UPDATE TO THE SEPTEMBER 2009 P.W. GROSSER CONSULTING, INC. ENVIRONMENTAL CONDITIONS REPORT

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Executive Summary

The Environmental Condition Report (ECR) was prepared in September 2009 by P.W. Grosser Consulting, Inc. on behalf of RXR-Glen Isle Partners, LLC for the Glen Isle Waterfront Revitalization Project (Project). The purpose of the ECR was to summarize the environmental condition of the properties (i.e., Subject Properties) within and adjacent to the area along the north side of Glen Cove Creek that are proposed for redevelopment. The regulatory status, existing data and any data gaps were also noted in the ECR.

Since issuance of the ECR in 2009, there has been progress that updates the regulatory status, existing data and/or data gaps. That progress is reflected in this update so that the FEIS has the most current information on the environmental conditions at the Glen Isle development site. This update only includes sections of the ECR describing parts of the Project in which progress has been made since September 2009. Hence, this update should be read in conjunction with the original 2009 ECR for a complete picture of the environmental conditions, regulatory status, current data and noted data gaps. For continuity, the revised sections in this update use the same numbers and headings as presented in the ECR.

The following list summarizes the progress that has occurred since the September 2009 ECR:

Captain’s Cove Record Of Decision (ROD) Modification

- NYSDEC agreed that the Record of Decision (ROD) could be modified to allow restricted residential use once an Environmental Easement (EE) is filed. The EE will summarize the Institutional Controls (ICs) and Engineering Controls that re required. The ICs/ECs will be memorialized in a Site Management Plan (SMP). Since the SMP for Captain’s Cove has already been approved by NYSDEC (see Appendix A, NYSDEC letter dated April 29, 2010), the stage is set for the EE filing.

Li Tungsten Parcel A Restricted Residential Use Determination

- The USEPA informed the Mayor of the City of Glen Cove (See Appendix B, USEPA letter dated November 23 2010 that Parcel A of Li Tungsten could be used for residential use subject to certain ICs/ECs being put in place (see Appendix B). The ICs/ECs are the same as those outlined in the SMP for the Captain’s Cove property. Hence, the SMP for Li Tungsten will use the Captain's Cove SMP as a template to ensure USEPA requirements for residential use at Parcel A is satisfied. An EE will still need to be filed for the entire Li Tungsten Site.

Environment Easements

- The NYSDEC has streamlined the Environmental Easement (EE) process by providing an EE template that should be used to prepare the EE for NYSDEC review prior to recording (See Appendix D). Furthermore,
- The USEPA has agreed that the NYSDEC EE satisfies the federal requirements for an Institutional Control. In discussions with EPA regarding the EE, they said they didn't require an easement in a situation like this so the state easement would be fine with them (James Doyle email, Appendix A). EPA guidance for ICs is included in Appendix D. It shows that the NYSDEC IC/EC/EE process meets EPA's requirements.

Site Management Plan (SMP) Implementation

- An SMP for the portion of the Captain's Cove property generally coinciding with EPA's Area G was approved by the NYSDEC in July 2010. A separate SMP for this project was undertaken to enable the construction activities associated with the Ferry Terminal project to commence. The Ferry Terminal SMP provides an area-specific example of how the regulatory agency(ies) will be involved in the development activities to ensure that the conditions set forth in EEs and SMPs at other properties within the Project are complied with and documented. A Dredging/Excavation Work Plan was prepared under the SMP on July 14, 2010 and subsequently approved by the NYSDEC. Excavation work began in the fall 2010 and work has progressed towards installing the site improvements prior to building the ferry terminal.

Environmental Restoration Program (ERP) Properties

- The City of Glen Cove IDA commenced a remedial action at the Gladsky property, which is in the NYS Environmental Restoration Program (ERP), in April 2010. Except for reinforcing the bulkhead and hydro-seeding the site, which is underway, the remedial action is complete. A Remedial Action Closeout Report will be prepared once the remaining work is completed. An EE and SMP will be prepared for the property based on the template in Appendix D and Appendix A, respectively.

- The Angler's Club and Sewage Pumping Station were recognized by the NYSDEC as being part of the Gladsky ERP site based on verbal communications from the DEC to the IDA. (IDA, IDA request letter to DEC in Appendix E). Therefore, the NYSDEC has indicated that both sites could be used for restricted residential subject to implementation of appropriate ICs and ECs and documented in the EE and SMP for the property.

Doxey

- The IDA took ownership of Doxey and finished a round of sampling in December 2010. The sampling was needed to decide on a remedial approach and develop a remedial design. According to the IDA, a Remedial Design Plan is in preparation. Currently this property is not in any federal or state regulatory program. Whether or not it enters a regulatory program (e.g., Brownfield Cleanup Program or other), any remedial action will be consistent with those taken at the ERP properties and ICs and ECs, as appropriate, that are confirmed in an EE and SMP.

Properties Adjacent to the Project Area

- Additional investigations were done by the NYSDEC on Crown Dykman in 2009, a remediation plan was prepared in 2009, and the Record of Decision requiring soil and groundwater remediation and long term monitoring was published by the NYSDEC in September 2010.
- The Former Columbia Ribbon and Carbon Company Disposal Site (Konica/Minolta, currently on the NYS inactive hazardous waste site registry, was re-classified as a 2.

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(Section Numbers Correspond to the 2009 Environmental Conditions Report)

1.0 Introduction

An Environmental Condition Report (ECR) was prepared in September 2009 by P.W. Grosser Consulting, Inc. on behalf of RXR-Glen Isle Partners, LLC for the Glen Isle Waterfront Revitalization Project (Project). The purpose of that report was to summarize the environmental condition of the Glen Isle (GI) Subject Properties, including the regulatory status, available data, and any data gaps. In addition adjacent properties that have the potential to impact the environmental condition of subject properties were also discussed.

1.1 Purpose of Report

Changes in the status of some of the properties have occurred since the ECR was written. Those changes are presented in this update so that the FEIS has the most current information on the environmental conditions at the Glen Isle development site. Only the sections of the ECR describing parts of the Project that have changed since September 2009 are included in this update. The revised sections still use the numbers and headings of the ECR for correlation purposes.

2.1.5 Li Tungsten – Site Limitations

The USEPA completed its evaluation of residential use on Parcel A and concluded (Appendix 1 of the Five Year Review Report for the Li Tungsten Superfund Site, Glen Cove, Nassau County, New York, July 2010, Appendix B of this report) that restricted residential use could occur on the site if either of two options was used:

1) Sample the soil to identify any residual cobalt exceeding the recommended maximum concentration and remove it; or
2) Provide Institutional and Engineering Controls in a Site Management Plan that would prevent exposure to subsurface soil.

Therefore, the use of Institutional Controls and Engineering Controls (ICs/ECs) that are incorporated into an Environmental Easement (EE) and Site Management Plan (SMP) would fulfill USEPA requirements for the intended land use of the Project.

As indicated in the ECR, EPA has already issued an Explanation of Significant Difference (ESD) pertaining to the other Li Tungsten parcels (B, lower C, upper C and C prime) that permits restricted residential use pursuant to certain institutional controls. EPA has accepted the NYSDEC EE, which includes the SMP (Appendix A).

2.2.6 Captain’s Cove Site Limitations

NYSDEC has acknowledged that the Record of Decision (ROD) for the Captain’s Cove site can be modified to allow for restricted residential use as long as an Environmental Easement (EE), which identifies appropriate ICs/ECs, is recorded for the property and a Site Management Plan (SMP) is developed for agency approval. The draft Captain’s Cove SMP, which was included in the DEIS, was revised and accepted by the NYSDEC in April 2010 and the USEPA in August 2010. It contains the ICs/ECs for building a multiuse commercial/residential development on the property consistent with the Proposed Action. A copy of the approved Captain’s Cove SMP is included in Appendix A. An Environmental Easement (EE) will be filed to record the ICs/ECs that are set forth in the SMP. Once the EE is filed, NYSDEC has indicated it will modify the ROD to permit restricted residential use of the site.

The approved SMP for the Captain’s Cove Site will now serve as a template for SMPs for the other properties in the Project Area. Also, NYSDEC has supplied a template EE that will be followed when filing the necessary easements for each for the properties in the Project Area. The EE template is provided in Appendix D.

Since issuance of the DEIS, the City of Glen Cove has commenced construction of the Ferry Terminal on a portion of the Captain’s Cove Site. This construction project required preparation of a separate SMP for NYSDEC approval. As a result, the Ferry Terminal construction project is an example of how the SMP process will apply during the construction phase at other properties in the Project Area. The Ferry Terminal SMP required preparation of a specific Dredging/Excavation Work Plan (July 14, 2010) that underwent review and approval by the NYSDEC. This plan set forth specific procedures to be used to characterize and, when necessary, manage soil/sediment subject to earth work during construction. The construction work associated with the Ferry terminal project began in the fall 2010 and has progressed towards installing the site improvements prior to building the ferry terminal. The following documents pertaining to the work that involve environmental requirements, testing and/or permits are provided in Appendix C. They include:

1) The Draft Site Management Plan (SMP) for the Ferry Terminal project. This document was reviewed and approved by NYSDEC.

2) The Dredging/excavation plan as prepared by the Ferry Terminal site work contractor. This plan evolved from the draft SMP. Again, this plan was reviewed and approved by NYSDEC.
3) An e-mail From Apex Companies LLC to the NYSDEC re: (1) 500 CY stockpile that was tested and found suitable for re-use on site (per commercial standards)
4) An e-mail from Apex Companies LLC to the NYSDEC re: (1) 500 CY stockpile that was tested and required off-site disposal.
5) The NYSDEC Permit for the Terminal project.
6) A copy of the US Army Corp permit for the Terminal project. Pertinent documents related to the Ferry Terminal Project are included in Appendix C.

2.3.5 Angler's Club Summary

The NYSDEC has verbally indicated that the Angler's Club is recognized by the NYSDEC as being part of the Gladsky ERP site (IDA communication. IDA request letter to the DEC is in Appendix E). Therefore, the NYSDEC has indicated that the Angler's Club property could be used for restricted residential subject to implementation of appropriate ICs and ECs and documented in the EE and SMP for the property.

2.4.5 Gladsky–Summary/Restrictions

The Gladsky remediation as required under the NYSDEC-approved remedial action plan has been completed except for bulkhead repair and hydro-seeding the land surface to stabilize the top soil. The City's Engineer is closing out the site and preparing a Remedial Action Completion Report for the City and NYSDEC that is expected to be submitted within the next few months.

Similar to all other parcels of the redevelopment project, an EE will be recorded for the property that identifies the ICs & ECs set forth in an approved SMP to permit the intended land use.

2.5.5 Pumping Station Summary/Restrictions

According to the IDA (verbal communication) the NYSDEC has verbally indicated that subject to clarifying ownership of the pumping station the pumping station would be recognized by the NYSDEC as being part of the Gladsky ERP site (The IDA letter requesting consolidation of the Pumping Station with the Gladsky ERP is in Appendix E). Therefore, once the ownership information is provided, the NYSDEC has indicated that the pumping station property could be used for restricted residential subject to implementation of appropriate ICs and ECs and documented in the EE and SMP for the property.

2.6.4 Doxey - Environmental Investigation Previously Conducted

The IDA confirmed soil and groundwater contamination in previous investigations as described in the ECR. However, when the IDA took ownership and control of the Doxey Site in the fall 2010 it conducted a remediation pre-design sampling event in December 2010 to collect data that has been used to design the remedial program. The Remedial Design Report is being prepared for the Glen Cove IDA by their consultant Dvirka & Bartilucci.

3.2.5 Crown Dykman - Remedial Activities Remaining

This site is adjacent to and on the upgradient side of the Project Area that is proposed for redevelopment and is one of the hydrogeologic upgradient sources of groundwater contamination that has been discussed with the regulatory agencies. The site was taken over by the NYSDEC who completed the remedial investigation and feasibility study. The reports were issued in December 2009, and the Record of Decision (ROD) in March 2010. The selected remedy requires in situ chemical oxidation of the onsite plume in the southwest corner of the property, implementing LNAPL removal system where free product is found, continued operation of the soil vapor removal system, including sub slab depressurization system and other institutional and operational requirements that are enumerated in the ROD. As a result over time the groundwater quality under the development site will improve.

3.3.3 Konica Minolta - Summary of Regulatory Involvement

Konica-Minolta is another site adjacent to the Project Area. It is located hydrogeologically upgradient of the Project Area proposed for redevelopment and could present similar concerns about its effect on groundwater quality in the overall Project Area. Although no offsite contamination has yet been determined, additional investigation is planned. The site is on the NYSDEC registry of inactive hazardous waste disposal sites and has been re-classified as a Class 2 since issuance of the DEIS. In April 2010 the NYSDEC asked KM to perform additional sampling. Results of this sampling are not available at this time.

4.0 References

Additional References:
Li Tungsten: Five Year Review Report for the Li Tungsten Superfund Site, Glen Cove, Nassau County, New York, July 2010. USEPA.

Captain’s Cove: Site Management Plan Captains Cove Site, June 2010, Dvirka and Bartilucci.

Ferry Terminal Draft Site Management Plan, Dvirka and Bartilucci, June 2009. Dredging/Excavation Work Plan, Apex Companies, LLC, July 14, 2010.

Crown Dykman: Remedial Investigation Report, December 2009, Malcolm Pirnie, Inc; Feasibility Report, December 2009, Malcolm Pirnie, Inc; Proposed Remedial Action Plan, January 2010, NYSDEC; and Record of Decision, March 2010, NYSDEC.

Appendices

Appendix A

Approved Captain’s Cove SMP

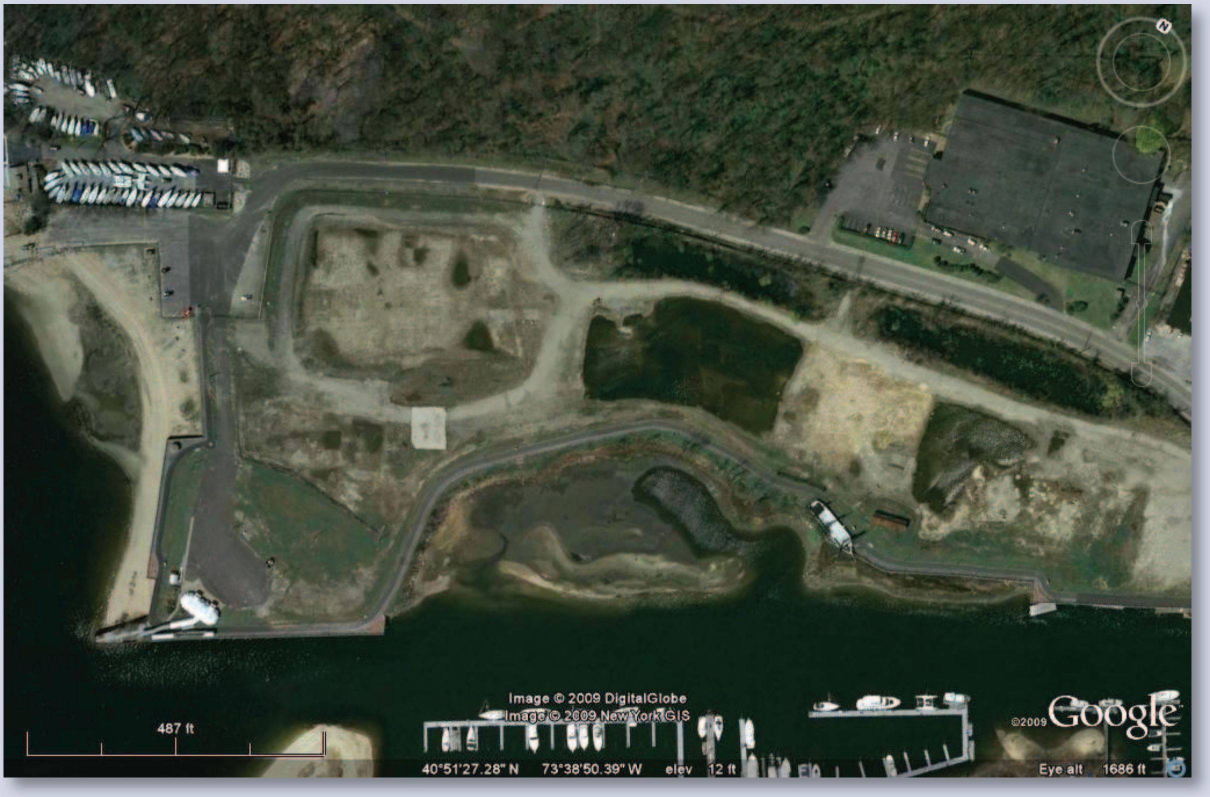
NYSDEC Acceptance Letter for the Draft Captain’s Cove SMP

Email from James Doyle, EPA re: EPA Acceptance of NYSDEC EE

THE CITY OF GLEN COVE

Site Management Plan

Captains Cove Site



June 2010

Dvirka
and
Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

SITE MANAGEMENT PLAN

CAPTAIN'S COVE SITE
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

Prepared for:

CITY OF GLEN COVE INDUSTRIAL DEVELOPMENT AGENCY

JUNE 2010

SITE MANAGEMENT PLAN
CAPTAIN'S COVE SITE
GLEN COVE, NEW YORK

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1.0 INTRODUCTION

The Captain's Cove Site is located on Garvies Point Road, Glen Cove, New York, Nassau County, New York (Figure 1) (the "Site" for purposes of this Site Management Plan (SMP), is specifically defined below). The Captain's Cove Site, also known as the Captain's Cove "Condominium" Site, is on the New York State Inactive Hazardous Waste Disposal Sites list. It has the designation New York State Department of Environmental Conservation (NYSDEC) Site Registry No. 1-30-032.

The Site is bordered by Glen Cove Creek to the south, City of Glen Cove Industrial Development Agency (IDA)-owned property to the west, the Garvies Point Road and Garvies Point Preserve to the north, and the Glen Cove Angler's Club to the east. The Captain's Cove Site does not include the immediate Long Island Sound/waterfront areas or embankment along the Western boundary of the Site, nor the water course or embankment areas along the southern boundary. The total Captain's Cove Site encompasses approximately 15.4 acres.

Included within the 15.4 acres are areas "A & G", which were remediated by the United States Environmental Protection Agency (USEPA) as part of the Li Tungsten Federal Superfund Site remediation. An approximately 3.3 acres of the areas designated "A&G" will be developed as the Glen Cove Ferry Terminal. As part of the preparation of the NYSDEC/Army Corps of Engineers (ACOE) permit(s) for the construction of the Ferry Terminal, a separate Site Management Plan pertaining to the construction and development of the Ferry Terminal and waterborne features was prepared.

The Captain's Cove Site was remediated under two separate authorities: USEPA under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) with New York State in a supporting role; and NYSDEC under its own Superfund Program. The Captain's Cove Site was remediated by USEPA and NYSDEC by removing contaminated material from the Site and using on-site and off-site fill material as backfill. As part of the remediation performed by NYSDEC, a demarcation layer was placed in areas where residual soil contamination remained and a 2-foot thick soil cover was placed over the demarcation layer. No demarcation layer was used as part of the remediation performed by USEPA. Engineering and institutional controls have been incorporated into the Site remedy to provide proper management of remaining contamination in the future and to provide protection of public health and the environment. Further discussion regarding site remediation is provided later within this section. An Environmental Easement will be granted to the NYSDEC, that provides an enforceable legal instrument to ensure compliance with this SMP and all engineering controls and institutional controls placed on the Site.

