary Costs

Professional Responsibility Level	Labor Classification	Ave. Reimbursement Rate ($/Hr.)	Max. Reimbursement Rate ($/Hr.)	Est. No. of Hours	Total Est Direct Salary Cost (Ave. Reimb. Rate x Est. # of Hrs.)
IV	Eng/Scientist 4	$32.60	$36.78	8	$260.80

Total Direct Salary Costs **$260.80**

Footnotes:

1) The labor rate averages and maximums shall be adjusted by a rate equal to the increase in the CPI index CUURA101SAO-"All Urban Consumers-New York-Northern N.J.-Long Island" for the previous year. This index is published by the U.S. Department of Labor's Bureau of Labor Statistics. The adjustment will be calculated every January and will be effective for subsequent work assignment billing and budgeting purposes.
2) Schedule 2.11(e) may be re-negotiated after four (4) years at the request of either party. Any revision as a result of re-negotiation will be subject to the approval of the Office of the State Comptroller.
3) The maximum annual escalation is limited to 5%.
4) Reimbursement will be limited to the lesser of either the individual's actual hourly rate or the maximum rate for each labor
5) Reimbursement will be limited to the maximum reimbursement rate for the professional responsibility level of the actual work
6) Only those labor classifications indicated with an asterisk will be entitled to overtime.
7) Reimbursement for technical time of principals, owners, and officers will be limited to the maximum reimbursement rate of that category, the actual hourly labor rate paid, or the State M-6 rate, whichever is lower.
8) Maximum reimbursement rates may be exceeded for work assignment activities that are under the jurisdiction of the Schedule of Prevailing Wage Rates set by the New York State Department of Labor.

B) Indirect Costs

Indirect costs shall be paid based on a percentage of direct salary costs incurred which shall not exceed a maximum of 115 % or the actual rate calculated in accordance with 48 CFR Federal Acquisition Regulation, whichever is lower.

Amount budgeted for indirect costs is: **$299.92**

C) Maximum Reimbursement Rates for Direct Non-Salary Costs

Item		Max Reimbursement Rate (Specify Unit)	Est. No. of Units	Total Est. Cost
1)	Travel	See Schedule 2.10 (d) for rates		
2)	Supplies			

Total Direct Non-Salary Costs **$0**

D) Fixed Fee

The fixed fee is: 7% **$39.25**
See Schedule 2.10 (h) for how the fixed fee should be claimed.

Schedule 2.11 (e)
Cost Plus Fixed-Fee Subcontracts

Former Solvent Finishers Survey

January 23, 2008

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE
YEC, INC.	Field Survey	**$13,230.92**

A. Direct Salary Costs

Professional Responsibilty Level	Labor Classi-fication	Average Reimbursement Rate ($/Hr.)		Maximum Reimbursement Rate ($/Hr.)		Estimated Number of Hours	Total Estimated Direct Salary Cost ($)
Principal	VIII	2007	65.12	2007	70.35	4	260.48
Senior Geologist/Scientist/ Engineer/ Licensed Surveyor	V	2007	43.06	2007	47.36	40	1,722.40
Staff Geologist/ Scientist/Engineer	IV	2007	37.40	2007	41.17	0	0.00
Staff Geologist/ Scientist/Engineer/CAD Operator	III	2007	32.49	2007	36.04	12	389.88
Senior Technician/Staff Engineer/Scientist/Geologist	II	2007	24.02	2007	26.93	50	1,201.00
Technician/Draftsperson	I	2007	21.76	2007	24.39	50	1,088.00
						Total Direct Salary Costs:	**4,661.76**

B. Indirect Costs - 117% of direct salary cost

Indirect Costs: **5,454.26**

C. Maximum Reimbursement Rates for Direct Non-Salary Costs:

Item	Maxium Reimbursement Rate	Estimated No. of Units			
Mileage	0.485 /mi.	100	miles/trip	5 trips	242.50
Tolls	20 /day	5	trips		100.00
Survey Equipment Rental	65 /day	5	day		325.00
CAD Computer Rental	15 /hour	12	hours		180.00
GPS tie in to NYSP Coordinates	750 /lump	1	lump		750.00
				Total Direct Non Salary Costs:	**1,597.50**

D. Fixed Fee (15% of Total Direct and Indirect Salary Costs)

Fixed Fee: **1,517.40**

Schedule 2.11 (f)

Unit Price Subcontracts
Work Assignment Number **D004437-10**

Name of Subcontractor	Services to be Performed	Subcontract Price	nagement Fee
EDR	Environmental Database, Aerial Photos, Topo Maps, etc	$645	$0

Item	Max. Reimbursement Rate (Specify Unit)	Est. No. of Units	otal Est. Cost
Premium Package (database, aerials, topos, city directories)			
Title Search			$495
			$150
Subtotal-Subcontract Price			**$645**
Subcontract Management Fee*			**$0**
TOTAL			**$645**

Schedule 2.11 (f)

Unit Price Subcontracts
Work Assignment Number **D004437-10**

Name of Subcontractor	Services to be Performed	Subcontract Price	Management Fee
Naeva Geophysics	Utility Locate	$1,535	$0

Item	Max. Reimbursement Rate (Specify Uni	Est. No. of Units	Total Est. Cost
Geophysical Survey (Clear Drilling Locations)			
Labor (2-man crew)	$225 hr	4	$900
Labor (travel)	$210 hr	2	$420
GPR	$175 hr	1	$175
Materials	$40	1	$40
Subtotal-Subcontract Price			**$1,535**
Subcontract Management Fee*			**$0**
TOTAL			**$1,535**

Schedule 2.11 (f)

Unit Price Subcontracts
Work Assignment Number **D004437-10**

Name of Subcontractor	Services to be Performed	Subcontract Price	Management Fee
Nancy Potak	WBE Data Validator	$990.00	$49.50

Item	Max. Reimbursement Rate (Specify Unit)	Est. No. of Units	Total Est. Cost
DATA VALIDATION Task 2A			
WATER VOCs 8260	$11.00 /Sample	18	$198
WATER SVOCs 8270	$11.00 /Sample	16	$176
SOIL VOCs 8260	$11.00 /Sample	17	$187
SOIL VOCs 8270	$11.00 /Sample	15	$165
Air TO-15	$11.00 /Sample	12	$132
Air TO-15 Dilution	$11.00 /Sample	12	$132
Subtotal-Subcontract Price			**$990**
Subcontract Management Fee*			**$49.50**
TOTAL			**$1,039.50**

* A subcontract management fee of 5% has been included for M/WBE subcontracts.