The purpose of this Site Management Plan (SMP) is to provide guidance and requirements that will allow the projected construction and future use, management and occupancy of the Site in a manner which is consistent with the requirements identified in the USEPA's and NYSDEC's Records of Decision (ROD) for the Captain's Cove Site, and subsequent Explanations of Significant Difference (ESD), including: the NYSDEC–issued ROD addressing the interior section of the property dated March 1999; the USEPA–issued ROD under CERCLA addressing areas "A & G," dated September 30, 1999; and the USEPA–issued ESD dated May 2005, related to post-remedial site usage.

Specifically, the purpose of this SMP is to provide the details required to implement, complete and maintain the projected redevelopment of the Site for proposed commercial and restricted residential use while minimizing impacts to human health and the environment. This SMP will also guide construction maintenance and monitoring activities in areas of elevated levels of chemical contaminants in soil and/or groundwater which remain at the Site. Updates to this SMP will be made as Site construction details, construction phasing, monitoring and maintenance, and projected future use are further developed.

This SMP was prepared to manage remaining contamination at the Site as well as provide guidance during redevelopment and long term maintenance and monitoring of the Site once redevelopment is initiated, while redevelopment is being implemented, and once it is completed. This SMP specifies the methods necessary to comply with engineering and institutional controls required by the Environmental Easement for the contamination that remains at the Site and remain in effect in perpetuity or until extinguishment of the Environmental Easement in accordance with ECL Article 71, Title 36. This SMP also specifies the methods necessary to comply with the engineering and institutional controls required by the USEPA's 1999 ROD and 2005 ESD. This SMP can only be revised with the approval of the NYSDEC, or otherwise in accordance with the applicable regulations and the ECL.

Major components of this SMP include the following:

- Institutional and Engineering Control Plan;
- Soil Management Plan;
- Monitoring Plan;
- Operation and Maintenance Plan;
- Report Preparation;
- Quality Assurance, and
- Health and Safety.

1.1 Background Information

Historically, the land at the Captain's Cove Site was used as a port and for recreation including boating, fishing and swimming. Prior to the 1960s, two tidal channels and an associated marsh were prominent at the Site. One narrow channel extended from Garvies Point Road (near what is currently the west gate) to the northwest portion of the wetland. The second tidal channel was broad and extended from Glen Cove Creek to just south of Garvies Point Road, on the east side of the Site. Based on aerial photographs, the tidal channels were filled between 1966 and 1969 and the Site became essentially flat.

Beginning in the late 1950s and continuing until approximately the late 1970's, the Captain's Cove Site was predominantly used as a "community dump" for the disposal of incinerator ash, sewage sludge, rubbish, household debris, and creek sediments. The Site was also used by local industry, including the former Li Tungsten operation for the disposal of industrial wastes. Low levels of radioactive ore residuals from the Li Tungsten facility were disposed of on the western and eastern ends of the property. Materials dredged from Glen Cove Creek were also disposed of at the Site.

Captain's Cove was purchased by Village Green Realty at Garvies Point, Inc. (Village Green Realty) in 1983 with the intention of developing a residential complex at the Site. Redevelopment efforts were abandoned in 1986 when the NYSDEC designated the property as a Class 2 Inactive Hazardous Waste Site (State Superfund Site) as a result of organic and inorganic contamination in soil and groundwater at the Site. Several condominium structures (condo shells) were partially constructed on-site prior to the State Superfund designation and were never completed. These structures were subsequently demolished by the City of Glen Cove prior to the start of the remedial action.

The NYSDEC remedial investigation (RI) of Captain's Cove was performed at the Site from May 1997 through December 1997 pursuant to the NYSDEC Superfund Program. The purpose of the RI was to define the extent and nature of any contamination resulting from previous Site activities. The RI did not investigate the areas previously identified as containing radioactive materials. These areas were investigated by USEPA in conjunction with its investigation of Li Tungsten Site. The results are documented in the *Captain's Cove Final Remedial Investigation Report, January 1999*, prepared for NYSDEC. The RI identified four areas of environmental concern (AECs) detailed below:

- Elevated levels of metals in the groundwater in the western third of Captain's Cove, down gradient of Li Tungsten tailings;
- Elevated levels of volatile organic compounds (VOCs) in the groundwater in the northeastern corner of Captain's Cove, down gradient of the Mattiace Petrochemical Site;
- Elevated levels of VOCs and methane (from decomposition of waste) in soil gas as a result of municipal waste and fill in the central portion and the leaching of metals and VOCs through the soil and waste material; and
- Elevated levels of metals and organic compounds in the wetland sediments.

Of the four areas of concern, only the third area of concern was directly associated with the Captain's Cove Site.

A portion of the originally listed Captain's Cove Site was delisted as detailed in an October 8, 1998 NYSDEC letter. The delisted area is located along the western and northern perimeter of the Captain's Cove Site and is not subject to the SMP. The delisting occurred as a result of a request by the City of Glen Cove based upon information gathered during the RI for the Site.

In 1995, the USEPA included select portions of the Captain's Cove Site where radioactive ore residuals had been deposited, to be part of the Li Tungsten Site Operable Unit II (OUII) federal Superfund site. USEPA conducted a comprehensive remedial investigation/feasibility study/focused feasibility study ("RI"/"FS"/"FFS") for the Li Tungsten Site, including the OUII, from 1993 to 1999, which in addition to investigating the nature and extent of contamination, also included interim cleanup activities such as debris and vegetation disposal, bulkhead repair, and ore consolidation/relocation.

The USEPA focused FS of Captain's Cove portion of the Li Tungsten Site was performed at the Site from September 1997 through June 1998. The purpose of the USEPA focused FS was to investigate the overall extent of the radiological, arsenic and lead contamination at the Captain's Cove portion of the Li Tungsten Superfund site. The results are documented in the USEPA's *Li Tungsten Feasibility Study Report, July 1999*, which further characterized the areas previously delineated at the Captain's Cove Site as containing radioactive materials. USEPA signed a Record of Decision ("ROD") in September 1999, which selected a comprehensive remedy for both the former facility and portions of the Captain's Cove Site.

A chronology of events for the Captain's Cove site is provided in Table 1-1.

Table 1-1

CHRONOLOGY OF EVENTS FOR CAPTAIN'S COVE

Date	Event
January 1986	Site listed on NYS Registry of Inactive Hazardous Waste Sites
October 1992	Final Listing of Li Tungsten Site on National Priorities List
November 1995	Inclusion of Captain's Cove as part of the Li Tungsten Site
May 1997	Initiation of NYSDEC RI at Captain's Cove Site
September 1997	Initiation of USEPA RI at Captain's Cove Site
March 1999	NYSDEC ROD for Captain's Cove Site
September 1999	USEPA ROD of OUI (Li Tungsten) and OUII (Captain's Cove)
May 2000	Mobilization to Captain's Cove to perform NYSDEC remedy
January 2001	Mobilization to Captain's Cove to perform USEPA remedy
August 2001	Demobilization from Captain's Cove after completing NYSDEC remedy
November 2003	Demobilization from Captain's Cove after completing all excavation work required in ROD and staging wastes for disposal
February 2005	USACE mobilization to Captain's Cove to perform transportation and disposal of staged wastes
April 2005	Commencement of USACE soil loadout activities
May 2005	USEPA issuance of ESD, modifying radioactive cleanup criteria
November 2005	USEPA/City of Glen Cove/Army Corps/Contractor final inspection
December 2005	USACE/Contractor demobilization after completing all waste soil loadout
July 2006	USEPA/NYSDEC final inspection

1.2 Captain's Cove Site Remediation

The remedial action (RA) mandated by the ROD for the State Superfund portion of the Site was conducted from May 1, 2001 to September 20, 2001, and consisted of excavation with off-site disposal of contaminated soil as well as post-excavation backfilling.

Soils were excavated until virgin/native material was encountered and in some instances excavation was performed below the water table. Visual observations and field screening for VOCs and radiological contamination were performed during excavation to define the extent. Limits of the excavation were bounded by radiological waste areas to the east and west or the storm water retention basins to the north and Glen Cove creek to the south.

Excavated materials were segregated, screened, stockpiled on-site, and sampled for characterization purposes. Samples were generally analyzed for semivolatile organic compounds (SVOCs) and metals. A portion of the stockpiled soil exceeded the cleanup criteria developed for the Site and were disposed of off-site as non-hazardous waste. Remaining stockpiles were approved by the NYSDEC for on-site reuse as fill material, including some material that had concentrations of SVOCs and metals slightly in excess of the Recommended Soil Cleanup Objectives (RSCOs) contained in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046.

Following the excavation activities performed under the NYSDEC remediation, the Site was backfilled to near original grade with on-site fill, recycled concrete aggregate, and off-site fill was utilized as the 2-foot thick surface cover layer, over the reused Site soils. A plastic construction fence was installed below this cover layer as a demarcation barrier for future activities.

Dredged sediments from Glen Cove Creek were also used as backfill within an area approximately 50 feet by 50 feet, along the south corner of the west retention pond. The NYSDEC later requested radiation screening of this area and it was reported to be below acceptable background level at the surface. However, it is possible that radioactive material is present in deeper reused dredge spoils since these spoils were placed prior to the USEPA remedial action for the creek in 2004.

The remedial action (RA) mandated by the USEPA September 1999 ROD for the remediation of the ore residuals and associated contamination at Captain's Cove was intended to be a complete cleanup of the radioactive ore residuals. The selected remedy required the excavation of soils and sediments contaminated above cleanup levels; segregation of radionuclide-contaminated soil and non-radionuclide soil contaminated with heavy metals; and off-site disposal of all contaminated soil at appropriately licensed facilities. The selected remedy involved excavation and off-site disposal of an estimated 67,000 cubic yards ("cy") of radioactive and heavy-metals contaminated wastes.

In November 2003, USEPA completed the excavation of contaminated soils from the Captain's Cove Site. The remediation of the contaminated soils was completed in 2005. Because the September 1999 ROD specified "no action–groundwater monitoring" for groundwater, USEPA did not seek to achieve heavy metals criteria in saturated soils below the water table. Further, USEPA did remediate radionuclides everywhere they were encountered, including below the water table. This was done primarily to reduce the possibility of future radon/thoron gas issues.

The USEPA has identified three post-remedial controls needed for the federal Superfund portions of the Site (i.e., Areas A, A′, G, and G′). These control issues involve:

1. Excavation activity below the water table;
2. Prohibitions on groundwater use; and
3. Mitigate the potential for radon/thoron gas, as well as volatile organic vapor intrusion into future inhabited structures.

Groundwater monitoring at Captain's Cove continues to be performed as part of operations, maintenance and monitoring (OM&M) of the Site. OM&M samples are analyzed for VOCs, SVOCs, and metals. In general, many of the constituents identified in the monitoring reports are over the NYSDEC Division of Water–Technical and Operation Guidance Series (TOGS) (1.1.1) – Ambient Water Quality Standards and Guidance Values for Class SB Groundwater, but some have decreased when compared to data from earlier sampling events.

1.3 Site Use and Redevelopment Phasing

As discussed, the Site is currently vacant and is surrounded by a chain link fence to prevent unauthorized access to the Site. However, the Site is proposed to be utilized as a mixed-use waterfront development combining residential, commercial, cultural, retail, recreational and entertainment uses to provide improved access to the waterfront area abutting Glen Cove Creek. Redevelopment on the Captain's Cove Site includes the construction of buildings, parking areas, walkways, and revitalization of the tidal wetlands. Although preliminary plans have been prepared for redevelopment of the Site, this redevelopment may occur in phases over several years. Portions of the Site may be redeveloped prior to redeveloping the entire Site and therefore implementation of the SMP, including Institutional and Engineering Controls, Operations and Maintenance, etc., will also require revision as these phases of site redevelopment are implemented.

Prior to redevelopment and during the initial phases of redevelopment, areas of the Site that will not be subject to earthwork shall be subject to institutional and engineering controls that incorporate the requirements to the NYSDEC March 1999 ROD, the USEPA's September 1999 ROD and May 2005 ESD, and is in a form that complies with 6 NYCRR 375- 1.2, to mitigate exposure to residual contamination.

The procedures for conducting earthwork needed during Site development are described in Section 3.0 of this SMP. These procedures specify how the residual soil will be handled, sampled, reused and transported off-site. The following sections of this SMP provide more guidance and details regarding the elements of the of institutional and engineering controls applicable to the Site for the permitted land use for construction related activities and post construction operation and maintenance, including periodic certification.

2.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

The Institutional and Engineering Control Plan details the steps necessary to manage and implement the institutional and engineering controls for the Site, consistent with the requirements of the Record of Decision (ROD), subsequent Explanations of Significant Difference, and NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation (DER-10), dated December 24, 2004.

The Institutional and Engineering Control Plan also identifies requirements to be placed on future Site development activities. These requirements are necessary so that any future activities at the Site do not result in unacceptable exposure of contamination to the public and the environment.

2.1 Description of Institutional Controls

An Institutional Control (IC) is any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to the potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of the remedial program or with the effectiveness and/or integrity of operation, maintenance or monitoring activities at or pertaining to the Site. Types of ICs include, but are not necessarily limited to, environmental easements, deed restrictions, discharge permits, Site security (other than fencing), local permits, consent orders/decrees, zoning restrictions, hazardous waste Site registry, deed notice, groundwater use restrictions, condemnation of property, and public health advisories. The Environmental Easement is an institutional control that requires compliance with the SMP so that:

- All Engineering Controls as specified in this SMP are operated and maintained;
- All Engineering Controls on the Site are inspected and certified at a frequency and in a manner defined in the SMP, including:
  - Groundwater and other environmental or public health monitoring;
  - Data and information pertinent to Site management for the Site;

- On-site environmental monitoring devices, including but not limited to groundwater monitoring wells, will be protected and replaced if necessary to ensure the devices function in the manner specified in this SMP.

In addition, the Environmental Easement will ensure that:

- The use of groundwater underlying the property is prohibited;
- Vegetable gardens and farming on the property is prohibited;
- All future activities on the property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with this SMP;
- Vapor intrusion mitigation measures will be incorporated into building construction on the Site;
- The property may be used for restricted residential use provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a higher use level than restricted residential.
- The Site owner submits to USEPA and NYSDEC a written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the USEPA and NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a failure to comply with the SMP. This certification shall be submitted annually, unless otherwise approved by USEPA and NYSDEC.

Adherence to these Institutional Controls is required by the Environmental Easement. The Institutional Controls will not be discontinued without an amendment to or extinguishment of the Environmental Easement.

2.2 Description of Engineering Controls

An Engineering Control (EC) is any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to provide for long-term effectiveness of the remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, treatment and filtrations systems, and alternate water supplies. The following sections describe the engineering controls to be put in place for the Captain's Cove Site.

2.2.1 Cover System

Exposure to soil/fill left on-site after the remediation was completed is currently prevented and will continue to be prevented. The existing cover system in the area of the property excavated by NYSDEC comprises a 2-foot thick cover of clean soil with a demarcation barrier separating cover soil from residual contamination. General areas "A&G" do not have a demarcation barrier, as most of the excavated materials were removed and the excavated holes were filled with clean fill. The proposed cover system to be implemented as part of redevelopment of the Site is comprised of, ensuring the maintenance of a minimum of 24 inches of soil meeting NYSDEC restricted residential SCOs, or asphalt pavement, concrete-covered sidewalks, or concrete building slabs, depending on the surface activities at any location. If residual contamination is encountered during site redevelopment, it will be separated from the newly installed clean soil cover with a demarcation layer. The Soil Management Plan that appears in Section 3.0 outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4.0 of this SMP. The Monitoring Plan also addresses severe condition inspections in the event that a severe condition such as major storm events (25-year storm event or greater), fire, etc., which may affect controls at the Site, occurs. The cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

2.2.2 Soil Vapor Mitigation System

Engineering controls including a soil vapor mitigation system (SVMS) in all proposed structures will be incorporated into the plans and specifications for redevelopment of the Site and will be submitted for review by NYSDEC and New York State Department of Health

(NYSDOH) prior to implementation. The SVMS will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York," or other more stringent applicable regulations/guidance documents. Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the NYSDOH guidance, and construction details of the proposed on-site structures.

The purpose of SVMS will be to collect vapors emitted from contaminated groundwater and reduce the ability of these vapors from entering the overlying buildings. Although the design has not been completed at this time, in general, the SVMS will consist of a series of perforated pipes installed within a bed of permeable gravel that surrounds the piles and pile caps. Piping will be connected through a manifold that will ultimately be connected to an exhaust system. Impermeable barriers may also be installed on either the top and/or bottom of the permeable gravel bed. The proposed Site building floor slab will be installed above the piping. The final design of the SVMS will be provided to the NYSDEC as part of the plans and specifications for redevelopment. As described in Section 5.4, a site-specific and building-specific Operation, Maintenance and Monitoring plan will be prepared in accordance with NYSDOH Soil Vapor Intrusion Guidance. This plan will describe pre- and post-SVMS installation and monitoring. All SVMS will be installed and monitored in accordance with NYSDOH Soil Vapor Intrusion Guidance. In the event that monitoring data collected as described in the OM&M plan indicates that the SVMS are no longer required, a proposal to discontinue the SVMS will be submitted by the Property Owner to the NYSDEC and NYSDOH. The SVMS will not be discontinued unless prior written approval is granted by the NYSDEC.

3.0 SOIL MANAGEMENT PLAN

Since soil exceeding Part 375 Restricted Residential Use Standards currently on-site will be encountered during redevelopment construction and will remain on-site once construction is completed, activities that may result in the exposure to this soil shall be addressed in accordance with this Site Management Plan (SMP).

Any proposed Site redevelopment work and all future intrusive work that will penetrate, encounter or disturb the residual soil, and any modifications or repairs to the existing or future cover system will be performed in compliance with this SMP. Intrusive construction work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site by the Owner's Contractor as part of Site redevelopment. The HASP that will be prepared by the Owner's Contractor is described in Section 8.0 of this SMP. In addition, any intrusive construction work will be performed in compliance with the SMP and will be included in the periodic inspection and certification reports submitted under the reporting (see Section 6.0).

3.1 Excavation of Soil

As discussed above, as part of the redevelopment of the Captain's Cove Site, soil will be excavated or disturbed at the Site. In addition, once redevelopment of a portion or the entire site is completed, future excavation work may be conducted as necessary at the Site. Due to the potential for encountering soil exceeding the Part 375 Unrestricted Use Standards, any soil earthwork or excavation required as part of site redevelopment or future site maintenance must be handled appropriately and the NYSDEC will be notified at a minimum of 10 days prior to those earthwork or excavation activities. A work plan will be developed by the Owner's Contractor prior to initiating any earthwork or excavation activities at the Site. The work plan, at a minimum, will be consistent with the requirements specified below for excavating, screening, handling, storing, sampling, transporting, and disposing of soil. The work plan will also specify that any backfill material used on-site will be from an approved off-site source and will meet or exceed 6 NYCRR Part 375 Restricted Residential SCOs. The work plan will identify the procedures for testing and certifying the backfill material. Reuse of any soil on-site as cover material within the top 2 feet of the final grade would require the performance of the same testing and certification as off-site backfill material.

3.1.1 Earthwork and Excavation

Earthwork and excavation during construction or as part of future intrusive activities into areas subject to engineering controls will require a soil assessment. Excess soil generated as part of any earthwork or excavation will be subject to certain handing procedures as outlined herein. For areas of the Site containing residual contamination that will be subject to earthwork during redevelopment, residual contamination will either:

1) Remain in place and rely on an engineering control, in the form of a cover system comprised of a building, concrete pad, asphalt pavement and/or soil cover, which complies with 6 NYCRR 375- 1.2(o);
2) Be excavated, stockpiled and temporarily covered in another location on the Site and subsequently placed beneath an engineering control in the form of a cover system comprised of a building, concrete pad, asphalt pavement and/or soil cover that complies with 6 NYCRR 375- 1.2(o); or
3) Be excavated stockpiled and temporarily covered in another location on the Site and subsequently removed from the Site for proper handling, management and/or off-site disposal if considered excess soil.

A description of the residual contamination and measurements of the surface area occupied by any residual contamination that is managed with an engineering control pursuant to 1) or 2) above, will be delineated on a Site plan/survey to be included as part of this SMP during the phases of redevelopment.

As part of the remedial activities performed by NYSDEC at the Captain's Cove Site in 2001, all excavated soil was subjected to environmental screening prior to staging on-site. Screening of all excavated soil for VOCs and radiological parameters was performed. A Radiation Monitoring Plan was prepared (see Appendix A) to assist the remediation contractor in performance of the required screening. The work to be performed as part of redevelopment of the Site or future excavation activities will follow the requirements of the Radiation Monitoring Plan with the following exceptions:

1. The scope of work presented in the Radiation Monitoring Plan for the Captain's Cove Condominium Site is not applicable to the proposed redevelopment.
2. Monitoring shall be performed for each two foot lift of soil excavated instead of three foot lift as discussed in the Radiation Monitoring Plan.

At a minimum, the following requirements apply to all excavations performed at the Site:

1. Excavation shall be conducted in one area at a time.
2. The maximum size bucket to be used for excavation shall be 5 cubic yards.
3. Each bucket shall be screened for staining, discoloration, odors and screened for the presence of VOCs using a Photoionization Detector (PID) and radiation above background levels using a radiation rate meter/scaler. If work is being conducted below the water table in Areas A or G of the Li Tungsten Federal Superfund site, handheld XRF monitoring of soils may be warranted due to the potential for encountering heavy metal contaminated soil.
4. Radiation screening of all excavated material shall be performed in accordance with the Radiation Monitoring Plan with the exceptions as noted above (see Appendix A). Excavated material that exceeds radiological screening criteria shall be stockpiled separately.
5. Screening results shall be made available to the on-site Engineer as the results are obtained.
6. Excavated materials shall be transported to a designated staging area for subsequent testing and analysis for off-site disposal or on-site reuse.
7. Excavated materials must be staged on top of and covered with polyethylene sheeting. Ten (10) mil thick sheeting shall be used to cover the top of stockpiles. Forty (40) mil thick sheeting shall be placed beneath potentially or known contaminated material to prevent contact with undisturbed soils. Stockpiles must be constructed to isolate the contaminated material from the environment.
8. Diversion measures must be employed to prevent storm water run-on and run-off to the stock piles.
9. Roll-off or equivalent units used to store contaminated material must be water tight.

10. Individual stockpiles shall not exceed a volume of 500 cubic yards.
11. Excavated soil shall not be used as part of the 2-foot on-site cover system unless results of sample analysis has been reviewed by NYSDEC and reuse of the material on-site has been approved.
12. Excavation shall be performed in a manner that will prevent spills.
13. Excavation shall be accomplished by methods which preserve the undisturbed state of subsurface soils whenever possible.
14. Mobilization of the excavated soil shall be prevented through the use of polyethylene sheeting to cover any soil stockpiles or by using appropriate soil erosion control methods established at the end of each day of excavation activities.
15. At a minimum, one representative sample for each 500 cubic yard stockpile of material that exceeds radiological screening criteria shall be collected. Each sample shall be analyzed for target radionuclides (uranium, thorium and their decay progency) by standard gamma spectroscopy (i.e., United States Department of Energy {USDOE} Method EML-HASL-300 or equivalent). During analysis of radionuclides, the analyzer gain shall be set so that the measured energy range will be from approximately 25keV to approximately 2 MeV with about 0.5 keV per channel (assuming the analyzer is set for 4096 channels). Count times and sample size/geometry shall be able to produce detection limits of 0.1 pCi/g for the radionuclides: Ac-228, Pb-212, Bi-212, Tl-208, Ra-226/U-235, Pb-214, Bi-214; 1 pCi/g for U-235; and 10 pCi/g for Pa-234m. All other quantified radionuclides will be reported. The complete computer-generated gamma spectrum analysis will be supplied to the oversight Engineer. Samples to be analyzed for radionuclides shall be dried samples and will be analyzed before activities of the Ra-226 and its daughter products have returned to equilibrium, the Ra-226/U-235 peak shall be reported as Ra-226.

3.1.2 Confirmation Sampling

As the Site has formerly been remediated, endpoint sampling will not be needed. However, confirmation sampling to document any contamination that may remain in place is required. Confirmation sampling will be performed in all excavations in compliance with NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, November 2009. descry If any areas in the sidewalls and excavation bottoms exceed the radiation or PID action levels, the impacted soil will be excavated by the Owner's Contractor and stockpiled and NYSDEC will be notified.

3.1.3 Waste Transportation and Disposal

The following requirements apply to the transportation and disposal of material excavated from the Site:

1. Sampling, classification, manifesting, labeling, transporting and disposing of material must be performed in accordance with all applicable federal, state, and local laws and regulations.
2. Materials removed from the Site must be transported directly to the disposal facility.
3. Sampling frequency, analysis methods, and analytical laboratory must meet the disposal facility requirements and be approved by the NYSDEC prior to removal of any material from the Site.
4. Letters of commitment must be obtained from disposal facilities to be used during the project. The letters should state that the disposal facility is permitted to accept and has the available capacity to receive the waste that will be shipped from the Site.
5. All vehicles must be properly decontaminated on an appropriate and approved decon pad before leaving the Site. All waste materials generated during the decon procedures must be containerized, characterized and disposed of properly.

3.1.4 Backfill

The following minimum requirements apply to the fill material used to restore the Site after excavation has been completed:

Off-Site Fill Material

1. Off-site fill must be uncontaminated pursuant to the remediation standards applicable to the Site. Off-site fill material to be used within the top two feet of final grade shall meet the requirements of NYSDEC Soil Cleanup Objectives (SCOs) for restricted residential land uses as defined in 6NYCRR Subpart 375.
2. Documentation of the quality of the off-site fill must be provided by a certification stating that it is clean material from a commercial or noncommercial source.

3. If documentation of the quality of the fill material can not be provided, a backfill evaluation proposal, which identifies material characterization protocols, shall be submitted to and approved by the NYSDEC prior to the use of any backfill material.

On-Site Fill Material

1. On-site fill material may be reused for filling activities greater than two feet below final grade.
2. On-site fill material will be covered with a demarcation layer and two feet of clean soil meeting the requirements for off-site fill material described above.

Further backfill requirements will be provided in the Contract Documents for the Site redevelopment.

3.2 Dewatering

Any dewatering activities required at the Site must be handled appropriately and the NYSDEC will be notified prior to those activities. The Owner or Owner's Contractor will obtain all necessary permits for dewatering. The application shall be submitted after the Contractor submits the following information:

- The proposed starting date of the dewatering operation
- The name of the licensed well driller
- The details of the dewatering system to be installed
- The size, number and spacing of wells, well points, etc.
- The pump capacity, pumping rate and expected volume of water to be withdrawn
- The amount of water table drawdown
- Water quality information and proposed treatment required
- The final disposition of the water
- The expected duration of the operation

- All other requirements for a complete dewatering system

The Owner's Contractor shall be required to obtain all necessary permits including the NYSDEC Region 1 Well Permit and if necessary a NYSDEC State Pollutant Discharge Elimination System (SPDES) permit.

4.0 MONITORING PLAN

An ongoing monitoring program which includes the collection and analysis of groundwater samples, and vegetation and fencing inspections is currently being performed at the Site by the Owner in accordance with the NYSDEC operations, maintenance and monitoring of the remedial action as detailed in the Operations, Maintenance and Monitoring (OM&M) section of the Remedial Action Completion Report prepared for the Site in March 2004 provided in Appendix C. In addition, the USEPA presently has a post-excavation groundwater monitoring program in place at the former Li Tungsten facility property. The existing USEPA groundwater monitoring program is anticipated to continue to include annual sampling and monitoring through 2013. The wells are to be sampled and maintained by the potentially responsible party (PRP) until they are ultimately decommissioned at the program completion in 2013. Once approved, the SMP will replace the existing OM&M. As part of this SMP, the existing monitoring program will continue until site redevelopment is initiated. Once site redevelopment is initiated, the ongoing monitoring program will continue to include periodic inspections of any portions of the new cover system to observe the integrity of the cover system as well as overall general Site conditions, and inspection and operation and maintenance activities related to installed SVMS. The monitoring program will be performed by the property Owner.

4.1 Site Inspections

4.1.1 Site Cover

Existing vegetation cover inspections will continue to be performed by the Owner at the Site biannually and after major storm events (25-year storm event or greater) until Site redevelopment is initiated or at a frequency revised as approved by NYSDEC. Once portions of the Site have been redeveloped, the periodic Site cover inspections will also include observations of the condition of the newly installed cover system by the Owner, comprising of 24 inches of clean soil cover in open areas, asphalt pavement, concrete-covered sidewalks, or concrete building slabs. Visual evidence of any erosion, deposition, differential subsidence, pothole development, or other adverse conditions that would compromise the integrity of the cover system will be photographed and noted in the field notebook. These inspections will be performed monthly once any phase of the redevelopment has been completed and will be reduced in frequency to annually once the new cover has been established. Inspections will also be performed after significant weather events. Where appropriate, Site inspections will be performed in conjunction with groundwater sampling or scheduled maintenance events for the SVMS. Observations will be recorded in a field notebook dedicated to the project. Photographs will also be taken to document pertinent observations. If conditions are observed that require immediate action, the NYSDEC will be contacted by the Owner. During construction, Site cover inspections will be limited to undisturbed areas of the Site and areas where redevelopment has been completed.

4.1.2 Monitoring Wells

Inspections of the monitoring wells will continue as discussed above prior to redevelopment. Once redevelopment is initiated, existing monitoring wells may require removal and relocation. The abandonment and relocation of the monitoring wells will be performed in accordance with USEPA and/or NYSDEC requirements and with USEPA and/or NYSDEC approval.

Inspection of monitoring wells during the Site inspections and/or sampling events will focus on the following areas:

- Concrete surface seal;
- Protective outer casing and lid;
- Locks and locking well caps; and
- Excessive silt in the well.

The integrity of the concrete surface seal will be visually assessed at each well location, and any loss of integrity, such as cracks or heaving, will be noted in the field notebook. At each well, the protective outer casing and lid will be checked for damage. Any pooling of water or evidence of pooling of water adjacent to, or within the protective outer casing will be recorded in the field notebook. The wells will be checked to verify that they are locked and the integrity of the locking cap will be assessed. Any cracks in the locking caps or broken or missing locking caps will also be noted.

Excessive silt collected in the bottom of a well may affect the ability to collect a representative groundwater sample. Each sampling event will include an evaluation of the amount of silt collected in the bottom of the wells from which groundwater samples are collected. Measurements of the total well depth will be taken prior to sampling, at the same time that groundwater level measurements are made. The measured total well depth will be compared to the construction log to determine the amount of silt in the well.

Monitoring wells will be considered excessively silted if the depth of the silt in the well equals or exceeds 10 percent of the screened length. For example, a well that contains 1 foot of silt with a well screen 10 feet in length would be calculated to have exactly 10 percent silt in the well and would require redevelopment.

Any problems noted during the inspection of the monitoring wells will be noted in the field notebook. The condition will be reported to USEPA and/or NYSDEC as soon as possible. If repairs are required, they will be developed and submitted to USEPA and/or NYSDEC for approval prior to implementation.

4.1.3 Soil Vapor Mitigation System

Inspections of the soil vapor mitigation system (SVMS) will be performed by the Site Owner and will begin once a system has been installed. A visual inspection of the SVMS will be conducted during the monitoring event. The SVMS components to be monitored include, but are not limited to, the following:

- Vacuum blower;
- General system piping; and

- Manometer (if appropriate).

Other soil vapor mitigation measures shall be operated, inspected and maintained in accordance with manufacturer's recommendations or appropriate guidance, standards or regulations. A complete list of components to be checked will be provided in an Inspection Checklist which will be prepared by the Owner and appended to this document once the systems are installed. Generally, if any equipment readings are not within their typical range, any equipment is observed to be malfunctioning, or the system is not performing within specifications, maintenance and repair as per the Operation and Maintenance Plan will be performed. Once repairs or maintenance have been performed the system will be restarted. Operational problems will be noted in the subsequent Periodic Review Report.

4.2 Groundwater Monitoring

The objective of effectiveness monitoring as stated in NYSDEC DER-10 is to periodically monitor the chemical and physical characteristics of media of concern, and to determine and/or confirm that the objectives of the remedy are being achieved, when compared to data obtained from other phases of the investigation and remediation. Effectiveness monitoring activities applicable to the Captain's Cove Site include sampling and analysis of groundwater.

4.2.1 Monitoring Well Network

At this time, five on-site groundwater monitoring wells (MW-CDM-2, MW-CDM-3, MW-3, MW-4R and MW-5R2) are monitored on a semi-annual basis according to the NYSDEC's monitoring program. In addition, the USEPA presently has two wells on the Captain's Cove Site (MW-1 and PRA-6) and three wells on the former Li Tungsten facility property (PRA-7, GM-7 and EMW-4). Groundwater sampling will continue as required by NYSDEC as discussed in the approved Operations, Maintenance and Monitoring section of the Remedial Action Completion Report (see Appendix C). The Li Tungsten PRP performs annual monitoring for arsenic, lead, radium-226 and thorium-232. The next round of sampling, including the two wells at Captain's Cove, will be in June 2010. During on-site redevelopment, the existing NYSDEC and USEPA on-site groundwater monitoring wells may need to be abandoned and replaced with new groundwater monitoring wells. Relocation of the wells will be in close proximity, to the extent practicable, to the existing wells, as required by NYSDEC and USEPA. Groundwater samples will be collected from the five NYSDEC wells to continue to assess the effectiveness of the remedy and assess the impacts from upgradient sources. The USEPA's groundwater monitoring program is anticipated to end in 2013. Until that time, the wells will be sampled and maintained, and ultimately decommissioned when the program is completed by the PRP.

4.2.2 Monitoring Well Purging and Sampling

Evacuation of the water column from all monitoring wells is required prior to sampling. The linear feet of water contained within the well will be calculated by subtracting the depth to water from the total depth of the well. The amount of water within the well casing will be calculated by multiplying the linear feet of water by the volume per foot for the proper diameter casing (e.g., 2-inch diameter well casing = 0.16 gallon/foot). The amount of standing water in the casing will then be multiplied by three to determine the minimum volume to be purged from the well prior to sampling. The total volume purged should not exceed five times the amount of standing water in the well.

For removal of the initial standing volume of water contained in the monitoring well, efforts will be made to purge from the top of the water column downward. Well purging or evacuation will be conducted using low flow sampling techniques. Field measurements including pH, conductivity, temperature, dissolved oxygen and turbidity will be measured immediately before sampling using a water quality meter.

The groundwater samples will be transferred directly from the bailer/tubing to the appropriate laboratory supplied sample container(s). Sample containers will be properly labeled at the time of sample collection and proper chain of custody procedures will be followed. The groundwater samples will be analyzed for volatile organic compounds (VOCs), using United

States Environmental Protection Agency (USEPA) Method 8260, semi-volatile organic compounds (SVOCs) as per USEPA Method 8270 and metals as per USEPA Method 6010. These methods are consistent with the methods currently utilized for groundwater monitoring at the Site. One duplicate sample and one matrix spike/matrix spike duplicate will be collected and analyzed for each round of sampling based upon 5 groundwater samples. One trip blank will accompany each shipment of aqueous samples requiring VOC analysis.

Detailed sample collection, quality assurance and analytical procedures are discussed in Section 7.0.

5.0 OPERATION AND MAINTENANCE PLAN

An Operations, Maintenance and Monitoring (OM&M) Plan was prepared for the Captain's Cove Condominium Site in March 2004 and is provided in Appendix B. The OM&M of the Site is an on-going process that began at the completion of the remediation of the Site. The OM&M consists of semiannual groundwater sampling, vegetation inspection and maintenance, fence inspection and maintenance and reporting. The results of the O&M have been documented and reports have been prepared on a semiannual basis and submitted to NYSDEC for review and comment.

The O&M of the Site will continue to be performed as defined in this Site Management Plan by the Site Owner, unless modified pursuant to NYSDEC approval. The below description includes the O&M activities that will continue while the site remains undeveloped, as well as O&M activities that will be required once redevelopment of the Site has commenced. As stated in earlier sections of the Site Management Plan, redevelopment of the Site may occur in phases. It is the intention of this Site Management Plan to ensure that O&M of the Site will be performed by the Site Owner prior to Site redevelopment, during Site redevelopment and after all phases of Site redevelopment.

5.1 Fencing System

The existing fencing system will continue to be inspected on an annual basis to determine if the fence is adequately controlling unauthorized access to the Site. The inspection will also assess the need for repair to the fence or gate. These inspections will continue prior to redevelopment and during the phases of redevelopment to control unauthorized access to the portions of the Site that have not been redeveloped. Once redevelopment is completed, inspection of the fencing system will not be warranted as the fencing will no longer be in place.

5.2 Cover System

The Site cover system will be inspected by the Site Owner prior to commencement of the redevelopment, during the phases of redevelopment and after the completion of Site redevelopment. Once portions of the Site have been redeveloped, although inspection of the cover system will continue, it will include inspection of the new cover system soil cover, including the asphalt pavement, concrete sidewalks, foundations or other structural coverings.

There is the potential for existing or future soil cover system at the Site to be damaged. This damage could occur through non-intrusive activities such as erosion, differential settling, or intrusive activities including landscaping, tree planting or underground structure installation. Areas that have been damaged will be repaired by replacing the appropriate cover material, such as approved clean fill material to ensure maintenance of the 2-foot soil cover, or asphalt pavement, concrete sidewalks, foundations, etc. During repair of the soil cover, clean fill will be placed to within 0.5 feet bgs and then placing topsoil to a level matching surrounding grade. The topsoil should then be seeded or the area landscaped to reestablish the previous cover over the repaired area.

If erosion persists after repairs have been made, alternate repair methods will be evaluated. Placement of coarse rip-rap stone or other similar erosion controls measures may be required in persistent areas. A plan detailing the corrective measures to repair the damaged areas will be developed and submitted to NYSDEC for approval, prior to implementation of the repair.

Asphalt pavement, concrete sidewalks, foundations or other structural covering will be repaired as necessary to ensure no exposure to underlying soil.

5.3 Monitoring Wells

If a monitoring well is determined to be excessively silted, it will be redeveloped to remove as much silt as possible. Redevelopment of the well will be conducted after all required samples have been collected for the monitoring period. The monitoring wells will be developed by surging and pumping or other sufficient means. The monitoring wells will be developed until a turbidity of 50 nephelometric turbidity units (NTUs) is achieved or until field parameters, such as pH, specific conductance, turbidity and temperature, have stabilized.

If a monitoring well has been damaged, but deemed repairable, an action plan detailing the corrective measures to rectify the problem will be developed and submitted to NYSDEC for approval, prior to implementation of the remedy. Typically, surface freeze and thaw cycles tend to damage wellheads and eventually require repair or replacement. Less often, wellheads are damaged due to impacts by vehicular traffic or construction equipment. Repairs/replacements will be limited to surficial features of the well, since subsurface damage to monitoring wells (i.e., cracking of casing or screen due to rupture from bridging and differential stress of subsurface materials) requires well replacement.