Schedule 2.11 (f)

Unit Price Subcontracts
Work Assignment Number **DOO4437-10**

Name of Subcontractor	**Services to be Performed**	**Subcontract Price**	**Management Fee**
Zebra	**Direct Push/MIP**	**$29,620.00**	**$1,481.00**

Item	**Unit Cost**	**Est. No. of Units**	**Total Est. Cost**
MOB/DEMOB			
Mob/Demob MIP	$750 ls	1	$750.00
Mob/Demob Geoprobe	155 trip	7	$1,085.00
DRILL RIG AND CREW			
MIP Project Set-up Charge	$500 ls	1	$500.00
MIP Unit w/ operator	$1,800 day	5	$9,000.00
Geoprobe Unit w/ Operator	$1,425 day	9	$12,825.00
MIP Logging	$2.90 ft	1100	$3,190.00
Sample Charge	$40 sample	13	$520.00
Shallow Soil Vapor Implants	$85 pt	5	$425.00
Deep Soil Vapor Implants	$145 pt	5	$725.00
Per Diem	150 night	4	$600.00
Subtotal-Subcontract Price			**$29,620.00**
Subcontract Management Fee*			**$1,481.00**
TOTAL			**$31,101.00**

* Subcontract Management Fee of 5% on Subcontracts over $10,000

Schedule 2.11 (f)

Unit Price Subcontracts
Work Assignment Number D004437-10

Name of Subcontractor **Mitkem**
Services to be Performed **MBE Laboratory**
Subcontract Price **$12,024**
Management Fee **$601.20**

Item	Max. Reimbursement Rate	Specify Unit	Est. No. of Units	Total Est. Cost
Task 2- Site Characterization				
SAMPLING EQUIPMENT				
Summa Cannisters/Regulators	$110.00	Sample	14	$1,540
Cannister Re-Certification	$75.00	Canister	2	$150
LABORATORY ANALYSIS				
Groundwater				
VOCs 8260 Water	$69.00	Sample	18	$1,242
SVOCs 8270 Water	$149.00	Sample	16	$2,384
Soil				
VOCs 8260 Soil	$69.00	Sample	17	$1,173
VOCs 8270 Soil	$159.00	Sample	15	$2,385
Air				
TO-15 Air	$225.00	Sample	12	$2,700
RCRA Characteristics	$225.00	Sample	2	$450
			Subtotal-Subcontract Price	**$12,024.00**
			Subcontract Management Fee*	**$601.20**
			TOTAL	**$12,625.20**

* A subcontract management fee of 5% has been included for W/MBE subcontracts.

Schedule 2.11 (f)

Unit Price Subcontracts
Work Assignment Number D004437-10

Name of Subcontractor	Services to be Performed	Subcontract Price	Management Fee
Innovative Recycling Technologies	IDW Removal	$675	$0

Item	Max. Reimbursement Rate (Specify Unit)	Est. No. of Units	Total Est. Cost
IDW Removal (Non-Hazardous)	$95 drum	5	$475
IDW Removal (Hazardous)	$195 drum	0	$0
Freight Fee	$200 per shipment	1	$200
		TOTAL	**$675**

Schedule 2.11 (g) - Summary

Monthly Cost Control Report
Summary of Fiscal Information

Engineer Camp Dresser & McKee
Contract No. D004437
Project Name Solvent Finishers
Work Assignment No. D004437-10
Summary of Tasks
Percentage Completed

Date Prepared _____
Billing Period _____
Payment No. _____ **Invoice No.** _____

Expenditure Category	*A* *Costs Claimed This Period*	*B* *Paid to Date*	*C* *Total Disallowed to Date*	*D* *Total Costs Incurred to Date (A+B+C)*	*E* *Estimated Costs to Completion*	*F* *Estimated Total Work Assignment Price (A+B+E)*	*G* *Approved Budget*	*H* *Estimated Under/Over (G-F)*
1. Direct Salary Costs	$0	$0	$0	$0	$16,339	$16,339	$16,339	
2. Indirect Costs - '167.9%	$0	$0	$0	$0	$27,433	$27,433	$27,433	
3. Subtotal Direct Salary Costs and Indirect Costs	$0	$0	$0	$0	$43,772	$43,772	$43,772	
4. Travel	$0	$0	$0	$0	$2,329	$2,329	$2,329	
5. Other Non-Salary Costs	$0	$0	$0	$0	$1,518	$1,518	$1,518	
6. Subtotal Direct Non-Salary Costs	$0	$0	$0	$0	$3,847	$3,847	$3,847	
7. Subcontractors	$0	$0	$0	$0	$59,320	$59,320	$59,320	
7a. Subcontract Mgt. Fee	$0	$0	$0	$0	$2,132	$2,132	$2,132	
8. Total Work Assignment Cost	$0	$0	$0	$0	$109,071	$109,071	$109,071	
9. Fixed Fee	$0	$0	$0	$0	$3,064	$3,064	$3,064	
10. Total Work Assignment Price	$0	$0	$0	$0	$112,135	$112,135	$112,135	

Project Manager (Engineer) Jessica Beattie

Date _____

Schedule 2.11 (g)

Monthly Cost Control Report
Summary of Fiscal Information

Engineer Camp Dresser & McKee
Contract No. D004437
Project Name Solvent Finishers
Work Assignment No. D004437-10
Task #/Name Task 1 - Records Search Report & Work Plan Development
Complete 0%

Date Prepared _____
Billing Period _____
Invoice No. _____

Expenditure Category	*A* *Costs Claimed This Period*	*B* *Paid to Date*	*C* *Total Disallowed to Date*	*D* *Total Costs Incurred to Date (A+B+C)*	*E* *Estimated Costs to Completion*	*F* *Estimated Total Work Assignment Price (A+B+E)*	*G* *Approved Budget*	*H* *Estimated Under/Over (G-F)*
1. Direct Salary Costs	$0	$0	$0	$0	$5,774	$5,774	$5,774	$0
2. Indirect Costs - '167.9%	$0	$0	$0	$0	$9,694	$9,694	$9,694	$0
3. Subtotal Direct Salary Costs and Indirect Costs	$0	$0	$0	$0	$15,468	$15,468	$15,468	$0
4. Travel	$0	$0	$0	$0	$0	$0	$0	$0
5. Other Non-Salary Costs	$0	$0	$0	$0	$250	$250	$250	$0
6. Subtotal Direct Non-Salary Costs	$0	$0	$0	$0	$250	$250	$250	$0
7. Subcontractors	$0	$0	$0	$0	$645	$645	$645	$0
7a. Subcontract Mgt. Fee	$0	$0	$0	$0	$0	$0	$0	$0
8. Total Work Assignment Cost	$0	$0	$0	$0	$16,363	$16,363	$16,363	$0
9. Fixed Fee	$0	$0	$0	$0	$1,083	$1,083	$1,083	$0
10. Total Work Assignment Price	$0	$0	$0	$0	$17,446	$17,446	$17,446	$0

Project Manager (Engineer) Jessica Beattie

Date _____

Schedule 2.11 (g)

Monthly Cost Control Report
Summary of Fiscal Information

Engineer Camp Dresser & McKee
Contract No. D004437
Project Name Solvent Finishers
Work Assignment No. D004437-10
Task #/Name Task 2- Site Characterization
Complete 0%

Date Prepared _____
Billing Period _____
Invoice No. _____

Expenditure Category	*A* *Costs Claimed This Period*	*B* *Paid to Date*	*C* *Total Disallowed to Date*	*D* *Total Costs Incurred to Date (A+B+C)*	*E* *Estimated Costs to Completion*	*F* *Estimated Total Work Assignment Price (A+B+E)*	*G* *Approved Budget*	*H* *Estimated Under/Over (G-F)*
1. Direct Salary Costs	$0	$0	$0	$0	$6,323	$6,323	$6,323	$0
2. Indirect Costs 167.9%	$0	$0	$0	$0	$10,617	$10,617	$10,617	$0
3. Subtotal Direct Salary Costs and Indirect Costs	$0	$0	$0	$0	$16,940	$16,940	$16,940	$0
4. Travel	$0	$0	$0	$0	$2,329	$2,329	$2,329	$0
5. Other Non-Salary Costs	$0	$0	$0	$0	$1,018	$1,018	$1,018	$0
6. Subtotal Direct Non-Salary Costs	$0	$0	$0	$0	$3,347	$3,347	$3,347	$0
7. Subcontractors	$0	$0	$0	$0	$58,075	$58,075	$58,075	$0
7a. Subcontract Mgt. Fee	$0	$0	$0	$0	$2,132	$2,132	$2,132	$0
8. Total Work Assignment Cost	$0	$0	$0	$0	$80,493	$80,493	$80,493	$0
9. Fixed Fee	$0	$0	$0	$0	$1,186	$1,186	$1,186	$0
10. Total Work Assignment Price	$0	$0	$0	$0	$81,679	$81,679	$81,679	$0

Project Manager (Engineer) Jessica Beattie

Date _____

Schedule 2.11 (g)

Monthly Cost Control Report
Summary of Fiscal Information

Engineer Camp Dresser & McKee
Contract No. D004437
Project Name Solvent Finishers
Work Assignment No. D004437-10
Task #/Name Task 3 - Field Documentation and Reporting
Complete 0%

Date Prepared _____
Billing Period _____
Invoice No. _____

Expenditure Category	*A* *Costs Claimed This Period*	*B* *Paid to Date*	*C* *Total Disallowed to Date*	*D* *Total Costs Incurred to Date (A+B+C)*	*E* *Estimated Costs to Completion*	*F* *Estimated Total Work Assignment Price (A+B+E)*	*G* *Approved Budget*	*H* *Estimated Under/Over (G-F)*
1. Direct Salary Costs	$0	$0	$0	$0	$4,242	$4,242	$4,242	$0
2. Indirect Costs 167.9%	$0	$0	$0	$0	$7,122	$7,122	$7,122	$0
3. Subtotal Direct Salary Costs and Indirect Costs	$0	$0	$0	$0	$11,364	$11,364	$11,364	$0
4. Travel	$0	$0	$0	$0	$0	$0	$0	$0
5. Other Non-Salary Costs	$0	$0	$0	$0	$250	$250	$250	$0
6. Subtotal Direct Non-Salary Costs	$0	$0	$0	$0	$250	$250	$250	$0
7. Subcontractors	$0	$0	$0	$0	$600	$600	$600	$0
7a. Subcontract Mgt. Fee	$0	$0	$0	$0	$0	$0	$0	$0
8. Total Work Assignment Cost	$0	$0	$0	$0	$12,214	$12,214	$12,214	$0
9. Fixed Fee	$0	$0	$0	$0	$796	$796	$796	$0
10. Total Work Assignment Price	$0	$0	$0	$0	$13,010	$13,010	$13,010	$0