Damaged wellheads will be replaced with in-kind materials consisting of an appropriately-sized flush-mount steel curb box set in a concrete seal formed 2 feet in diameter extending to a depth of approximately 1 foot bgs or approved equal. The top outer edge of the concrete pad will be flush with the ground. An internal grout collar will be placed in the annular space between the inner casing and the outer protective casing.

Damaged monitoring wells will be replaced in accordance with the methods described in "Groundwater Monitoring Well Decommissioning Policy," NYSDEC Division of Hazardous Waste Remediation, dated November 2009. Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location unless otherwise approved by the NYSDEC. Monitoring wells to be replaced will be installed using 4 1/4-inch ID hollow stem augers. Split spoon samples will be collected and evaluated for each well. Wells will be constructed using 2-inch ID Schedule 40 PVC 0.010-inch slot screens and 2-inch ID Schedule 40 PVC riser pipe. During construction of the wells, the augers will be removed during the installation of the sand. Sand pack will be placed in the annulus between the borehole wall and the well screen extending from the well bottom to at least one-foot above the top of the screen and at least one-foot of bentonite seal will be placed above the sand pack. Expansion caps will be installed on the well riser pipes and a lockable protective steel casing will be installed in the concrete surface pad. Detailed well specifications will be provided to NYSDEC for approval prior to installation of replacement monitoring wells.

5.4 Soil Vapor Mitigation Systems

As described above, once the buildings are constructed on-site and SVMS are installed, the Operation, Maintenance and Monitoring (OM&M) manual for these systems will be prepared by the Owner and included as an appendix to this SMP. The OM&M for the SVMS will be prepared in accordance with the requirements of NYSDOH Soil Vapor Intrusion Guidance, and shall be operated, inspected and maintained in accordance with manufacturer's recommendations or appropriate guidance, standards or regulations. Some anticipated routine maintenance activities associated with the SVMS include the following:

- Inspection of the concrete slabs and cleanouts linking the sub-slab drainage pipe to the footing drains to ensure they are removing any water that may accumulate below the slab.
- Measure sub-slab vacuum heads to check the targeted sub-slab extent is attaining the minimum vacuum head of 0.2" of water column.
- Measure the vacuum/pressure head and flow rate at the blower.
- Inspect the SVMS visually for any damage.
- Test for presence of leaks with smoke detector tubes and fix any seal and leaks identified.
- Check to ensure air intakes are not located close to the SVMS exhaust.

Non-routine maintenance activities associated with the SVMS may include the following:

- Replace the blowers and other parts, as needed, based on their life expectancy.

6.0 REPORT PREPARATION AND NOTIFICATIONS

6.1 Periodic Review Reports

A Periodic Review Report will be prepared and submitted to the USEPA and NYSDEC by the Site Owner on an annual basis. As discussed in previous sections, redevelopment of the Site is anticipated. This redevelopment will be completed in phases. The Periodic Review Report will continue to be prepared throughout the redevelopment phases and will include documentation of the work performed during the reporting period. The report will be submitted within 45 days of the end of each certification period. The Periodic Review Report will be prepared in accordance with NYSDEC DER-10 "Technical Guidance for Site Investigation and Remediation" requirements. The frequency of submittal of the Periodic Review Report may be modified with the approval of the USEPA and NYSDEC. The Periodic Review Report will include the following:

1. Evaluation and assessment of the institutional and engineering controls required for the Site;
2. An evaluation of the Engineering and Institutional Control Plan and the Monitoring Plan for adequacy in meeting remedial goals;
3. Results of the required annual Site inspections and severe condition inspections, if any;
4. Results of the groundwater monitoring, cover inspections, and SVMS inspections.
5. All applicable inspection forms and other records generated for the Site during the reporting period;
6. Data summary tables and graphical representations of contaminants of concern by media (groundwater), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data sufficient for USEPA and NYSDEC to evaluate contaminant concentration trends;
7. Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in an USEPA- and NYSDEC-approved format;

8. A performance summary for the SVMS at the Site during the calendar year, including information such as:
   - The number of days the system was run for the reporting period;
   - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
   - A description of the resolution of performance problems;
   - Comments, conclusions, and recommendations based on data evaluation.
9. A Site evaluation, which will address;
   - Compliance of the remedy with the ESD, ROD and SMP;
   - Performance and effectiveness of the remedy;
   - Identification of any needed repair or modification;
   - Conclusions or observations regarding the Site contamination; and,
   - Recommendations regarding necessary changes to the remedy and or monitoring plan.
10. A cost evaluation, which will address:
    - Inspection, technical reporting and review; and
    - Sampling and analysis;
11. Certification of the engineering and institutional controls;
12. A summary of the activities conducted pursuant to any notification made under the reasons listed in Section 6.4.

6.2 Certification of Engineering and Institutional Controls

After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will sign and certify the document. The document will certify that:

- On-site engineering and institutional controls are unchanged from the previous certification;

- Site use is compliant with the environmental easement;
- Engineering and institutional controls remain in-place and are effective;
- Remedial systems are performing as designed;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for such controls;
- Access is available to the Site by NYSDEC and NYSDOH to evaluate continued maintenance of such controls;
- The inspection of the Site to confirm the effectiveness of the institutional and engineering controls was performed under the direction of the individual making this certification;
- The work and conclusions described in the certification are in accordance with the requirements of the Site remedial program; and
- The information presented in the certification is accurate and complete.

The signed certification will be included in the Periodic Review Report.

6.3 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

6.4 Notifications

Notifications will be submitted by the property owner to the USEPA and/or NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes to the Site.

- 15-day advance notice of any proposed ground-intrusive activities that would encounter residual contaminants pursuant to the Soil Management Plan.

- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.

- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the USEPA and NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the engineering controls.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the USEPA and NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser or transferee or responsible party has been provided with a copy of all approved work plans and reports, including this SMP.

- Within 15 days after the transfer of all or part of the Site or responsibility, the new responsible party's name, contact representative, and contact information will be confirmed in writing.

7.0 QUALITY ASSURANCE

Environmental sample analysis conducted at the Site, either as part of the redevelopment work or post-redevelopment, will be performed in accordance with the NYSDEC Analytical Services Protocol (ASP), latest revision. Prior to commencement of the redevelopment of the Site the Owner’s Contractor shall be required to prepare a Site specific quality assurance/quality control (QA/QC) plan pertaining to sampling and analysis of media that will be either removed from the Site or brought thereto to be used on-site during Site redevelopment. The QA/QC plan will also describe the sampling to be performed in the tidal wetlands to document sediment quality post-revitalization of the tidal wetlands. This section will provide the basis for the sampling and analysis required to be performed during the Site redevelopment by the Owner’s Contractor, as well as the sampling and analysis required for continued long-term operations, maintenance and monitoring for the Site to be performed by the Owner. This media could include sediment, soil or groundwater.

7.1 Data Quality Requirements and Assessments

Data quality requirements and assessments are provided in the NYSDEC ASP, which includes the detection limit for each analyte and sample matrix. Note that the quantification limits, estimated accuracy, accuracy protocol, estimated precision and precision protocol are determined by the laboratory and will be in conformance with the requirements of the NYSDEC ASP (latest revision) and/or USEPA 5/99 SOW for organics and USEPA 1/00 SOW for inorganics, where applicable.

In addition to meeting the requirements provided in the NYSDEC ASP, the data must also be useful in evaluating the quality of media sampled. Data obtained during the sampling will be compared to SCGs. The SCGs to be used include:

Matrix	SCG
Groundwater	NYSDEC Division of Water – Technical and Operational Guidance Series (TOGS) (1.1.1) – Ambient Water Quality Standards and Guidance Values for Class SB Groundwater and Groundwater Effluent Limitations, dated June 1998.
Soil	NYSDEC Part 375 Restricted Use-Residential Soil Cleanup Objectives
Sediment	NYSDEC TOGS 5.1.9 – In-Water and Riparian Management of Sediment and Dredged Material

The methods of analysis will be in accordance with the NYSDEC ASP. Specific analytical procedures and laboratory QA/QC descriptions are not included in this SMP, but will be available upon request from the laboratory selected to perform the analysis. The laboratory will be New York Department of Health (NYSDOH) Environmental Laboratory Approved Program (ELAP) certified for organic and inorganic analyses.

7.1.1 Data Representativeness

Samples may be collected from various media, either during Site redevelopment or during long-term operations, maintenance and monitoring being performed at the Site. Collection of representative data is necessary to ensure the data obtained is usable. Examples of methods for collection of representative samples are as follows:

- Groundwater (Monitoring Well) – Samples will be obtained after the monitoring wells have been purged of three to five well casing volumes or field measurements (pH, conductivity, temperature, dissolved oxygen and turbidity) have stabilized or until the well is purged dry (whichever occurs first) and allowed to recharge. Samples will be collected using a new dedicated polyethylene bailer and rope.
- Soil – Samples will be obtained from the excavation floors, excavation sidewalls, stockpiles, etc. Samples will be collected using a dedicated polyethylene scoop.
- Sediment– Samples will be collected from the tidal wetlands. Samples will be collected using a sediment core.
- Equipment Calibration – Field equipment will be calibrated daily before use according to the manufacturer's procedures.

- Equipment Decontamination – Non sterile sampling equipment will be decontaminated prior to use at each location according to the NYSDEC approved procedures described in Section 7.3.

The Site-specific QA/QC plan prepared by the Owner's Contractor prior to redevelopment will include a more detailed description of data representativeness.

7.1.2 Data Comparability

All data will be presented in the units designated by the methods specified by a NYSDOH ELAP certified laboratory and the NYSDEC ASP. In addition, sample locations, collection procedures and analytical methods from earlier studies will be evaluated for comparability with current procedures/methods.

7.1.3 Data Completeness

The acceptability of 100% of the data is desired as a goal for the project. The acceptability of less than 100% complete data, meeting all QA/QC protocols/standards, will be evaluated on a case-by-case basis.

7.2 Detailed Sampling Procedures

Various types of environmental samples will be collected from different locations as part of the redevelopment of the Site and continued long-term operations, maintenance and monitoring. It is anticipated that groundwater, soil and sediment samples will be collected. Sample locations may consist of groundwater monitoring wells, soil stockpiles, excavation floors and sidewalls and tidal wetlands sediment. Sampling procedures and equipment are described in this section.

The materials involved in aqueous sample collection are critical to the collection of high-quality monitoring information, particularly where the analyses of volatile, pH-sensitive or reduced chemical constituents are of interest. Disposable sampling equipment will be utilized for this project to the extent practicable.

There will be several steps taken after the transfer of the sample into the sample container that are necessary to properly complete collection activities. Once the sample is transferred into the appropriate container, the container will be capped and, if necessary, the outside of the container will be wiped with a clean paper towel to remove excess sampling material. The container will not be submerged in water in an effort to clean it. Rather, if necessary, a clean paper towel moistened with distilled/deionized water will be used.

The sample container will then be properly labeled. Information such as sample number, location, collection time and sample description will be recorded in the field logbook. Associated forms (e.g., Chain of Custody forms) will then be completed and will stay with the sample. The samples will be packaged in a manner that will allow the appropriate storage temperature (4°C) to be maintained during shipment to the laboratory.

7.2.1 Sample Identification

Each sample container will have a label of durable material affixed to it, which specifies the following sample information:

- Sample location;
- Sample type;
- Sample identification number (including well designation);
- Name(s) of sampler(s);
- Date and time of sample collection;
- Container number for that sample, if more than one container is used (e.g., #1 of 4); and
- Laboratory analyte.

All samples collected during the work will be labeled with a sample identification code. The code will identify the sample type, sample location and QA/QC requirements

7.2.2 Sample Preservation, Handling and Shipment

All analytical samples will be placed in the appropriate sample containers as specified in the NYSDEC ASP. The holding time criteria identified for the individual methods of the ASP will be followed.

Prior to packaging any sample for shipment, the sample containers will be checked for proper identification and compared to the field logbook for accuracy. The samples will then be wrapped with a cushioning material. Sample containers will be placed in a cooler with ice immediately after sample collection and maintained at 4°C throughout the duration of the sampling event and subsequent shipment to and storage at the analytical laboratory until analysis.

All necessary documentation required to accompany the sample during shipment will be placed in a sealed plastic bag and taped to the underside of the cooler lid. The cooler will then be sealed with packaging tape and custody seals will be placed in such a manner that any opening of the cooler prior to arrival at the laboratory can be detected.

All samples will be shipped for laboratory receipt within 48 hours of sample collection in accordance with NYSDEC requirements. The laboratory will be notified prior to the shipment of the samples.

7.2.3 Groundwater (Monitoring Well)

- Be certain that the sample location is noted in the field logbook.
- Measure the depth of water and total depth using a decontaminated water level indicator and compute the volume of standing water in the well. Identify he measuring point in logbook.
- Calculate the thickness of silt in the well.
- Remove three to five times the volume of standing water from the well. Collect field measurements including pH, conductivity, temperature, dissolved oxygen and turbidity from the well. Turbidity must be less than 50 NTUs prior to collection of a

sample for metals analysis. Greater than 50 NTUs may require waiting a maximum of 24 hours for the turbidity to decrease.

- Remove the laboratory pre-cleaned sample containers from sample cooler, label container with an indelible marker, fill out Sample Information Record and Chain of Custody Form.

- Obtain a sample by using the disposable polyethylene bailer or tubing.

- Gently pour the sample into the sample container taking care not to spill on outside of bottle or overfill container and replace cover on the sample container. Samples for volatile organic analyses, will have no air space in the sample vial prior to sealing. This is done by filling the vial such that there is a meniscus on top. Carefully, slide the septum, Teflon® side down, onto the top of the vial and cap the vial. Check for bubbles by turning the vial upside down and tapping it lightly. If bubbles appear, reopen the vial, remove the septum and add more sample (or resample). Replace the septum, recap and check for bubbles. Continue until vial is bubble-free.

- Return sample container to sample cooler.

7.2.4 Soil

1. Be certain that the sample location is noted in the field log book.

2. If a dedicated sampling device is not used, be certain that the sampling equipment has been decontaminated utilizing the procedures outlined in Section 7.3.

3. Remove laboratory pre-cleaned sample container from sample cooler, label container with an indelible marker, and fill out Sample Information Record and Chain of Custody Form.

4. At the sample location, clear surface debris (e.g., vegetation, rocks, twigs, etc.). Collect an adequate amount of soil using a decontaminated or disposable scoop and/or sterile wooden tongue depressor. Transfer the sample directly into the sample container.

5. Return the sample container to the cooler.

6. If reusable, decontaminate the sampling equipment according to the procedures described in Section 7.3.

7.2.5 Sediment

1. Be certain that the non-disposable sampling equipment (e.g., long handle polyethylene scoop or sample core) has been decontaminated utilizing the procedures outlined in Section 7.3.
2. Remove laboratory pre-cleaned sample containers from sample cooler, label container with an indelible marker, fill out Sample Information Record and Chain of Custody Form.
3. Collect sample from depths indicated in QA/QC Plan.
4. With a sterile wooden tongue depressor or disposable polyethylene scoop, transfer the sample into the open sample container taking care not to spill sample on the outside of the container or overfill container and replace cover on the sample container.
5. Return sample container to sample cooler.
6. If necessary, decontaminate the sampling equipment according to the procedures outlined in Section 7.3.

7.3 Decontamination Procedures

All field sampling equipment should be sterile and dedicated to a particular sampling point. In instances where this is not possible, a field cleaning (decontamination) procedure will be used in order to reduce the chances of cross-contamination between sample locations. A decontamination station will be established for all field activities.

7.3.1 Field Decontamination Procedures

All non-disposable equipment will be decontaminated at appropriate intervals (e.g., prior to initial use, prior to moving to a new sampling location and prior to leaving the Site). Different decontamination procedures are used for various types of equipment that perform the field activities as discussed below. When using field decontamination, it is advisable to start sampling in the area of the Site with the lowest contaminant probability and proceed through to the areas of highest suspected contamination.

7.3.2 Decontamination Procedures for Sampling Equipment

Teflon, PVC, polyethylene, polystyrene and stainless steel sampling equipment decontamination procedures will be the following:

- Wash thoroughly with non-residual nonionic anionic detergent (such as Alconox) and clean potable tap water using a brush to remove particulate matter or surface film.
- Rinse thoroughly with tap water.
- Rinse thoroughly with distilled water.
- Rinse in a well ventilated area with methanol (pesticide grade) and air dry.
- Rinse thoroughly with distilled water and air dry.
- Wrap completely in clean aluminum foil with dull side against the equipment. For small sampling items, such as scoops, decontamination will take place over a drum specifically used for this purpose.

The first step, a soap and water wash, is to remove all visible particulate matter and residual oils and grease. This is followed by a tap water rinse and a distilled/deionized water rinse to remove the detergent. Next, a high purity solvent rinse is designated for trace organics removal. Methanol has been chosen because it is not an analyte of concern in the Target Compound List (TCL). The solvent must be allowed to evaporate and then a final distilled/deionized water rinse is performed. This rinse removes any residual traces of the solvent. The aluminum wrap protects the equipment and keeps it clean until it is used at another sampling location.

7.4 Laboratory Sample Custody Procedures

A NYSDOH ELAP laboratory meeting the requirements for sample custody procedures, including cleaning and handling sample containers and analytical equipment will be used. The laboratory's standard operating procedures will be available upon request.

7.5 Field Management Documentation

Proper management and documentation of field activities is essential for necessary work to be conducted in an efficient and high quality manner. Field management procedures include following proper chain of custody procedures to track a sample from collection through analysis, noting when and how samples are to be composited (if required), preparing a Location Sketch, completing Sample Information Record Forms, Chain of Custody Forms, maintaining a daily Field Log Book, preparing Daily Field Activity Reports, completing Field Change Forms and filling out a Daily Air Monitoring Form. Proper completion of these forms and the field log book are necessary to support the consequent actions that may result from the sample analysis. This documentation will support that the samples were gathered and handled properly.

7.5.1 Location Sketch

Each sampling point shall have its own location sketch with permanent references, to the maximum extent practicable.

7.5.2 Sample Information Record

At each sampling location, the Sample Information Record Form is filled out and maintained including, but not limited to, the following information:

- Site name
- Sample crew
- Sample location
- Field sample identification number
- Date
- Time of sample collection
- Weather conditions

- Temperature
- Sample matrix
- Method of sample collection and any factor that may affect its quality adversely
- Field test results
- Constituents sampled
- Remarks (Sample Compositing Information)

7.5.3 Chain of Custody

The Chain of Custody (COC) is initiated at the laboratory with bottle preparation and shipment to the Site. The COC remains with the sample at all times and bears the name of the person assuming responsibility for the samples. This person is tasked with ensuring secure and appropriate handling of the bottles and samples. When the form is complete, it should indicate that there were no lapses in sample accountability.

A sample is considered to be in an individual's custody if any of the following conditions are met:

- It is in the individual's physical possession, or
- It is in the individual's view after being in his or her physical possession, or
- It is secured by the individual so that no one can tamper with it, or
- The individual puts it in a designated and identified secure area.

In general, Chain of Custody Forms are provided by the laboratory contracted to perform the analytical services. At a minimum, the following information shall be provided on these forms:

- Project name and address
- Project number

- Sample identification number
- Date
- Time
- Sample location
- Sample type
- Analysis requested
- Number of containers and volume taken
- Remarks
- Type of waste
- Sampler(s) name(s) and signature(s)
- Spaces for relinquished by/received by signature and date/time.

Chain of Custody Forms provided by the laboratory will be utilized.

The Chain of Custody Form is filled out and signed by the person performing the sampling. The original of the form travels with the sample and is signed and dated each time the sample is relinquished to another party, until it reaches the laboratory or analysis is completed. The field sampler keeps one copy and a copy is retained for the project file. The sample container must also be labeled with an indelible marker with a minimum of the following information:

- Project name/site
- Sample number
- Analysis to be performed
- Date of collection
- Compositing information

A copy of the completed form is returned by the laboratory with the analytical results.

7.5.4 Split Samples

Whenever samples are being split with another party, a Receipt for Samples Form must be completed and signed. A copy of the COC Form will accompany this form.

7.5.5 Field Log Book

Field log books must be bound and should have consecutively numbered, water resistant pages. All pertinent information regarding the Site and sampling procedures must be documented. Notations should be made in log book fashion, noting the time and date of all entries. Information recorded in this notebook should include, but not be limited to, the following:

The first page of the log contains the following information:

- Project name and address
- Name, address and phone number of field contact
- Owner and address, if different from above
- Suspected contamination, including concentrations

Daily entries are made for the following information:

- Purpose of sampling
- Location of sampling point
- Number(s) and volume(s) of sample(s) taken
- Description of sampling point and sampling methodology
- Date and time of collection, arrival and departure
- Collector's sample identification number(s)
- Sample distribution and method of storage and transportation

- References, such as sketches of the sampling Site or photographs of sample collection
- Field observations, including results of field analyses (e.g., pH, temperature, specific conductance), water levels, drilling logs, and organic vapor and dust readings
- Signature of personnel responsible for completing log entries.

7.5.6 Daily Field Activity Report

At the end of each day of field work, the Field Operations Manager, or designee, completes this form noting personnel on-site and summarizing the work performed that day, equipment, materials and supplies used, results of field analyses, problems and resolutions. This form is then signed and is subject to review.

7.5.7 Field Changes and Corrective Actions

Whenever there is a required or recommended investigation/sampling change or correction, a Field Change Form must be completed.

7.6 Calibration Procedures and Preventative Maintenance

The following information regarding equipment will be maintained for the project:

1. Equipment calibration and operating procedures that will include provisions for documentation of frequency, conditions, standards and records reflecting the calibration procedures, methods of usage and repair history of the measurement system. Calibration of field equipment will be done daily at the sampling Site so that any background contamination can be taken into consideration and the instrument calibrated accordingly.
2. Critical spare parts, necessary tools and manuals will be on hand to facilitate equipment maintenance and repair.

Calibration procedures and preventive maintenance, in accordance with the NYSDEC ASP, for laboratory equipment is contained in the laboratory's standard operating procedures and is available upon request.

7.7 Performance of Field Audits

During field activities, the QA/QC officer may accompany sampling personnel into the field to verify that the Site sampling program is being properly implemented and to detect and define problems so that corrective action can be taken. All findings will be documented and provided to the Field Operations Manager.

7.8 Control and Disposal of Contaminated Material

In general, soiled personal protective equipment (PPE) and disposable sampling equipment (i.e., bailers, tongue depressors, scoops) will be considered solid waste and contained and disposed off-site. If hazardous waste contamination of PPE or disposable equipment is suspected, due to elevated measurements of screening instruments, visual observations, odors or other means, PPE and equipment will be drummed and secured on-site until a hazardous waste determination can be made. Once a determination has been made, an approved disposal method will be employed.

7.9 Documentation, Data Reduction and Reporting

A NYSDOH ELAP laboratory meeting requirements for documentation, data reduction and reporting will be used. All data will be cataloged according to sampling locations and sample identification nomenclature.

NYSDEC "Sample Identification and Analytical Requirement Summary" and "Sample Preparation and Analysis Summary" forms (for VOA Analysis, B/N-A Analysis, Pesticides/PCB Analysis and Inorganic Analysis) will be completed and included with each data package. The sample tracking forms are required and supplied by the NYSDEC ASP.

7.10 Data Validation

Data validation will be performed in order to define and document analytical data quality in accordance with NYSDEC requirements that investigation data must be of known and acceptable quality. The analytical and validation processes will be conducted in conformance with the NYSDEC ASP and/or USEPA 5/99 and 1/00 SOWs.

Because the NYSDEC ASP is based on the USEPA CLP, the USEPA Functional Guidelines for Evaluating Organics Analyses for the Contract Laboratory Program (CLP) will assist in formulating standard operating procedures (SOPs) for the data validation process. The data validation process aims to make sure that all analytical requirements specific to the QA/QC plan are followed. Procedures will address validation of Routine Analytical Services (RAS) results based on the NYSDEC ASP Target Compound List and Target Analyte List for standard sample matrices.

The data validation process will provide an informed assessment of the laboratory's performance based upon contractual requirements and applicable analytical criteria. The report generated as a result of the data validation process will provide a base upon which the usefulness of the data can be evaluated by the end user of the analytical results. The overall level of effort and specific data validation procedure to be used will be equivalent to a "100% validation" of all data in any given data package.

"Qualified" analytical results for any one field sample will be established and presented based on the results of specific QC samples and procedures associated with its sample analysis group or batch. Precision Accuracy criteria (i.e., QC acceptance limits) will be used in determining the need for qualifying data. Where test data have been reduced by the laboratory, the method of reduction will be discussed in the report. Reduction of laboratory measurements and laboratory reporting of analytical parameters will be verified in accordance with the procedures specified in the NYSDEC and USEPA program documents for each analytical method (i.e., recreate laboratory calculations and data reporting in accordance with the method specific procedure).

The standard operating guideline manuals for any specific analytical methodology required will specify documentation needs and technical criteria and will be taken into consideration in the validation process. Copies of the complete data package and the data validation report, including laboratory result data report sheets, with any qualifiers deemed appropriate by the data reviewer, and supplementary field QC sample result summary statement, will be provided.

The following is a description of the two-phased approach to data validation which will be used for this investigation. The first phase is called checklisting and the second phase is the analytical quality review, with the former being a subset of the latter.

- <u>Checklisting</u> – The data package will be checked for correct submission of the contract required deliverables, correct transcription from the raw data to the required deliverable summary forms and proper calculation of a number of parameters.
- <u>Analytical Data Review</u> – The data package will be closely examined to recreate the analytical process and verify that proper and acceptable analytical techniques have been performed. Additionally, overall data quality and laboratory performance will be evaluated by applying the appropriate data quality criteria to the data to reflect conformance with the specified, accepted QA/QC standards and contractual requirements.

At the completion of the data validation, a Data Usability Summary Report (DUSR) will be prepared.

7.11 Performance and System Audits

A NYSDOH ELAP laboratory which has satisfactorily completed performance audits and performance evaluation samples shall be used.

7.12 Corrective Action

A NYSDOH ELAP laboratory shall meet the requirements for corrective action protocols, including sample “clean up” to attempt to eliminate/mitigate “matrix interference.”

The NYSDEC ASP protocols include both mandatory and optional sample cleanup and extraction methods. GPC cleanup is required for soil samples by the NYSDEC ASP for semivolatile and pesticide/PCB analyses in order to meet contract required detection limits. Florisil column cleanup is required for the pesticide/PCB fraction of both soil and water samples. There are several optional cleanup and extraction methods noted in the NYSDEC ASP protocol. These include: Silica gel column cleanup, acid-base partition, steam distillation and sulfuric acid cleanup for PCB analysis.

It should be noted, that if these optional cleanup and extraction methods are requested by NYSDEC, holding time requirements should not be exceeded due to negligence of the laboratory.

7.13 Trip Blanks (Travel Blanks)

The primary purpose of this type of blank is to detect additional sources of contamination that might potentially influence contaminant values reported in actual samples both quantitatively and qualitatively. The following have been identified as potential sources of contamination:

- Laboratory reagent water
- Sample containers
- Cross contamination in shipment
- Ambient air or contact with analytical instrumentation during preparation and analysis at the laboratory
- Laboratory reagents used in analytical procedures

A trip blank consists of a set of 40 ml sample vials filled at the laboratory with laboratory demonstrated analyte free water. Trip blanks should be handled, transported and analyzed in the same manner as the samples acquired that day, except that the sample containers themselves are not opened in the field. Rather, they just travel with the sample cooler. Trip blanks must accompany samples at a rate of one per shipment. The temperature of the trip blanks must be maintained at 4°C while on-site and during shipment. Trip blanks must return to the laboratory with the same set of bottles they accompanied in the field.

The purpose of a trip blank is to control sample container preparation and blank water quality as well as sample handling. Thus, the trip blank travels to the Site with the empty sample container, and back from the Site with the collected samples, in an effort to simulate sample handling conditions. Contaminated trip blanks may indicate inadequate bottle cleaning or blank water of questionable quality. Trip blanks are implemented only when collecting water samples, and analyzed for VOCs only.

7.14 Matrix Spikes/Matrix Spike Duplicates and Spiked Blanks

Matrix spike samples and blanks are quality control procedures, consistent with 6/00 NYSDEC ASP specifications, used by the laboratory as part of its internal Quality Assurance/Quality Control program. The matrix and matrix spike duplicates are aliquots of a designated sample (water or soil) which are spiked with known quantities of specified compounds. They are used to evaluate the matrix effect of the sample upon the analytical methodology as well as to determine the precision of the analytical method used. A matrix spike blank is an aliquot of analyte-free water, prepared in the laboratory, and spiked with the same solution used to spike the MS and MSD. The MSB is subjected to the same analytical procedure as the MS/MSD and used to indicate the appropriateness of the spiking solution by calculating the spike compound recoveries. The procedure and frequency regarding the MS, MSD and MSB are defined in the NYSDEC ASP.

7.15 Method Blanks

A method blank is an aliquot of laboratory water or soil which is spiked with the same internal and surrogate compounds as the samples. Its purpose is to define and determine the level of laboratory background contamination. Frequency, procedure and maximum laboratory containment concentration limits are specified in the NYSDEC ASP as follows:

The laboratory shall prepare and analyze one laboratory reagent blank (method blank) for each group of samples of a similar matrix (for water or soil samples), extracted by a similar method (separatory funnel, continuous liquid extraction or sonication) and a similar concentration level (for volatile and semivolatile soil samples only) for the following, whichever is most frequent:

- Each case of field samples received; or
- Each 20 samples in a case, including matrix spikes and reanalyses; or
- Each 7 calendar day period during which field samples in a case were received (said period beginning with the receipt of the first sample in that sample delivery group); or
- Whenever samples are extracted.

Volatile analysis requires one method blank for each 12-hour time period when volatile target compounds are analyzed.

Semivolatile and pesticide method blanks shall be carried through the entire analytical process from extraction to final GC/MS or GC/EC analysis, including all protocol performance/ delivery requirements.

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8.0 HEALTH AND SAFETY

A Site specific health and safety plan (HASP) for the redevelopment work will be prepared by the Owner's Contractor. The HASP shall be consistent with the requirements of NYSDEC DER–10, OSHA (29 CFR 1910 and 1926), federal, state and local authorities. Once redevelopment is completed the Site specific Health and Safety Plan will become an Appendix to this SMP. The Health and Safety Plan will be followed during any ground intrusive activities that may encounter contaminated soil/sediment at the Site. During Site redevelopment, the Contractor shall be required to monitor the health and safety conditions during all phases of the Work and fully enforce the HASP. The work to be performed will result in possible chemical and low-level radiation exposures. Therefore, the Owner's Contractor shall be responsible to perform all work in accordance with the applicable regulatory requirements/recommendations of the NYSDEC, USEPA and OSHA.

All necessary and appropriate Owner's Contractor on-site personnel shall have completed OSHA training and medical monitoring requirements for work on hazardous waste Sites.

The Owner's Contractor shall also be responsible for performing air monitoring for volatile organic compounds and particulates at both upwind and downwind locations to document real time levels of contamination which might be moving off-site in accordance with the New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP). The CAMP will be prepared by the Owner's Contractor as part of the Site-specific HASP. The HASP and CAMP will be updated and resubmitted with the notification of any ground intrusive activities.

8.1 Contingency Plan

The HASP will also include a contingency plan to address emergencies such as injury to personnel, fire or explosion, environmental release, or serious weather conditions. In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below.

Table 8-1

EMERGENCY CONTACT NUMBERS

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3-day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Since residual contamination remains at the Site, assurance of the health and safety of on-site personnel and future occupants of the property is imperative. As discussed previously, the Site is planned for redevelopment. The redevelopment of the Site is anticipated to be performed in phases in which portions of the Site may be redeveloped prior redevelopment of the entire Site. Phasing of the redevelopment will require implementation of health and safety procedures to protect the health and safety of Owner's contractors performing the redevelopment work as well as the adjacent receptors simultaneously. These procedures will be included in the HASP prepared by the Owner's Contractor.

APPENDIX A

RADIATION MONITORING PLAN

RADIATION MONITORING PLAN

Captain's Cove Condominium
Inactive Hazardous Waste Disposal Site Remedial Action
(Site No. 1-30-032)
Glen Cove, New York

January 6, 2000

Prepared for:

The City of Glen Cove
Glen Cove, New York

Prepared by:

REMEDIAL ENGINEERING, P.C.
AND
ROUX ASSOCIATES, INC.
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CONTENTS

FIGURE

1.0 GENERAL

This Radiation Monitoring Plan (RMP) has been prepared in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM [NUREG Document No. 1575 and USEPA Document No. EPA-402-R-97-016]) and Roux Associates, Inc. (Roux Associates) Standard Operating Procedures (SOPs). It addresses radiation monitoring activities to be performed during the remedial action at the Captain's Cove Site in the City of Glen Cove, New York (Site). The RMP will be implemented during work at the Site by the Contractor's Health Physics Field Technician in coordination with the Consultant's Field Engineer.

Compliance with this RMP is required for all parties who enter this Site (including representatives of the United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC) and/or the City of Glen Cove). The content of this RMP may undergo revision based upon radiation levels measured in the field after the remediation activities have been initiated. Any changes proposed must be reviewed and approved by the City Consultant's Health Physics Safety Officer (HPSO) (or their designee) and the NYSDEC.

Scope of Work

Based on the results of the Site remedial investigation (RI), buried solid waste across the central portion of the Captain's Cove Site was identified. The subsequent feasibility study (FS) focused on remedial actions to address this buried waste. The scope of Work for implementation of the selected remedy in the ROD based on this FS, includes the following specific components.

- This remedy will consist of excavating the landfill and separating the waste stream into various components including: solid waste, hazardous waste, construction and demolition (C&D) debris, and radiological waste.

- The latter three waste streams will be disposed of offsite.

- The solid waste would be sorted according to size and the smaller material (<1 inch) will be returned to the excavation if appropriate after analysis.

- All of the sorted material (<1 inch) returned to the excavation will be covered by two feet of general fill or other suitable cover material.

- A deed restriction will prevent the site from being used for residential purposes (i.e., long-term single or multi-family housing). Additionally, the deed restriction will include controls to provide for the protection of public health during future subsurface activities.

2.0 RADIATION MONITORING PLAN

Soil excavated during the remediation at the Captain's Cove Site will be monitored for radiation to:

- segregate soil/waste that may contain radioactive contamination (if any); and
- to protect on-site workers from potential exposure to dangerous levels of radiation.

The radiation monitoring will be performed by the Contractor's Health Physics Field Technician (HPFT) under the direction of the Consultant's Field Engineer and Health Physics Safety Officer (HPSO). Any radioactive waste identified as a result of monitoring will be segregated and managed by the Contractor as described in the Contractor's Construction Contingency Plan (CCP).

This monitoring protocol, summarized in Figure 1, entails identification of minimum qualifications for the Contractor's HPFT, selection of suitable monitoring instruments, instrument calibration, monitoring methodology, and establishing background radiation levels at the Site. Each of these considerations is described below.

2.1 Qualifications Health Physics Field Technician

The radiation monitoring will be performed by the Contractor's HPFT. The Contractor's HPFT qualifications will be reviewed by the Consultant and the NYSDEC Health Physicist. At a minimum, the candidate HPFT will have successfully completed Radiation Worker Training, have 2 to 4 years experience performing field gamma radiation monitoring, have experience with the monitoring instruments specified below (including calibration, routine operation, and performing field instrument checks), have demonstrated experience in establishing site background radiation levels, and have experience collecting, handling, and shipping samples for radiological analyses.

2.2 Selection of Radiation Monitoring Instrument

The selection of a radiation monitoring tool was based on the type of radiation in the Li Tungsten mill tailings located adjacent to the Site. The radiation contamination is primarily due to the presence of uranium and thorium contained in mill tailings generated during mineral processing of tungsten ores at the former Li Tungsten Site, located on Herb Hill Road, in Glen Cove, New York. The tailings also contain daughter products, including radium, from the radioactive decay of the parent radionuclides. Radioactivity is produced during the subsequent decay of the daughter products until a stable isotope is achieved. During decay, radioactivity in the form of particles and energy is emitted from the radionuclide. In brief, the decay processes are specific to the individual isotopes, and thus, each decay process produces a specific form of radioactivity (e.g., alpha, beta and gamma radiation). Uranium produces alpha and gamma radiation and is the primary contributing radionuclide to the radioactivity in the Li Tungsten tailings. The other radionuclides, including thorium and radium, also emit gamma and or alpha radiation. Although alpha radiation is produced by the radionuclides present in soil adjacent to the Site, it is a low energy emission and, therefore, is absorbed by most sediments including soil. The ease of absorption by any material present between the source of the radioactivity and the count-rate meter will minimize and may prevent detection of the presence of alpha radiation. Accordingly, a radiation monitoring tool capable of detecting gamma radiation (a high energy radiation) is specified. For this purpose a Ludlum™ Model 2221 count-rate meter and scaler equipped with a 100 cm^2 (2-inch by 2-inch) sodium iodide (NaI) detector is specified.

2.3 Instrument Calibration and Operation

The radiation rate meter/scaler will be calibrated by the supplier in accordance with the instrument manufacturer's specifications. A range of radioactive NBS source materials standards (or traceable to NBS standards) will be used for calibration. A range of response configurations will be used during the calibration process. The response of the meter will be checked throughout each day using the source provided with the instrument. Source checks will be recorded in the field log book. All supplier calibration records and daily response checks will be maintained on-site throughout the duration of the remediation activities. During monitoring the count-rate meter will be operated in the audio mode to aid in detecting radiation above 2-times background.

2.4 Establishing Site Background

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS), and the USEPA Focused Feasibility Study (FFS), the background radiation at the site ranged up to approximately 3,750 cpm. As background at the Site varies according to the media measured (e.g., different soil types etc.) at the onset of the excavation project, the Contractor's HPFT under the direction of the Consultant's HPSO will identify background radiation on soil samples collected around the Site where the absence of non-anthropogenic radioactive material has been confirmed. Measurements on the soil types will be recorded in the field log book. The background radiation values measured will be used in conjunction with previously measured values as a guide to distinguishing radiation readings due to naturally-occurring radiation from those produced by radioactive waste deposited adjacent to the Site.