Project Manager (Engineer) Jessica Beattie

Date _____

Schedule 2.11 (g) - Supplemental

Cost Control Report for Subcontracts

Engineer Camp Dresser & McKee
Contract No. D004437
Project Name Solvent Finishers
Work Assignment No. D004437-10

Date Prepared _____
Billing Period _____
Invoice No. _____

Subcontract Name	*A* *Subcontract Costs Claimed this Application Inc. Resubmittals*	*B* *Subcontract Costs Approved for Payment on Previous Applications*	*C* *Total Subcontract Costs to Date (A plus B)*	*D* *Subcontract Approved Budget*	*E* *Management Fee Budget*	*F* *Management Fee Paid*	*G* *Total Costs to Date (C plus F)*
1. EDR	$0	$0	$0	$645	$0	$0	$0
2. Naeva Geophysics	$0	$0	$0	$1,535	$0	$0	$0
3. YEC, Inc.	$0	$0	$0	$13,231	$0	$0	$0
4. Nancy Potak	$0	$0	$0	$990	$50	$0	$0
5. Zebra Environmental	$0	$0	$0	$29,620	$1,481	$0	$0
6. Mitkem	$0	$0	$0	$12,024	$601	$0	$0
7. Innovative Recycling Technologies	$0	$0	$0	$675	$0	$0	$0
8. Ken Schider	$0	$0	$0	$600	$0	$0	$0
TOTALS	$0	$0	$0	$59,320	$2,132	$0	$0

Project Manager (Engineer) Jessica Beattie **Date** _____

NOTES:

1) Costs listed in Columns A, B, C & D do not include any management fee costs.
2) Management fee is applicable to only properly procured, satisfactorily completed, unit price subcontracts over $10,000.
3) Line 11, Cloumn G should equal Line 7 (Subcontractors), Column D of Summary Cost Control Report.

Schedule 2.11(h)
Monthly Cost Control Report
Summary of Labor Hours

Number of Direct Labor Hours Expended to Date/Estimated Number of Direct Labor Hours to Completion

Engineer/Contract # D004437
Project Name Solvent Finishers
Work Assignment No. D004437-10

Date Prepared _____
Billing Period _____
Invoice No. _____

NSPE Labor Classification	*IX Exp/Est*	*VIII Exp/Est*	*VII Exp/Est*	*VI Exp/Est*	*V Exp/Est*	*III Exp/Est*	*II Exp/Est*	*I Exp/Est*	*Admin.*	*Total No. of Direct Labor Hrs. Exp/Est*
Task 1A & 1B	0 / 2	0 / 4	0 / 8	0 / 40	0 / 0	0 / 70	0 / 40	0 / 0	0 / 6	0 / 170
Task 2	0 / 2	0 / 2	0 / 2	0 / 22	0 / 0	0 / 44	0 / 140	0 / 0	0 / 6	0 / 218
Task 3	0 / 2	0 / 4	0 / 8	0 / 24	0 / 0	0 / 60	0 / 20	0 / 0	0 / 6	0 / 124
Total Hours	0 / 6	0 / 10	0 / 18	0 / 86	0 / 0	0 / 174	0 / 200	0 / 0	0 / 18	0 / 512

* Expended/Estimated

Appendix E

CONTRACTOR BACKUP

Solvent Finishers Project
Subcontractor Quote Comparison

Direct Push Drilling	Amount	Units	Zebra	Columbia (SBE)	Vironex
Mob/Demob MIP	1	lump sum	$750.00	$2,000.00	$2,500.00
MIP Unit w/ operator	5	days	$9,000.00	included	$22,140.00
Mob/Demob Geoprobe	1	lump sum	$1,085.00	included	included
Geoprobe Unit w/ Operator	9	days	$12,825.00	included	included
MIP Set-up Charge	1	lump sum	$500.00	included	$500.00
MIP Logging	1100	per ft	$3,190.00	$17,500.00	included
Sample Charge	13	per sample	$520.00	$18,000.00	included
Soil Coring		per ft	included	$18,000.00	included
Per Diem	4	per night	$600.00	$6,750.00	$2,250.00
MIP Consumables		lump sum	included	$3,000.00	included
Handling of IDW including Drums		lump sum	included	$875.00	included
Boerhole closure and surface restoration		per ft	included	$3,000.00	$3,250.00
Decontamination Equipment		lump sum	included	$3,125	$2,375
		Totals	$28,470	$72,250	$33,015

*MIP equipment is specialized. We were only able to identify three drillers that could provide bids.

Soil Vapor Points	Amount	Units	Zebra	SGS	Hydrotech
Shallow Soil Vapor Probes	5	pt	$425.00	$575.00	$550.00
Deep Soil Vapor Probes	5	pt	$725.00	$750.00	$610.00
		Totals	$1,150	$1,325	$1,160

Data Validator	Amount	Units	Nancy Potak (WBE)	ChemWorld	Data Validation Services (WBE)
TCL VOCs 8260 Water	18	sample	$11	$13	$25
TCL SVOCs 8270 Water	16	sample	$11	$13	$25
TCL VOCs 8260 Soil	17	sample	$11	$13	$25
TCL SVOCs 8270 Soil	15	sample	$11	$13	$20
TO-15 Air	12	sample	$11	$13	$25
TO-15 Air dilution	12	sample	$11	$13	$5
		Totals	$990	$1,170	$1,935