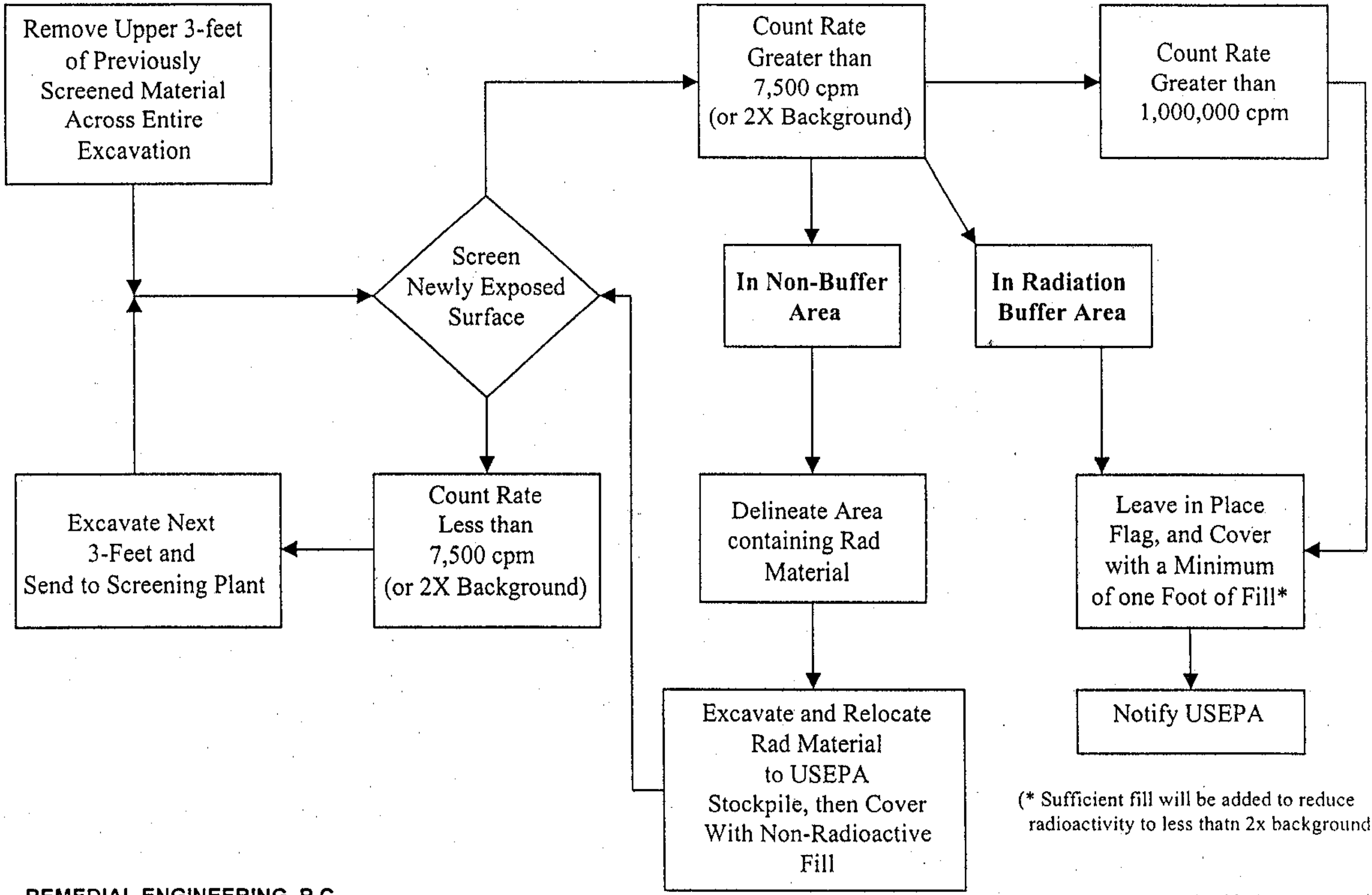
2.5 Radiation Monitoring Methodology

The following radiation monitoring protocol was developed to identify radioactive material that may be encountered during remediation. The monitoring protocol described below was designed to effectively 'see' gamma radiation in approximately 10 to 15 percent, by volume, of the material excavated. In keeping with this goal, it is assumed that the meter selected for the field monitoring will 'see' gamma radiation to a depth of approximately 6-inches below the top of the surface being monitored. Based on this assumption, the monitoring will be performed on three-foot lifts of soil and will result in a monitored volume percent of approximately 17 percent. Note that the upper three feet of the area to be remediated will initially be excavated with no additional radiation monitoring. No monitoring of this upper soil horizon is warranted as the entire surface of the Site has been monitored extensively for radioactivity by the NYSDEC in 1997 and Roux Associates during the RI/FS completed during 1998. Soil horizons exposed by subsequent excavation activities will be monitored by a qualified personnel using the meter, method and scan rate specified below.

Monitoring will entail scanning the count-rate meter detector across the floor of the excavation exposed after each three foot lift of material is excavated. Approximately each foot of the excavation floor will be monitored for radiation. During monitoring the detector will be held at approximately 3-inches or less above the surface being scanned. The detector will be moved over the surface being scanned at a rate not to exceed approximately 0.5 meters per second (m/s) as per the MARSSIM (NUREG Guidance Document 1575). This scan rate will allow the collection of a reasonable number of counts per scan. If count rates exceed 2-times background, then the provisions in the Contractor's CCP will be implemented. In general, the Contractor's CCP for radiation hot spots entail recording the location of the hot spot and the maximum and minimum number of count rates observed (rounded to the nearest 100 cpm) in the bound field notebook. A general description of the material that was scanned (e.g., sand clay, peat, waste, etc.) will also be recorded.

Radioactivity measured above the Site background is considered a potential exposure hazard. However, without exception radiation measurements in excess of approximately 2-times background (i.e., 7,500 counts per minute [cpm]) have not been measured in the excavation footprint. As a protective measure against acute radiation exposure to on-site workers, radioactivity above 100 mrem (or approximately 1,000,000 cpm) will be considered a potential acute exposure risk. Soil that exhibits readings above background but below the threshold for acute exposure risk will be handled as described in the Contractor's CCP as there is no significant exposure risk at these levels.

Figure 1 - Radiation Monitoring Plan Flow Chart for Radioactivity Screening of Soil During Excavation at the Captain's Cove Condominium Inactive Hazardous Waste Disposal Site, Glen Cove, New York



(* Sufficient fill will be added to reduce radioactivity to less thatn 2x background)

APPENDIX B

PERTINENT PORTIONS OF THE REMEDIAL ACTION REPORT

REMEDIAL ACTION
COMPLETION REPORT

Captain's Cove Condominium
Inactive Hazardous Waste Disposal Site
(Site No. 1-30-032)
Glen Cove, New York

March 18, 2004

Prepared for:

THE CITY OF GLEN COVE
Glen Cove, New York

Prepared by:

REMEDIAL ENGINEEERING, P.C.
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1.0 INTRODUCTION

Remedial Engineering, P.C. (Remedial Engineering) and Roux Associates, Inc. (Roux Associates) have prepared this document entitled, "Remedial Action Completion Report" (RACR) to document the remediation activities performed at the Captain's Cove Condominiums Inactive Hazardous Waste Disposal Site (Site No. 1-30-032) in Glen Cove, New York (Figure 1), on behalf of the City of Glen Cove (the City). Remedial activities were performed from May 1, 2000 to September 20, 2001 in accordance with the requirements of the Administrative Order-on-Consent (Index No. W1-0770-96-07) (NYSDEC, 1997), Record of Decision (NYSDEC, 1999c), the modified Administrative Order-on-Consent (NYSDEC, 1999d) and the Final Contract Documents for Remedial Construction (Consultants, 2000). The Final Contract Documents established the specific technical requirements for the remediation of the Site.

As described in the Final Contract Documents, the remedy consisted of excavating the landfill located at the Site and separating the waste stream into various components including: non-hazardous waste, hazardous waste, construction and demolition (C&D) debris, bulky waste and radiological waste. The waste materials were of offsite and the Site was backfilled with a combination of screened and/or recycled fill and offsite borrow fill materials to existing grade. The construction tasks performed as part of the implementation of this remedy for the Site are identified below and are further discussed in Section 5.

- pre-construction meeting, mobilization and Site preparation;
- implementation and management of a Site-specific Health and Safety Plan;
- removal of above-grade debris and bulky waste;
- processing of demolition debris for on-site reuse;
- clearing and grubbing;
- excavation;
- mechanical screening;
- stockpiling;
- waste characterization;
- off-site transportation and disposal;

- provision, placement and compaction of fill materials;
- monitoring well abandonment and construction; and
- Site restoration and demobilization.

1.1 Report Organization

This report is divided into eight sections. The first section is the introduction to this document. Other sections are included in this report as follows:

- Section 2.0 – Site Description
- Section 3.0 – Site History
- Section 4.0 – Site Remediation Goals and Summary of Selected Remedy
- Section 5.0 – Site Remediation
- Section 6.0 – Operation and Maintenance
- Section 7.0 – Engineer's Certification
- Section 8.0 – References

2.0 SITE DESCRIPTION

The Site is located in the City of Glen Cove, New York, at the end of Garvies Point Road. A location map of the Site is presented in Figure 1 and a localized Site Map is presented in Figure 2. The Site is bounded by Glen Cove Creek to the south, City-owned property to the west, the Garvies Point Road and Garvies Point Preserve to the north, and the Glen Cove Anglers Club to the east. The total area of the Site encompasses approximately 15.4 acres, which includes approximately 5 acres of tidal wetlands along the Site's southern boundary and bordering Glen Cove Creek.

The site contains large open meadows, wooded areas and two stormwater retention ponds. Topography at the Site is generally flat except in areas where soil piles or depressions were created as part of previous Site redevelopment activities. These pre-building excavation areas contain numerous wood pilings and/or concrete footings intended to stabilize the subsurface for building support. USEPA excavation work and support activities are currently being conducted onsite as part of the Li Tungsten Superfund Site remediation project.

As part of the previous development activities at the Site, two stormwater retention ponds were constructed along the north side of the Site (i.e., along Garvies Point Road). These ponds were installed to contain stormwater runoff from the Site and allow settling of sediments prior to release of the water to Glen Cove Creek. The stormwater runoff system was designed to include a complete collection system. Although remnants of the system remain (i.e., isolated catch basins), this system was never completed and there is currently no piping for discharge from the retention ponds to the creek. Currently, the ponds collect surface runoff only from the immediate vicinity of the ponds. The ponds were reportedly lined with a geomembrane liner.

3.0 SITE HISTORY

A detailed summary of the Site history prior to and after regulatory involvement is provided below.

3.1 Site History Prior to Regulatory Involvement

Historically, the land at the Site was used for recreation, including boating, fishing and swimming. Prior to the 1960s, two tidal channels and an associated marsh were prominent at the Site. One narrow channel extended from Garvies Point Road (near what is currently the west gate) to the northwest portion of the wetland. The second tidal channel was broad and extended from Glen Cove Creek to just south of Garvies Point Road on the east side of the Site. Starting in the early 1960s, however, a portion of the Captain's Cove Site was used as a "community dump" by the residents of the City of Glen Cove. Based on aerial photographs, these channels were filled in between 1966 and 1969 and the Site became essentially flat. The land was purchased by Village Green Realty at Garvies Point, Inc. (Village Green Realty) in 1983 with the intention of developing a residential complex on the Site. Several Condominiums structures (condo shells) were partially constructed onsite in the early 1990s and were never completed. These structures were demolished by the City prior to the start of the remedial action presented in this report.

3.2 Site History After Regulatory Involvement

On January 7, 1986, the New York State Department of Environmental Conservation (NYSDEC) placed the Site on the state's list of inactive hazardous waste disposal sites and the Site was assigned a classification of 2a. After several investigations showed elevated concentrations of volatile organic compounds (VOCs) in groundwater at the Site, the NYSDEC changed the classification of the Site to Class 2. The following subsections provide additional detail on the history of the Site after the NYSDEC reclassified the Site.

3.2.1 April 1988 Administrative Order-on-Consent

As a result of the reclassification from Class 2a (temporary) to Class 2 on the state's inactive hazardous waste disposal Site list, on April 15, 1988 the NYSDEC issued an Administrative Order-on-Consent (April 1988 Order) to Village Green Realty (NYSDEC, 1988). The April 1988 Order called for the development and implementation of a remedial investigation (RI)

Work Plan, preparation of a RI report and a subsequent scope of work for a feasibility study (FS). Based on the requirements of the April 1988 Order, Fred C. Hart (Hart) developed a draft of the required RI Work Plan for the Site, which was submitted to the NYSDEC for review and comment (Hart, 1989). Subsequently, the NYSDEC reviewed this draft RI Work Plan and issued a comment letter dated January 10, 1999 (NYSDEC, 1999a). However, prior to the finalization of this work plan, radioactive ore was discovered at the Site in 1990. Upon this discovery, work that was required to be performed under the April 1988 Order then ceased and two subsequent radiological surveys were performed, which confirmed the presence of low-level, radiological material in two areas of the Captain's Cove Site. These materials were determined to be mill tailings from operations at the nearby Li Tungsten Site, which were deposited at the Site. Based upon this discovery and several subsequent investigations, the United States Environmental Protection Agency (USEPA) decided to investigate the Site as part of and in conjunction with their ongoing investigation of the Li Tungsten Site.

3.2.2 March 1997 Administrative Order-on-Consent

Because of the unforeseen circumstances related to the discovery of radioactive waste at the Site, the NYSDEC voided the April 1988 Order and issued the March 1997 Administrative Order-on-Consent (March 1997 Order) (NYSDEC, 1997). The goals of the March 1997 Order were for the City to develop and implement a RI/FS for the Site and participate in the development and implementation of a remedial program.

3.2.3 May 1999 Administrative Order-on-Consent

Once the RI/FS work was developed and implemented, the March 1997 Order was modified because it did not fully address the remedial design and remedial construction phases of the program. As a result, the May 1999 Administrative Order-on-Consent (May 1999 Order) was issued by the NYSDEC (NYSDEC, 1999d). The combined goals of the March 1997 and May 1999 Orders were to provide specific details for the development and implementation of the following phases of work to be performed for the Site:

- Remedial Investigation;
- Feasibility Study; and
- Remedial Design/ Remedial Action.

A brief summary of the work performed for each phase of work is described below.

3.2.3.1 Remedial Investigation Phase

On behalf of the City, Roux Associates, Inc., Remedial Engineering, P.C. and Dvirka and Bartilucci Consulting Engineers (collectively referred to as the 'Consultants') revised the draft of the Hart RI Work Plan and performed the RI in accordance with the May 1997 Work Plan titled "Remedial Investigation and Feasibility Study Work Plan" (Consultants, 1997a) and the December 1997 RI Work Plan Addendum titled "RI Work Plan Addendum No. 1 – Supplemental Scope" (Consultants, 1997b). The purpose of the RI was to define the extent and nature of any contamination, if present, resulting from previous activities at the Site. The RI was performed from May 1997 through December 1997. A detailed description of the field activities performed, along with the findings of the RI are presented in the Final RI Report (Consultants, 1999a). As documented in the Final RI Report, a total of four areas of concern (AOCs) were investigated during the RI phase. A brief description of each AOC is provided below:

- The groundwater in the western third of the Site near monitoring wells MW-1 and MW-6, and seeps along the west side of the tidal wetland where elevated levels of arsenic have been found downgradient of areas of known disposal of Li Tungsten tailings. Analytical data for the Li Tungsten tailings obtained from the USEPA show that the tailings contain slightly elevated levels of radioactivity and high concentrations of arsenic.

- The groundwater in the northeastern corner of the Site near well CDM-2, where VOC contamination has been found in upgradient Site wells, which are downgradient of the former Mattiace Petrochemical Site.

- The soil, municipal solid waste and fill in the central portion of the Site where soil, gas and groundwater contamination are found. These areas, which are a direct result of activities at the Site, are a concern due to the presence of VOCs and methane in soil gas, the decomposition of waste and the leaching of metals and VOCs through the waste material.

- Wetlands sediments containing elevated concentrations of metals and organic compounds (i.e., pesticides), which are impacted by the deposition of sediments from Glen Cove Creek.

Of these four AOCs, only the third area (buried waste in the central portion of the Site) was directly associated with former operations at the Site; therefore, the subsequent FS performed for the Site focused only on this AOC.

3.2.3.2 Feasibility Study Phase

Following the completion of the RI program, a supplemental test pit program was performed to support development of the FS. The supplemental work was performed in accordance with the June 17, 1997 Supplemental Test Pit Program Scope of Work (Consultants, 1997c), which was approved by the NYSDEC in their letter dated June 19, 1998 (NYSDEC, 1998a). The supplemental investigation was performed from June 1998 through August 1998 in two phases as follows:

- Phase 1 – A test pit program was performed to refine the boundaries of buried waste as initially delineated based on results from the RI; and
- Phase 2 – A second test pit program was performed which entailed the excavation and separation of buried waste (through mechanical screening) designed to refine the cost estimates of proposed remedial alternatives being evaluated.

A detailed description of the field activities performed, along with the findings of the Supplemental Test Pit Program are presented in the Final FS Report (Consultants, 1998). Based on the results of the initial RI and these supplemental investigations, the following remedial alternatives were developed and evaluated in the FS Report:

- Alternative 1A – Low permeability clay cap over 10 acres with landfill gas collection and treatment;
- Alternative 1B – Low permeability clay cap over existing 5.4 acre waste area with landfill gas collection and treatment;
- Alternative 2A – Low permeability geomembrane cap over 10 acres with landfill gas collection and treatment;
- Alternative 2B – Low permeability geomembrane cap over existing 5.4 acre waste area with landfill gas collection and treatment;
- Alternative 3 – Waste consolidation and low permeability geomembrane cap over 3.5 acre consolidated waste area with landfill gas collection and treatment;
- Alternative 4 – Waste excavation and off-site disposal; and
- Alternative 5 – No action.

Based on the NYSDEC's review of the Final RI Report and the Final FS Report, the NYSDEC Proposed Remedial Action Plan (PRAP) for the Site was developed and issued to the public (NYSDEC, 1999b). The PRAP identified the preferred remedy, summarized the other alternatives considered, and discussed the rationale for selecting the proposed remedy. After the NYSDEC reviewed and addressed the public's comments on the PRAP, the Record of Decision (ROD) (NYSDEC, 1999c) for the Site was issued. As detailed in the ROD, the NYSDEC selected Alternative 4 as the selected remedial alternative because the NYSDEC believed that it was the most protective to human health. The elements of the proposed remedy are discussed in Section 4.0.

3.2.3.3 Remedial Design/Remedial Action Phase

After the ROD was finalized and issued in March 1999, the Remedial Design and Construction Oversight Work Plan was prepared and submitted to the NYSDEC (Consultants, 1999b). This work plan defined the tasks required as part of the remedial design, the proposed implementation schedule for the remedial design/ remedial action, and the management requirements for construction activities.

Once the work plan was approved, the final Remedial Design (RD) phase was initiated. The final RD for the selected remedy included the submission and approval of engineering specifications, drawings and related project plans as specified in the ROD. The resulting Final Contract Documents for Remedial Construction were prepared and submitted for NYSDEC approval on January 13, 2000 (Consultants, 2000). This submission was approved on February 23, 2000 (NYSDEC 2000a) and the specified remedial action was performed from May 1, 2000 to September 20, 2001. The original remedial contract period was estimated to be from May 1, 2000 through October 20, 2000. The work performed is summarized in Section 5.0.

4.0 SITE REMEDIATION GOALS AND SUMMARY OF SELECTED REMEDY

As stated in the ROD, the overall remedial goal was to restore the Site to pre-disposal conditions, to the extent feasible and authorized by law. Specifically, the ROD generally established the following goals for the remediation of the Site:

- Eliminate, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria;
- Eliminate, to the extent practicable, human exposure to contaminants (dermal absorption, inhalation, and ingestion);
- Eliminate, to the extent practicable, precipitation from infiltrating through waste and adversely impacting groundwater;
- Prevent, to the extent practicable, the release of contaminants to on-site or off-site ambient air; and
- Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of contaminants to the waters of the State.

The radioactive mill tailings on the Site have previously been identified as material originating from the nearby Li Tungsten Site. Therefore, the cleanup of these radioactive wastes was not within the jurisdiction of NYSDEC's inactive hazardous waste site program. Because of that, cleanup of the radioactive materials encountered during the implementation of the remedial action was not considered a Site remediation goal. This material would ultimately be managed by the USEPA.

In order to meet these Site remedial goals, the NYSDEC selected the remedy presented as Remedial Alternative 4 in the Final FS because the NYSDEC believed that this alternative was the most protective to human health. The selected remedy is discussed below.

4.1 Selected Remedy

The elements of the proposed remedy are as follows:

- A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program will be implemented.
- The waste material in the landfill will be excavated. Contaminated waste will be removed, segregated, and tested for treatment and/or disposal at appropriate waste landfills. All waste will also be screened for radiological contamination and if found,

segregated and tested for storage and disposal purposes. C&D materials will be disposed of off site.

- The solid waste that was excavated will be screened and separated according to particle size. The larger material will be sent offsite for disposal. The smaller material (<1 inch) will be stockpiled and tested to ensure that all contaminated waste has been removed.
- All of the residual waste returned to the excavation will be covered by two feet of clean soil or other suitable cover material.
- A deed restriction will prevent the Site from being used for residential purposes (i.e., long term single or multi-family housing). Additionally, the deed restriction will include controls to ensure the protection of public health during future subsurface activities.
- A monitoring program will be instituted to verify the effectiveness of the remedy. Groundwater quality will be monitored for a minimum of five years. Initially, groundwater monitoring will be performed on a quarterly basis. However, the frequency of these events may be reduced if groundwater quality data trends warrant a reduction.

The ROD also required that subsurface soil gas be monitored for a minimum of five years following the completion of the remedial action. However, on behalf of the City, the Consultants requested that this requirement be removed based on the results of the RI program. This request was formally made when the revised May 21, 1999 Final Remedial Design and Construction Oversight Work Plan was submitted to the NYSDEC for review and approval. Once the NYSDEC approved the work plan, subsurface soil gas monitoring, following the performance of the remedial action, was no longer required. However, any NYSDEC concerns related to residual soil vapor within the subsurface of remediated areas during future redevelopment activities will be addressed in Section 6 of this report.

Implementation of the selected remedy is discussed in the following section of this report.

5.0 SITE REMEDIATION

The remedial action (RA) was conducted from May 1, 2000 to September 20, 2001. During the course of the RA, 8,121.06 tons of non-hazardous waste, 44,079.47 tons of bulky waste and C&D landfill debris were excavated and disposed of off-site. Approximately 86,768 cubic yards of excavated fill material was reused as on-site backfill. The major components of the remedial action are identified below, and are detailed in the following sections. These tasks include:

- pre-construction meeting, mobilization and Site preparation;
- implementation and management of a Site-specific Health and Safety Plan;
- installation of soil erosion and sediment control;
- removal of above-grade debris and bulky waste;
- processing of demolition debris for on-site reuse;
- clearing and grubbing;
- excavation;
- mechanical screening;
- stockpiling;
- waste characterization;
- off-site transportation and disposal;
- provision, placement and compaction of fill materials;
- monitoring well abandonment and construction; and
- Site restoration and demobilization.

5.1 Pre-construction Meeting, Mobilization and Site Preparation

Once the selected contractor received the Notice to Proceed and prior to mobilizing to the Site, a Pre-construction Meeting was held to discuss key project issues. After these key project issues were discussed, the Contractor and the Engineer mobilized to the Site and completed Site preparation activities prior to performing major remedial construction tasks. The pre-construction meeting, mobilization of the Contractor and the Engineer and Site preparation are discussed in the following sections.

5.1.1 Pre-Construction Meeting

Prior to mobilizing to the Site, a Pre-Construction Meeting was conducted on March 29, 2000. The purpose of this meeting was to identify the roles and responsibilities of key project personnel and to review procedures for Contractor submittals, health and safety, environmental protection, payment requisitions, change order requests and other general administrative issues. Once these issues were addressed, the selected Contractor, Barbella Environmental Technology, Inc. (Barbella), mobilized to the Site on May 1, 2000.

5.1.2 Mobilization

Barbella served as the general Contractor who performed the majority of the remedial construction tasks, including site preparation, health and safety monitoring, radiological monitoring, above-grade debris and bulky waste removal, processing of demolition debris, clearing and grubbing, excavation, dewatering, mechanical screening, stockpiling, waste characterization, equipment decontamination, backfill provision, placement and compaction, coordinating disposal of non-hazardous waste, C&D debris and bulky waste, well installation and abandonment and Site restoration. Barbella's mobilization efforts included the provision of the engineering/construction trailers, temporary utilities (electric, water and telephone), temporary facilities (sanitary, trash, etc…), health and safety monitoring supplies and equipment, decontamination equipment and decontamination trailer. Barbella's construction activity daily reports are summarized in Appendix A.

The Consultants' personnel also mobilized to the Site on May 1, 2000 and provided construction oversight for the duration of the remedial action. Construction oversight included shop drawing review, daily inspection to verify conformance with the specifications, health and safety monitoring, waste characterization soil sample collection, fill and wastewater disposal tracking, and photo documentation. Roux Associates' construction activity daily reports are summarized in Appendix B.

5.1.3 Site Preparation

Prior to the initiation of the major remedial construction tasks, several Site preparation tasks were performed by Barbella. These Site preparation tasks included:

- Preparation and submission of project specific work plans:
  - Construction Contingency Plan (Barbella 2000a);
  - Construction Quality Assurance/Quality Control Plan (Barbella 2000b);
  - Health and Safety Plan (Barbella 2000c);
  - Monitoring, Sampling and Analysis Plan (Barbella 2000d);
  - Water Management Plan (Barbella 2000e); and
  - Work and Waste Handling Plan (Barbella 2000f).
- coordination with the City of Glen Cove and USEPA concerning Site access issues;
- verification of all on-site utilities within the work zone prior to initiating any intrusive activities;
- performance of an initial Site survey (subcontracted to Lockwood, Kessler & Bartlett, Syosset, New York);
- installation of permanent construction fencing to delineate the work zone and act as a work Site security measure;
- installation of temporary fencing to segregate the exclusion zone from the contaminant reduction zone;
- construction of a decontamination pad;
- construction of the stabilized construction blanket; and
- installation of soil erosion and sedimentation control measures.

5.2 Implementation and Management of a Site Specific Health and Safety Plan

All remediation activities were performed in a manner consistent with 29 CFR 1910 and 1926 in accordance with the Contractor's Site Specific Health and Safety Plan (HASP). As part of the Contractor's HASP, air monitoring was conducted during all remedial activities for both VOCs and particulates. In addition to performing air monitoring, in-situ radiation monitoring was also performed. A summary of the HASP monitoring performed is provided below.

5.2.1 VOC and Particulate Air Monitoring

VOC monitoring was conducted on a continual basis during the excavation of potentially contaminated soil using a photo-ionization detector (PID). VOC monitoring data along with PID calibration records are provided in Appendices C and D, respectively. As shown in Appendix C, VOC action levels were not exceeded at the Site perimeter; therefore, no vapor suppression techniques were employed during the implementation of the RA.

Dust and air monitoring were also conducted on a continual basis during the performance of all earthwork activities using a PDR-1000 and PDM-3 Mini-ram particulate monitor (Mini-ram). Mini-ram calibration records along with Particulate monitoring data are provided in Appendices D and E, respectively. As shown in Appendix E, particulate action levels were exceeded intermittently at the Site perimeter; therefore, dust suppression techniques were employed during the implementation of the RA. This typically involved applying water on the haul roads.

5.2.2 In-situ Radiation Monitoring

In addition to air monitoring, soil excavated during the RA was monitored for radiation to protect on-site workers from potential exposure to dangerous levels of radiation. The radiation monitoring was performed by the Contractor's Health Physics Field Technician (HPFT) under the direction of the Consultant's Field Engineer and Health Physics Safety Officer (HPSO) in accordance with the protocol provided in Figure 3. Monitoring entailed scanning the count-rate meter detector (Ludlum^{TM} Model 2221 count-rate meter and scaler equipped with a 100 cm2 sodium iodide (NaI) detector) across the floor of the excavation exposed after each three-foot of material was excavated. Any soil that exhibited readings above background (refer to Appendix G) but below the threshold for acute exposure risk to on-site workers, radioactivity above 100 millirem (mrem) (or approximately 1,000,000 counts per minute [cpm]), would be handled as described in Barbella's Construction Contingency Plan (CPP). However, as summarized in the radiation monitoring data provided in Appendix F, the threshold for acute exposure risk was not exceeded during the implementation of the RA. The related count-rate meter detector calibration records are also provided in Appendix F.

5.3 Removal Of Above-Grade Debris And Bulky Waste

To facilitate the remediation of below-grade contamination at the Site, all above grade debris and bulky waste within the Site limits of work were first removed and disposed of off-site. Above-grade material removed include the following: concrete footings, concrete debris, wood debris, miscellaneous structures and foundations, concrete pipe, concrete, wood or steel pilings, rebar, abandoned vehicles, tires, asphalt, unused fencing, unused utility lines, utility poles and electric transformers, etc… A mixed assortment of approximately 833 concrete, wood and steel pilings were excavated, staged and later disposed of off-site. Transportation and off-site disposal of any above-grade bulky waste and C&D debris was performed as described in Section 5.11.1.

In addition to these above-grade materials, large concrete shell remnants of the former condominiums overlaid portions of the Site. However, instead of shipping this material off-site for disposal as C&D debris, the concrete shells were processed as discussed in Section 5.4 for on-site reuse.

5.4 Processing Of Demolition Debris For On-Site Reuse

As a cost saving measure, Barbella selectively demolished the above-grade concrete shell remnants of the former condominiums for on-site reuse. Barbella utilized a Hitachi EX-270 Hydraulic excavator with a pulverizer attachment to crush the existing concrete to a nominal 8-inches or less to meet the specified backfill requirements for fill materials below mean high groundwater levels. Approximately, 6,117 tons of backfill was generated as a result of the selective demolition program. Structural rebar was separated from the demolition debris and eventually shipped off-site for salvaging. The backfill generated was staged adjacent to excavated areas and then utilized to supplement the recycled crushed aggregate (RCA) material used to backfill the excavation below mean high groundwater levels as discussed in Section 5.10.1.

5.5 Clearing and Grubbing

Prior to initiating the excavation of waste within the limits of contamination, 7.76 acres of the Site was cleared and grubbed. Activities performed included removing and disposing of all trees, brush and stumps. Clearing and grubbing these areas of the Site was required because it provided Barbella with the following:

- Access to areas of the Site which required remediation; and
- Staging/ stockpiling areas for excavated materials.

5.6 Waste Excavation

Excavation work was performed to the horizontal and vertical limits shown on As-Built Drawing. The pre-construction horizontal and vertical limits of excavation were extended, with concurrence of the NYSDEC, in several areas of the Site based on the observance of landfill debris beyond the original limits of remediation. However, in several instances, the removal of landfill debris was bounded based on the following:

- Limits of radiological waste on the eastern and western limits of the excavation (to be excavated by the USEPA);
- The lagoons to the north; and
- Glen Cove Creek to the south.

The protocol for managing excavated material during the performance of the RA is provided in Figure 4. A total of 100,643 cubic yards of material was excavated and managed during the performance of the RA. As part of Barbella's efforts to facilitate remedial construction activities, limited dewatering was performed. All construction wastewaters generated from these limited operations were directed to other open excavations at the Site.

Once the material was excavated, Barbella initially characterized and managed the following types of excavated materials as discussed in the following subsections:

- radiological waste;
- type A material;
- type B material; and
- bulky waste.

5.6.1 Radiological Waste

Approximately, 1,836 cubic yards of radiological waste was identified and removed from the excavation during the RA. Radiological waste was considered any material excavated which exhibited radiation levels exceeding 2-times background levels as determined by Barbella (Refer to Appendix G). Once the radiological waste encountered within the limits of excavation was identified, it was managed in accordance with the Final Contract Documents and Barbella's CPP. The protocol for managing radiological material during the performance of the RA is provided in

Figure 3. All excavated radiological waste was subsequently stockpiled at an area of the Site that contained sol with elevated radioactivity (i.e., Areas A and G) as previously designated by the USEPA. The radiological waste was then covered with approximately one foot of general fill so that radiation monitoring measurements at the soil surface were less than 2-times background.

5.6.2 Type A Material

Approximately, 93,307 cubic yards of Type A Material were identified and removed from the excavation during the RA. Type A Material did not show signs of contamination based on visual observation or real-time radiation or VOC monitoring efforts. Once the Type A Material encountered within the limits of excavation was identified, it was mechanically screened in accordance with Section 5.7, prior to being stockpiled, characterized and ultimately reused on-site or disposed of off-site.

5.6.3 Type B Material

Approximately, 5,500 cubic yards of Type B Material were identified and removed from the excavation during the RA. Type B Material showed signs of contamination based on visual observation and real-time radiation and VOC monitoring efforts. Once the Type B Material encountered within the limits of excavation was identified, it was stockpiled in accordance with Section 5.8, prior to being characterized, mechanical screened, stockpiled again and ultimately reused on-site or disposed of off-site.

5.6.4 Bulky Waste

Several hundred yards of bulky waste were identified and removed from the excavation during the RA. Bulky waste included tires, furniture, boulders, pilings, vehicles and other similar types of material. Once the bulky waste encountered within the limits of excavation was identified, it was stockpiled and disposed of off-site as C&D debris in accordance with Section 5.11.1.

5.7 Mechanical Screening

After excavated material was initially separated, Type A and selected Type B stockpiled materials were mechanically screened. During the implementation of the RA, Barbella used two screening units. A Reade Screen R207 unit was used during the early phases of the RA; however, because this unit was ineffective at properly screening excavated materials, Barbella replaced the R207 unit with an Erin Fingerscreener 165T unit during the latter stages of the RA. The purpose of both units was to separate out materials less than 1 inch. In accordance with the ROD, material greater than 1-inch minus was not permitted to be reused on-site as backfill. Therefore, any material exceeding 1-inch minus material was disposed of off-site as C&D debris in accordance with Section 5.11.1. Because there was a potential that the 1-inch minus material could be reused on-site as backfill, it was stockpiled in accordance with Section 5.8 prior to being sampled for waste characterization.

5.8 Stockpiling

Based on the material generated as a result of mechanical screening of Type A and selected Type B Materials, a total of eighty-six stockpiles were created.

All excavated material above groundwater was transported directly to and deposited in area(s) approved by the Engineer. Generally, the screened and separated material was stockpiled on top of and covered with polyethylene plastic sheeting a minimum of 10 mils thick. However, 40 mil thick liner was installed below stockpiled soils with potential or known contaminated material.

Material excavated below groundwater was stockpiled at two different locations of the Site as described below:

- Location 1 – adjacent to an area of excavation to allow the leachate to drain directly to open excavations; or
- Location 2 – in a clean area on top of 40 mil thick sheeting, covered with 10 mil thick liner.

Silt fencing, hay bales and other berm controls were installed around each stockpile to prevent erosion of materials beyond the limits of each plastic-lined staging area.

5.9 Waste Characterization

After all potentially reusable excavated material was mechanically screened and stockpiled, waste characterization sample results were reviewed to determine if the material could be reused on-site as backfill or if it would have to be disposed of off-site as non-hazardous contaminated waste. Waste characterization samples were collected from stockpiles generated from the excavation of Type A and Type B materials in accordance with the requirements of the

Contractor's Monitoring, Sampling and Analysis Plan (MSAP). For each stockpile, the following was performed:

- A grab sample from each stockpile was collected and analyzed for VOCs in accordance with the NYSDEC Analytical Services Protocol (ASP);
- A composite sample from each stockpile was collected and analyzed for SVOCs, pesticides and metals in accordance with the NYSDEC ASP; and
- A grab sample from each stockpile was collected and analyzed for radionuclides (uranium, thorium and their decay progeny) in accordance with United States Department of Energy Method EML-HASL-300.

The metal, pesticide, VOC, SVOC and radionuclide waste characterization sampling results for each of the 86 stockpiles generated are summarized in Tables 1a, 1b, 2a, 2b, 2c, 2d, 3a, 3b, 3c, 3d, 4a, 4b, 4c, 4d and 5a and 5b, respectively. Chemical (Compuchem Laboratory) and Radiochemical (Outreach Laboratory) chains of custody are provided in Appendices H and I, respectively. The Toxicity Characteristic Leaching Procedure (TCLP) was also performed when the stockpile sampling results revealed that the contamination exceeded the Site cleanup criteria presented in Table 6. A total of nine stockpiles (SPB-1, SPB-2, SPA-16, SPA-40A, SPA-40B, SPA-40C, SPA-47, SPA-62 and SPB-63) were sampled utilizing the TCLP.

5.9.1 Excavated Fill Materials Characterized as Non-hazardous Waste

As shown on Table 7, a total of eight of the eighty-six stockpiles (stockpiles SPA-16, SPB-1, SPB-2, SPA-40C, SPA-47, SPA-62, SPA-66 and SPA-67) exceeded the cleanup criteria for the Site. As a result, this material was shipped off-site as non-hazardous waste. Each stockpile was sampled and analyzed for the selected parameters in accordance with the requirements of the proposed disposal facilities. Transportation and disposal of this soil characterized as non-hazardous solid waste is discussed in Section 5.11 of this report.

5.9.2 Sampling and Analysis of Excavated Materials for On-Site Reuse

As shown in Table 7, a total of 78 of the 86 stockpiles were approved for on-site reuse, with NYSDEC concurrence. It should be noted that several of these stockpiles slightly exceeded Site-specific Cleanup Levels as summarized on Table 8. On-site reuse of this soil as a backfill is discussed in the following Section.

5.10 Provision, Placement and Compaction of Fill Materials

After the project team reviewed the completed excavations and confirmed, with NYSDEC concurrence, that no additional excavation or other remediation was warranted, each excavation area was backfilled and compacted with fill material from both on-site and off-site sources. RCA and common fill were the two (2) types of fill materials provided, placed and compacted on-site as discussed below. In addition, sediment dredge material from Herb Hill Road/ Glen Cove Creek and Thames Dredge & Dock Co./ Ferry Terminal projects were also used as backfill material. This is further discussed in Section 5.10.3.

5.10.1 Provision of Fill Materials

Once the remediation efforts in an area within the excavation were completed, RCA was used to backfill areas of the excavation below mean high groundwater levels. Approximately, 6,117 tons of on-site RCA and 26,388.45 tons of imported RCA were used to backfill excavation areas extending below the mean high groundwater level. On-site RCA was generated through the demolition of above-grade concrete structures as discussed in Section 5.4 of this RACR. In addition, off-site RCA was imported to the Site from a variety of off-site fill material sources as summarized on Table 9. The respective certified scale tickets furnished from each fill source are provided in Appendix J.

Once each excavated area was backfilled to the mean high groundwater level with RCA, common fill was used to backfill the remaining excavation to the surrounding grade elevation. Approximately, 86,768 cubic yards of re-usable common fill and 41,333.89 tons of imported common fill were used to backfill these excavated areas. Although both on-site and off-site sources of common fill were used, the top two feet of excavated areas was covered only with imported common fill as required by the ROD. Prior to the installation of the 2 foot cover layer, approximately 296,100 square feet of Warning Barrier Plastic Fence No. 14993, as manufactured by Mutual Industries, Inc., was installed throughout the entire area of remediation. The on-site source of common fill was generated from excavated materials that were mechanical screened as discussed in Section 5.7 and subsequently sampled for waste characterization purposes as described in Section 5.9. Off-site common fill was imported to the Site from a variety of off-site fill sources as summarized on Table 10. The respective certified scale tickets furnished from each fill source are provided in Appendix K.