Lab	Amount	Units	Mitkem (MBE)	Chemtech (MBE)	STL
TCL VOCs 8260 Water	18	samples	$69	$85	$105
TCL SVOCs 8270 Water	16	samples	$149	$180	$195
TCL VOCs 8260 Soil	17	samples	$69	$80	$90
TCL SVOCs 8270 Soil	15	samples	$159	$180	$195
TO-15 Air	12	samples	$225	$214	$250
Summa Canisters & Regulators	14	ea	$110	$35	
Cannister Re-certification	2	ea	$75	$100	
Waste Characterization	2	ea	$225	$225	$595
SEDD	2	ea		$125	
Totals			$12,024	$12,428	$13,655

Surveyor			YEC (MBE)	Donald DeKenipp	Shumaker
Totals			$13,150	$14,500	*

*declined to submit

Geophysical Survey	Amount	Units	Naeva Geophysics	AGS	Hager-Richter
Totals			$1,535	$1,950	$4,900

New York State
Department of Environmental Conservation
Division of Environmental Remediation

Subcontract Certification

On behalf of the Contractor named below, I hereby certify that the subcontract named below was procured in accordance with the terms of the prime contract and all applicable requirements of the State of New York. I also hereby certify that the executed subcontract includes all appropriate language and all required documents were completed appropriately and were acceptable. Specifically, I hereby certify the following:

1. The Contractor has determined that the subcontractor is qualified. A statement of qualifications for the subcontractor is maintained. It does include a statement of compliance with all licenses, certifications and permits, if applicable. (Note: For laboratories, this can be determined at: http://www.wadsworth.org/labservices.htm).

2. The Contractor has determined the costs are reasonable. A procurement record supporting the determination is maintained.

3. The Contractor performed a Conflict of Interest (COI) check, if applicable, and documented it in writing. (Refer to Appendix B, clause III (e) for applicability. (Note that for standby subcontractors, the COI certification must be submitted to the project manager upon activation.)

4. For subcontracts in excess (or anticipated to be) of $10,000 the subcontractor submitted an acceptable New York State Uniform Contracting Questionnaire. For subconsultants in excess (or anticipated to be) of $10,000 the subconsultant submitted an acceptable New York State Vendor Responsibility Questionnaire. (Information related to vendor responsibility can be found at http://www.osc.state.ny.us/agencies/gbull/g221.htm.)

5. The subcontract includes pass down requirements from Appendix B of the prime contract related to Minority and Women Business Enterprises/WBE and Conflict of Interest (COI).

6. The Subcontract includes the termination clause required in the prime contract.

7. The subcontract does not include "pay if paid" type clauses which are unenforceable in New York State.

8. Insurance carriers associated with the subcontract are licensed to do business in New York State. The State of New York and the Department of Environmental Conservation are named as additional insurers on the policies. Insurance limits meet prime contract requirements. (Note that licensed insurance can be determined at: http://www.ins.state.ny.us and Best's Rating can be determined at http://www.ambest.com). Pollution liability insurance (for example, drilling subcontractors) and professional liability insurance (for example, subcontracts for professional services and laboratories) is included as appropriate.

9. Documentation supporting this certification is maintained and will be provided within 10 days of any request.

Jessica Beattie — 12/18/07

Signature of Contractor's Authorized Representative — Date

CDM — D004437-10

Contractor Name — Contract No. WA No.

YEC, INC.

Subcontractor Name — 3/2/07

New York State
Department of Environmental Conservation
Division of Environmental Remediation

Subcontract Certification

On behalf of the Contractor named below, I hereby certify that the subcontract named below was procured in accordance with the terms of the prime contract and all applicable requirements of the State of New York. I also hereby certify that the executed subcontract includes all appropriate language and all required documents were completed appropriately and were acceptable. Specifically, I hereby certify the following:

1. The Contractor has determined that the subcontractor is qualified. A statement of qualifications for the subcontractor is maintained. It does include a statement of compliance with all licenses, certifications and permits, if applicable. (Note: For laboratories, this can be determined at: http://www.wadsworth.org/labservices.htm).

2. The Contractor has determined the costs are reasonable. A procurement record supporting the determination is maintained.

3. The Contractor performed a Conflict of Interest (COI) check, if applicable, and documented it in writing. (Refer to Appendix B, clause III (e) for applicability. (Note that for standby subcontractors, the COI certification must be submitted to the project manager upon activation.)

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5. The subcontract includes pass down requirements from Appendix B of the prime contract related to Minority and Women Business Enterprises/WBE and Conflict of Interest (COI).

6. The Subcontract includes the termination clause required in the prime contract.

7. The subcontract does not include "pay if paid" type clauses which are unenforceable in New York State.

8. Insurance carriers associated with the subcontract are licensed to do business in New York State. The State of New York and the Department of Environmental Conservation are named as additional insurers on the policies. Insurance limits meet prime contract requirements. (Note that licensed insurance can be determined at: http://www.ins.state.ny.us and Best's Rating can be determined at http://www.ambest.com). Pollution liability insurance (for example, drilling subcontractors) and professional liability insurance (for example, subcontracts for professional services and laboratories) is included as appropriate.

9. Documentation supporting this certification is maintained and will be provided within 10 days of any request.

Jessica Beattie — 12/18/07

Signature of Contractor's Authorized Representative — Date

CDM — D004437-10

Contractor Name — Contract No. WA No.

NANCY POTAK

Subcontractor Name — 3/2/07

New York State
Department of Environmental Conservation
Division of Environmental Remediation

Subcontract Certification

On behalf of the Contractor named below, I hereby certify that the subcontract named below was procured in accordance with the terms of the prime contract and all applicable requirements of the State of New York. I also hereby certify that the executed subcontract includes all appropriate language and all required documents were completed appropriately and were acceptable. Specifically, I hereby certify the following:

1. The Contractor has determined that the subcontractor is qualified. A statement of qualifications for the subcontractor is maintained. It does include a statement of compliance with all licenses, certifications and permits, if applicable. (Note: For laboratories, this can be determined at: http://www.wadsworth.org/labservices.htm).

2. The Contractor has determined the costs are reasonable. A procurement record supporting the determination is maintained.

3. The Contractor performed a Conflict of Interest (COI) check, if applicable, and documented it in writing. (Refer to Appendix B, clause III (e) for applicability. (Note that for standby subcontractors, the COI certification must be submitted to the project manager upon activation.)

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6. The Subcontract includes the termination clause required in the prime contract.

7. The subcontract does not include "pay if paid" type clauses which are unenforceable in New York State.

8. Insurance carriers associated with the subcontract are licensed to do business in New York State. The State of New York and the Department of Environmental Conservation are named as additional insurers on the policies. Insurance limits meet prime contract requirements. (Note that licensed insurance can be determined at: http://www.ins.state.ny.us and Best's Rating can be determined at http://www.ambest.com). Pollution liability insurance (for example, drilling subcontractors) and professional liability insurance (for example, subcontracts for professional services and laboratories) is included as appropriate.

9. Documentation supporting this certification is maintained and will be provided within 10 days of any request.

Jessica Beattie — 12/18/07

Signature of Contractor's Authorized Representative — Date

CSM — D004437-10

Contractor Name — Contract No. WA No.

MITKEM CORPORATION

Subcontractor Name — 3/2/07

New York State
Department of Environmental Conservation
Division of Environmental Remediation

Subcontract Certification

On behalf of the Contractor named below, I hereby certify that the subcontract named below was procured in accordance with the terms of the prime contract and all applicable requirements of the State of New York. I also hereby certify that the executed subcontract includes all appropriate language and all required documents were completed appropriately and were acceptable. Specifically, I hereby certify the following:

1. The Contractor has determined that the subcontractor is qualified. A statement of qualifications for the subcontractor is maintained. It does include a statement of compliance with all licenses, certifications and permits, if applicable. (Note: For laboratories, this can be determined at: http://www.wadsworth.org/labservices.htm).

2. The Contractor has determined the costs are reasonable. A procurement record supporting the determination is maintained.

3. The Contractor performed a Conflict of Interest (COI) check, if applicable, and documented it in writing. (Refer to Appendix B, clause III (e) for applicability. (Note that for standby subcontractors, the COI certification must be submitted to the project manager upon activation.)

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5. The subcontract includes pass down requirements from Appendix B of the prime contract related to Minority and Women Business Enterprises/WBE and Conflict of Interest (COI).

6. The Subcontract includes the termination clause required in the prime contract.

7. The subcontract does not include "pay if paid" type clauses which are unenforceable in New York State.

8. Insurance carriers associated with the subcontract are licensed to do business in New York State. The State of New York and the Department of Environmental Conservation are named as additional insurers on the policies. Insurance limits meet prime contract requirements. (Note that licensed insurance can be determined at: http://www.ins.state.ny.us and Best's Rating can be determined at http://www.ambest.com). Pollution liability insurance (for example, drilling subcontractors) and professional liability insurance (for example, subcontracts for professional services and laboratories) is included as appropriate.

9. Documentation supporting this certification is maintained and will be provided within 10 days of any request.

Jessica Rhattie — 12/18/07
Signature of Contractor's Authorized Representative — Date

CDM — D004437-10
Contractor Name — Contract No. WA No.

INNOVATIVE RECYCLING TECHNOLOGIES INC. — 3/2/07
Subcontractor Name

New York State
Department of Environmental Conservation
Division of Environmental Remediation

Subcontract Certification

On behalf of the Contractor named below, I hereby certify that the subcontract named below was procured in accordance with the terms of the prime contract and all applicable requirements of the State of New York. I also hereby certify that the executed subcontract includes all appropriate language and all required documents were completed appropriately and were acceptable. Specifically, I hereby certify the following:

1. The Contractor has determined that the subcontractor is qualified. A statement of qualifications for the subcontractor is maintained. It does include a statement of compliance with all licenses, certifications and permits, if applicable. (Note: For laboratories, this can be determined at: http://www.wadsworth.org/labservices.htm).

2. The Contractor has determined the costs are reasonable. A procurement record supporting the determination is maintained.

3. The Contractor performed a Conflict of Interest (COI) check, if applicable, and documented it in writing. (Refer to Appendix B, clause III (e) for applicability. (Note that for standby subcontractors, the COI certification must be submitted to the project manager upon activation.)

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7. The subcontract does not include "pay if paid" type clauses which are unenforceable in New York State.

8. Insurance carriers associated with the subcontract are licensed to do business in New York State. The State of New York and the Department of Environmental Conservation are named as additional insurers on the policies. Insurance limits meet prime contract requirements. (Note that licensed insurance can be determined at: http://www.ins.state.ny.us and Best's Rating can be determined at http://www.ambest.com). Pollution liability insurance (for example, drilling subcontractors) and professional liability insurance (for example, subcontracts for professional services and laboratories) is included as appropriate.

9. Documentation supporting this certification is maintained and will be provided within 10 days of any request.

Jessica Beattie — 1/22/08

Signature of Contractor's Authorized Representative — Date

CDM — D004437-10

Contractor Name — Contract No. WA No.

Kenneth Shider

Subcontractor Name — 3/2/07

New York State
Department of Environmental Conservation
Division of Environmental Remediation

Subcontract Certification

On behalf of the Contractor named below, I hereby certify that the subcontract named below was procured in accordance with the terms of the prime contract and all applicable requirements of the State of New York. I also hereby certify that the executed subcontract includes all appropriate language and all required documents were completed appropriately and were acceptable. Specifically, I hereby certify the following:

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9. Documentation supporting this certification is maintained and will be provided within 10 days of any request.

Jessica R Beattee — 1/22/08

Signature of Contractor's Authorized Representative — Date

CDM — D004437-10

Contractor Name — Contract No. WA No.

Zebra Environmental — 3/2/07

Subcontractor Name

New York State
Department of Environmental Conservation
Division of Environmental Remediation

Subcontract Certification

On behalf of the Contractor named below, I hereby certify that the subcontract named below was procured in accordance with the terms of the prime contract and all applicable requirements of the State of New York. I also hereby certify that the executed subcontract includes all appropriate language and all required documents were completed appropriately and were acceptable. Specifically, I hereby certify the following:

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2. The Contractor has determined the costs are reasonable. A procurement record supporting the determination is maintained.

3. The Contractor performed a Conflict of Interest (COI) check, if applicable, and documented it in writing. (Refer to Appendix B, clause III (e) for applicability. (Note that for standby subcontractors, the COI certification must be submitted to the project manager upon activation.)

4. For subcontracts in excess (or anticipated to be) of $10,000 the subcontractor submitted an acceptable New York State Uniform Contracting Questionnaire. For subconsultants in excess (or anticipated to be) of $10,000 the subconsultant submitted an acceptable New York State Vendor Responsibility Questionnaire. (Information related to vendor responsibility can be found at http://www.osc.state.ny.us/agencies/gbull/g221.htm.)

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8. Insurance carriers associated with the subcontract are licensed to do business in New York State. The State of New York and the Department of Environmental Conservation are named as additional insurers on the policies. Insurance limits meet prime contract requirements. (Note that licensed insurance can be determined at: http://www.ins.state.ny.us and Best's Rating can be determined at http://www.ambest.com). Pollution liability insurance (for example, drilling subcontractors) and professional liability insurance (for example, subcontracts for professional services and laboratories) is included as appropriate.

9. Documentation supporting this certification is maintained and will be provided within 10 days of any request.

Jessica Beattie — 1/22/08

Signature of Contractor's Authorized Representative — Date

CDM — D004437-10

Contractor Name — Contract No. WA No.

Environmental Data Resources, Inc. (EDR)

Subcontractor Name — 3/2/07

CDM
Raritan Plaza I, Raritan Center
Edison, NJ 08818
tel: 732-225-7000
fax: 732-225-7851

January 22, 2008

Mr. Kenneth Shider
8 Dauphin Drive
Albany, NY 12205

Subject: NYSDEC Standby Contract No. D004437-10
Solvent Finishers (Site No. 1-30-172)
Conflict of Interest

Dear Mr. Shider:

Camp Dresser & McKee (CDM) will be issuing a Task Order to your firm for the above-referenced site. Below are, to the best of our knowledge, the known potentially responsible parties (PRPs):

- Solvent Finishers
- Ruby's Costume Company

Please review your firm's contractual status with the above PRP(s), sign the enclosed Conflict of Interest Certification and return it to me within five (5) working days of receipt of this letter. If you have any questions, or need additional cost information, please do not hesitate to contact me.

Very truly yours,

Jessica R. Beattie

Jessica R. Beattie, P.G.
Project Manager
Camp Dresser & McKee Inc.

CDM

Subcontractor Conflict of Interest Certification

The undersigned, Kenneth Shider, hereby certifies for the Solvent Finishers Site No. 1-30-172:

1) That I have been informed by the Camp Dresser & McKee who the known potentially responsible parties are for the subject site, and

2) That to the best of my knowledge, I have no conflict of interest with the work proposed at this site, and

3) That presently I have no contracts with, nor imminent prospects of contracts with, potentially responsible parties associated with the above-named site, and

4) That I have no responsibilities to potentially responsible parties associated with the above-named site.

Certified By:

Kenneth Shider
Signature of Subcontractor

Ken Shider Consulting
Subcontracting Firm

1/23/08
Date

CDM

15 British American Boulevard
Latham, New York 12110
tel: 518 782-4500
fax: 518 786-3810

November 16, 2007

John Ewen
Innovative Recycling Technologies, Inc.
690 North Queens Avenue
Lindenhurst, NY 11757

PROJECT: NYSDEC Standby Contract No. D004437
Solvent Finishers - Site No. 130172

SUBJECT: Conflict of Interest

Dear John Ewen:

Camp Dresser & McKee (CDM) is issuing has issued a Task Order to your firm for the above-referenced site. Below are, to the best of our knowledge, the known potentially responsible parties (PRPs):

- Ruby's Costume Co.

Please review your firm's contractual status with the above PRP(s), sign the enclosed Conflict of Interest Certification and return it to me within five (5) working days of receipt of this letter.

If you have any questions or need additional information, please call me at (518) 782-4500

Very truly yours,

Jessica Beattie, P.G.
Senior Project Manager
Camp Dresser & McKee

Enclosures

Subcontractor Conflict of Interest Certification

[redacted]

CDM

The undersigned, representing John Ewen hereby certifies for the Solvent Finishers – Site No. 130172:

1) That I have been informed by the Camp Dresser & McKee who the known potentially responsible parties are for the subject site, and

2) That to the best of my knowledge, John Ewen and the employees of the firm to be assigned to this project have no conflict of interest with the work proposed at this site, and

3) That presently John Ewen has no contracts with, nor imminent prospects of contracts with, potentially responsible parties associated with the above-named site, and

4) That John Ewen has no responsibilities to potentially responsible parties associated with the above-named site.

Certified By:

Signature of Subcontractor

Innovative Recycling Technologies, Inc.
Subcontracting Firm

11/16/07
Date

15 British American Boulevard
Latham, New York 12110
tel: 518 782-4500
fax 518 786-3810

November 16, 2007

Ed Lawler
Mitkem Corporation
175 Metro Center Blvd.
Warwick, Rhode Island 02886-1755

PROJECT: NYSDEC Standby Contract No. D004437
Solvent Finishers - Site No.130172

SUBJECT: Conflict of Interest

Dear Ed Lawler:

Camp Dresser & McKee (CDM) is issuing has issued a Task Order to your firm for the above-referenced site. Below are, to the best of our knowledge, the known potentially responsible parties (PRPs):

- Ruby's Costume Co.

Please review your firm's contractual status with the above PRP(s), sign the enclosed Conflict of Interest Certification and return it to me within five (5) working days of receipt of this letter.

If you have any questions or need additional information, please call me at (518) 782-4500

Very truly yours,

Jessica Beattie, P.G.
Senior Project Manager
Camp Dresser & McKee

Enclosures

Subcontractor Conflict of Interest Certification

CDM

The undersigned, representing Ed Lawler hereby certifies for the Solvent Finishers - Site No.130172:

1) That I have been informed by the Camp Dresser & McKee who the known potentially responsible parties are for the subject site, and

2) That to the best of my knowledge, Ed Lawler and the employees of the firm to be assigned to this project have no conflict of interest with the work proposed at this site, and

3) That presently Ed Lawler has no contracts with, nor imminent prospects of contracts with, potentially responsible parties associated with the above-named site, and

4) That Ed Lawler has no responsibilities to potentially responsible parties associated with the above-named site.

Certified By:

Edward A. Lawler

Signature of Subcontractor

Mitkem

Subcontracting Firm

11/27/07

Date

CDM

Subcontractor Conflict of Interest Certification

The undersigned, representing Naeva Geophysics hereby certifies for the Solvent Finishers Site No. 1-30-172:

1) That I have been informed by the Camp Dresser & McKee who the known potentially responsible parties are for the subject site, and

2) That to the best of my knowledge, Naeva Geophysics and the employees of the firm to be assigned to this project have no conflict of interest with the work proposed at this site, and

3) That presently Naeva Geophysics has no contracts with, nor imminent prospects of contracts with, potentially responsible parties associated with the above-named site, and

4) That Naeva Geophysics has no responsibilities to potentially responsible parties associated with the above-named site.

Certified By:

Mark E. Weis

Signature of Subcontractor

NAEVA Geophysics, Inc.

Subcontracting Firm

December 21, 2007

Date

15 British American Boulevard
Latham, New York 12110
tel: 518 782-4500
fax: 518 786-3810

November 16, 2007

Nancy Potak
1796 Craftsburg Road
Greensboro, Vermont 05841

PROJECT: NYSDEC Standby Contract No. D004437
Solvent Finishers - Site No.130172

SUBJECT: Conflict of Interest

Dear Nancy:

Camp Dresser & McKee (CDM) is issuing has issued a Task Order to your firm for the above-referenced site. Below are, to the best of our knowledge, the known potentially responsible parties (PRPs):

- Ruby's Costume Co.

Please review your firm's contractual status with the above PRP(s), sign the enclosed Conflict of Interest Certification and return it to me within five (5) working days of receipt of this letter.

If you have any questions or need additional information, please call me at (518) 782-4500

Very truly yours,

Jessica Beattie, P.G.
Senior Project Manager
Camp Dresser & McKee

Enclosures

Subcontractor Conflict of Interest Certification

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The undersigned, representing Nancy J. Potak hereby certifies for the Solvent Finishers - Site No.130172

1) That I have been informed by the Camp Dresser & McKee who the known potentially responsible parties are for the subject site, and

2) That to the best of my knowledge, Nancy J. Potak and the employees of the firm to be assigned to this project have no conflict of interest with the work proposed at this site, and

3) That presently Nancy J. Potak has no contracts with, nor imminent prospects of contracts with, potentially responsible parties associated with the above-named site, and

4) That Nancy J. Potak has no responsibilities to potentially responsible parties associated with the above-named site.

Certified By:

Signature of Subcontractor

Subcontracting Firm

11/25/2007

Date

CDM

15 British American Boulevard
Latham, New York 12110
tel: 518 782-4500
fax: 518 786-3810

November 16, 2007

Ed Chen
YEC
612 Corporate Way
Valley Cottage, New York 10989

PROJECT: NYSDEC Standby Contract No. D004437
Solvent Finishers - Site No.130172

SUBJECT: Conflict of Interest

Dear Ed Chen:

Camp Dresser & McKee (CDM) is issuing has issued a Task Order to your firm for the above-referenced site. Below are, to the best of our knowledge, the known potentially responsible parties (PRPs):

- Ruby's Costume Co.

Please review your firm's contractual status with the above PRP(s), sign the enclosed Conflict of Interest Certification and return it to me within five (5) working days of receipt of this letter.

If you have any questions or need additional information, please call me at (518) 782-4500

Very truly yours,

Jessica Beattie, P.G.
Senior Project Manager
Camp Dresser & McKee

Enclosures

Subcontractor Conflict of Interest Certification

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CDM

The undersigned, representing Ed Chen hereby certifies for the Solvent Finishers - Site No.130172:

1) That I have been informed by the Camp Dresser & McKee who the known potentially responsible parties are for the subject site, and

2) That to the best of my knowledge, Ed Chen and the employees of the firm to be assigned to this project have no conflict of interest with the work proposed at this site, and

3) That presently Ed Chen has no contracts with, nor imminent prospects of contracts with, potentially responsible parties associated with the above-named site, and

4) That Ed Chen has no responsibilities to potentially responsible parties associated with the above-named site.

Certified By:

Signature of Subcontractor

YEC, Inc

Subcontracting Firm

11/19/07

Date