The clean fill certifications are provided in Appendix L. The laboratory analytical report for each off-site common fill and RCA material source are provided in Tables 11 and 12, respectively.

5.10.2 Placement and Compaction of Fill Materials

All on-site and off-site fill materials were placed within each excavation in 12-inch lifts. For each lift, the minimum compacted dry density of fill material was 85% Standard Proctor for on-site Sources and 90% Standard Proctor for off-site sources as determined by American Society for Testing and Materials (ASTM) D698 method and as directed by the Engineer. It should be noted, that the specified minimum compacted dry density for on-site sources of fill materials was reduced from 90% to 85% Standard Proctor as part of Change Order No. 6 (Remedial Engineering, 2000) because of the deteriorating weather conditions and the existing wet conditions within several excavation areas at the time of placement. Although this compaction requirement was reduced, Barbella was still required to make a "good faith effort" to achieve 90% Standard Proctor during the ongoing placement of on-site fill material. This effort involved the continued placement of common fill utilizing twelve-inch lifts and compacting each of these lifts with a minimum of three passes using the CAT 563 vibratory roller. Once these efforts were completed, Barbella collected nine (9) randomly located samples per acre per lift to confirm that a compaction result of at least 85% Standard Proctor was achieved. These compaction test results along with the proctor test reports, gradation and classification are provided in Appendices M and N, respectively. The geotechnical chains of custody are provided in Appendix O.

5.10.3 Placement and Compaction of Sediment Dredge Material

Approximately 676 tons of sediment dredge material from the Glen Cove Creek/Herb Hill Road Project was imported to the Site on April 17, 2001, and was subsequently used as backfill within an area of approximately 50ft by 50ft along the south corner of the west retention pond (Drawing 2). Grain size analysis and chemical analysis were performed prior to bringing this material onsite, as discussed in a letter from D&B to NYSDEC dated March 13, 2001 (Appendix P). As reported in that letter, sampling results indicated that all of the Captain's Cove replacement values were met, except for selenium and silver, which were only slightly above the acceptable criteria. In addition, the grain size analysis performed indicated that the material was physically suitable as backfill. Once the material was backfilled, a proctor test was performed on April 18, 2001 (Appendix P). Although this material was previously backfilled on April 17, 2001, the NYSDEC requested that the backfilled material be screened for radiation, in-situ, as an additive protective measure. Consequently, radiation screening was performed along the surface of the in-place backfilled dredge material on May 14, 2001. The results of this screening event indicated that the radiation levels detected were below acceptable background levels (Appendix P). It should be noted, that a final cover of two feet of clean soil was placed on top of this material as a final protective measure.

In addition, on June 6, 7 and 8, 2001, approximately 2,430 tons of dredge material from Thames Dredge & Dock Co./Ferry Terminal was delivered and backfilled onsite. The results of the chemical analysis performed on this material is provided in Appendix Q. As stated in the letter from D&B to NYSDEC dated May 30, 2001, the results are below the Soil Contaminant Values for Replacement of Residue Material established by NYSDEC for the Site. Iron and zinc exceeded slightly for NYSDEC RSCO.

5.11 Off-Site Transportation and Disposal

Excavated soil and C&D debris and bulky waste were transported and disposed at appropriate treatment, storage and disposal facilities (TSDFs). All TSDFs are permitted under the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), and/or by the State in which the TSDF is located. The haulers off all wastes were permitted and licensed to transport wastes in New York and all localities and states through which they transported the wastes. All transporters were permitted in accordance with RCRA, United States Department of Transportation (USDOT), state and local requirements, and possessed an EPA identification number. All vehicles used for the transportation of wastes were also in conformance with USDOT and USEPA requirements and the requirements of all states through which the wastes were transported. All applicable manifesting and placarding transportation requirements were implemented.

Barbella coordinated the disposal of all non-hazardous waste, C&D debris and bulky waste generated during the performance of the RA. All manifests and transporting documents were field checked for completeness and accuracy by Barbella prior to final review and confirmation by the Consultants.

5.11.1 Construction and Demolition Debris and Bulky Waste

A total of 44,079.47 tons of bulky waste and construction and demolition debris were transported and disposed of by (Broman) 110 Sand Company, West Babylon, New York. Certified weight scale tickets for all C&D debris and bulky waste transported off-site are provided in Appendix R.

5.11.2 Non-Hazardous Solid Waste

As discussed in Section 5.9.1, eight of the 86 excavation stockpiles generated during the performance of the RA were characterized as non-hazardous waste, but required transportation off-site to an approved disposal facility. Approved haulers transported the excavated material with field coordination provided by Barbella. Decontamination certificates for the trucks leaving the Site are provided in Appendix S. A total of 8,121.06 tons of non-hazardous, contaminated excavated material was transported and disposed to the following disposal facilities:

- Linden Landfill, Linden, New Jersey,
- Carteret Biocycle Corporation, Carteret, New Jersey,
- Clean Earth Inc., Winslow, New Jersey,
- Clean Earth of Philadelphia, Philadelphia, Pennsylvania,
- Environmental Alliance Group, Ventnor, New Jersey, and
- Atlantic County Utilities Authority, Atlantic City, New Jersey disposal facilities.

The individual quantity of non-hazardous material shipped to each respective facility is provided in Table 13. The non-hazardous solid waste manifests and certified weight scale tickets are also provided in Appendix T.

5.12 Monitoring Well Abandonment and Construction

During the initial phases of the RA, two monitoring wells located to the south of the site, MW-4 and CDM-5, were abandoned in accordance with NYSDEC requirements.

The abandonment of monitoring wells MW-4 and CDM-5 was completed during the early phases of the RA. Barbella completed the well abandonment in accordance with the Final Contract Documents. The borehole was sealed with cement/bentonite grout. All well casings, screens, well construction materials, cuttings, etc… were disposed of off-site.

As part of the Site restoration activities, monitoring wells MW-4 and CDM-5 were replaced with monitoring wells MW-4R and MW-5R, respectively (As-Built Drawing 2). Delta Well & Pump Co. Inc. (Delta), Ronkonkoma, New York, in accordance with the Final Contract Documents, installed each monitoring well. Monitoring wells MW-4R and MW-5R were each constructed 2 inches in diameter at a depth of approximately 18 feet. The monitoring well drilling reports, as well as the well construction logs are included in Appendix US.

Once the wells were constructed, both wells (MW-4R and MW-5R) were pumped and surged until Delta and the Engineer determined that the respective well screens were properly developed. A total of approximately 100 gallons of groundwater were pumped from each well. This water was drummed and temporarily stored on-site prior to off-site disposal.

5.13 Site Restoration and Demobilization

After backfilling activities were completed, Barbella proceeded to restore the Site as shown on As-Built Drawing 2 and, subsequently, demobilized from the Site. Site restoration and demobilization activities are discussed in the following Sections.

5.13.1 Site Restoration

Restoration activities primarily involved establishing a viable vegetative cover over all excavated areas, and adjacent disturbed areas of the Site. Approximately, 223,830 square feet of vegetative cover was installed at the completion of the RA by Garden City Maintenance & Irrigation, Uniondale, New York. It should be noted that the approved seed mix used during Site restoration activities differed from the seed mix specified in the Final Contract Documents. The revised mix was supplied by DeLalio Sod Farms, Inc. and was prepared and applied in the following proportions:

Common Name	Application Rate (lbs./acre)
Wolfpack Tall Fescue	65
Common Creeping Red Fescue	13
Manhattan 3 Perennial Rye	14

5.13.2 Demobilization

Once all RA activities were completed, Barbella proceeded to demobilize from the Site. As part of these efforts, the following tasks were performed:

- all temporary utilities (electric, water and telephone) were disconnected;
- all temporary facilities (engineering trailer, construction trailer, sanitary units, trash units, decontamination pad, etc…) were dismantled and removed from the Site;
- all remedial construction equipment was decontaminated and removed from the Site;
- all health and safety monitoring and sampling supplies and equipment, temporary work zone barriers, temporary construction fencing and soil erosion and sedimentation control measures were removed from the Site; and
- the fencing for the Site was secured on the west, north and east sides of the property (there is no fencing on the south side of the property along Glen Cove Creek) and the keys for each locked access gate were furnished to the City.

Demobilization efforts were completed when all Site personnel, including representatives from Barbella, the Consultants' and the NYSDEC left the Site as of September 20, 2001.

6.0 OPERATION, MAINTENANCE AND MONITORING

As required by the ROD, "a long-term monitoring program will be instituted." This section of the report details the proposed operation and maintenance (OM&M) program for the Site which is currently being implemented as part of the City's effort to achieve overall effectiveness of the implemented remedy for the Site. The proposed monitoring, inspection and reporting activities discussed in this section of the RACR shall be performed by the City in accordance with the schedule provided in Table 14. It is anticipated that the frequency detailed in this Table may be modified based on a review of groundwater quality data, and resulting trends, generated for the Site during the implementation of the OM&M program. On a periodic basis, all OM&M activities performed will be summarized and provided to the NYSDEC in both quarterly progress reports and annual summary reports.. The elements of the OM&M program are listed below and further discussed in the following subsections:

- Ground-Water Monitoring;
- Subsurface Soil Gas Monitoring;
- Vegetation Inspection and Maintenance;
- Fence Inspection and Maintenance; and
- Regulatory Reporting Requirements and Remedy Completion.

6.1 Ground-Water Monitoring

One purpose of the remedial action is to prevent leaching of contamination from the fill material into groundwater. Institution of a ground-water monitoring program is proposed to verify the performance of the remedial action. In order to evaluate long-term ground-water quality improvement, a network of suitably located groundwater wells will be gauged and sampled. Accordingly, during each OM&M sampling round, one groundwater sample will be collected and analyzed from five on-site monitoring wells (MW-CDM-2, MW-CDM-3, MW-3, MW-4R and MW-5R). Initially, groundwater monitoring events will be performed on a quarterly basis, but this frequency may be reduced if groundwater quality trends developed during the implementation of the OM&M program warrant this reduction. Moreover, as discussed in the responsiveness summary for the PRAP for the Site, the NYSDEC did not expect that the groundwater contamination downgradient of the remediated areas would increase because most of the waste would be removed during the remedial action. The remaining inspection and reporting activities would continue in accordance with the schedule provided in Table 14 for the 30-year post-remedial action period.

If groundwater quality data reveal significant contaminant levels above Site background that are not due to upgradient off-Site sources, a Corrective Measures Report shall be prepared in accordance with 6NYCRR Part 360-2.20. "Corrective Measures Report." Specifically, the City will notify the NYSDEC and shall begin a corrective measures assessment within 90 days of this determination and complete the corrective measures assessment within a time acceptable to the NYSDEC.

As part of the OM&M program, each of the wells will be gauged for water level measurements using an electronic sounding device (M-Scope). In addition, each monitoring well sampled will be sampled in accordance with the following sampling methods and requirements described below.

6.1.1 Sampling Methods

Well sampling will be in accordance with NYSDEC guidelines as described below. Samples collected from the monitoring wells will be analyzed for VOCs per USEPA Method 8260, SVOCs per USEPA Method 8270 and metals per USEPA Method 6010. In addition to the samples detailed above, a duplicate (D), matrix spike (MS) and matrix spike duplicate (MSD) sample will be collected during each monitoring round. Each of these quality assurance/ quality control (QA/QC) samples will be analyzed for the same parameters as its corresponding sample. After the analytical samples and field blanks are collected, the sample bottles will be appropriately labeled and packed in coolers for shipment to the laboratory.

All analyses will be performed by a laboratory currently certified by the New York State Department of Health Environmental Laboratory Approval Program (ELAP) and Contract Laboratory Program (CLP) in all categories. All the Analytical data and quality assurance (QA) deliverables will be Superfund CLP or equivalent.

A composite waste characterization sample from the on-site drums will be collected and analyzed for VOCs, SVOCs and metals. If the results do not exceed NYSDEC Ambient Water

Quality Standards and Guidances Value (AWQSGVs) (NYSDEC, 2000b) or Site background levels, the water will be discharged to existing on-site storm drains. If the analytical results exceed NYSDEC AWQSGVs or Site background levels, an alternate disposal option will be selected with NYSDEC concurrence.

6.1.2 Sampling Requirements

Sample containers will be pre-labeled before sample collection. The labels will include the sample number, parameter sampled, date, time, sampler's initials and the Site name. A Chain of Custody (COC) form will be maintained as the record of possession for the sample.

Disposable gloves and bailers will be used to collect each sample and to place it in the sample containers. After the analytical samples are collected, the sample bottles will be packed in coolers for shipment to the laboratory.

Three purge volumes will be removed from each monitoring well prior to sampling. The purged groundwater will be removed using a low flow submersible pump and will be containerized in on-site 55-gallon drums.

6.2 Subsurface Soil Gas Monitoring

As discussed in Section 4.1 of this report, there is no need for subsurface soil gas monitoring during the post-remedial action OM&M period because there are currently no buildings on-site. However, a subsurface soil gas monitoring plan may need to be prepared consistent with future redevelopment activities at the Site. Therefore, if redevelopment occurs at the Site during the post-remedial action OM&M period, an amendment to this RACR will be issued which would modify the OM&M requirements in this section of the report.

6.3 Vegetation Inspection And Maintenance

It is proposed that the grass cover be mowed annually and cut to a height not less than 4 inches and not more than 8 inches. If observed, continuous bare soil or eroded areas in excess of 100 square feet will be re-seeded annually.

6.4 Fence Inspection And Maintenance

Annual inspections are proposed to determine if the fence along the west, north and east sides of the property (there is no fencing on the south side of the property along Glen Cove Creek) is adequately controlling unauthorized access, and will assess the need for fence, sign or gate repairs. Repairs will be performed within 30 days of the inspection.

6.5 Regulatory Reporting Requirements

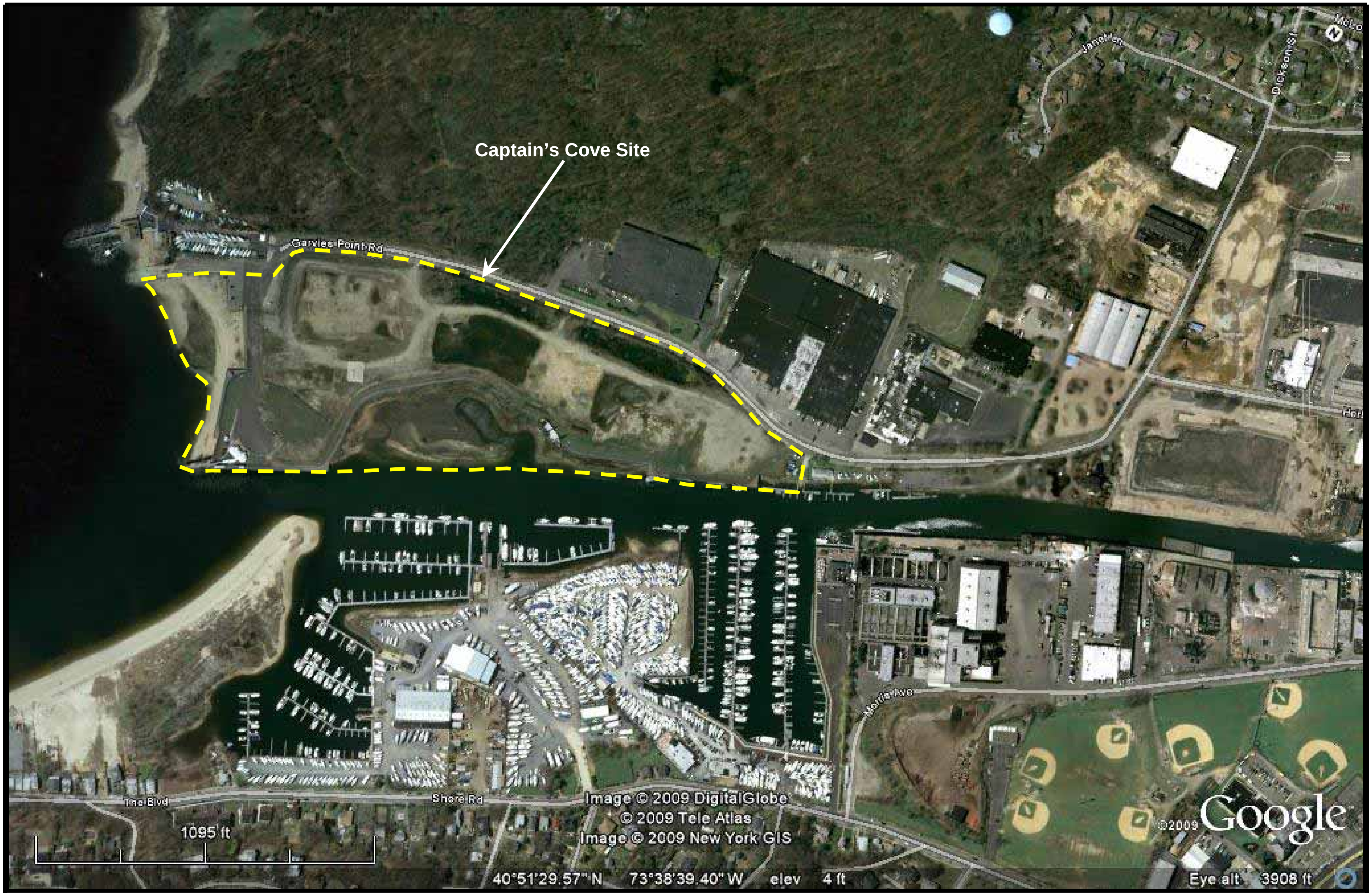
As mentioned previously, it is proposed that monitoring, inspection and maintenance activities will be performed quarterly. The results of these quarterly events will be summarized and presented in annual summary reports, which will be stamped and signed by a professional licensed engineer. Annual summary reports will include the following:

- summary of inspection, maintenance and monitoring activities performed during the year;
- Site monitoring, inspection and maintenance report form;
- analytical results of sampling activities;
- corrective actions to be taken, if appropriate; and
- proposed changes to the inspection, maintenance and monitoring schedule.

The proposed Site Monitoring, Inspection and Maintenance Form is included as Table 15. This form documents the inspection and monitoring activities to be performed at the Site.

Once all post-remedial O&M activities have been completed, an amendment to this RACR will be issued to summarize the results of the post-remedial action O&M activities and to request final Site closure and delisting.

FIGURES



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Dvirka and Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

SITE MANAGEMENT PLAN
CAPTAIN'S COVE SITE

LOCATION MAP

FIGURE 1

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, 11th Floor
625 Broadway, Albany, NY 12233-7015
Phone: (518) 402-9625 • **Fax:** (518) 402-9627
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

APR 29 2010

Kelly Morris
Executive Director
City of Glen Cove Industrial Development Agency
City Hall
9 Glen Street
Glen Cove, NY 11542

Re: Captain's Cove Condominium Site
Site No. 130022
Glen Cove (C) Nassau County
Site Management Plan

Dear Ms. Morris:

The New York State Department of Environmental Conservation Division of Environmental Remediation in conjunction with the New York State Department Health has completed the review of the Captain's Cove Condominium Site (130032) Draft Site Management Plan (SMP) dated April 14, 2010. The Department's approval of the SMP is contingent upon USEPA Region 2 approval. The USEPA will be providing their comments under a separate letterhead.

If you have any questions regarding our comments, please contact me at (518) 402-9622 or jayavond@gw.dec.state.ny.us .

Sincerely,

Joseph A. Yavonditte, P.E.
Chief, Remedial Section B
Remedial Bureau A

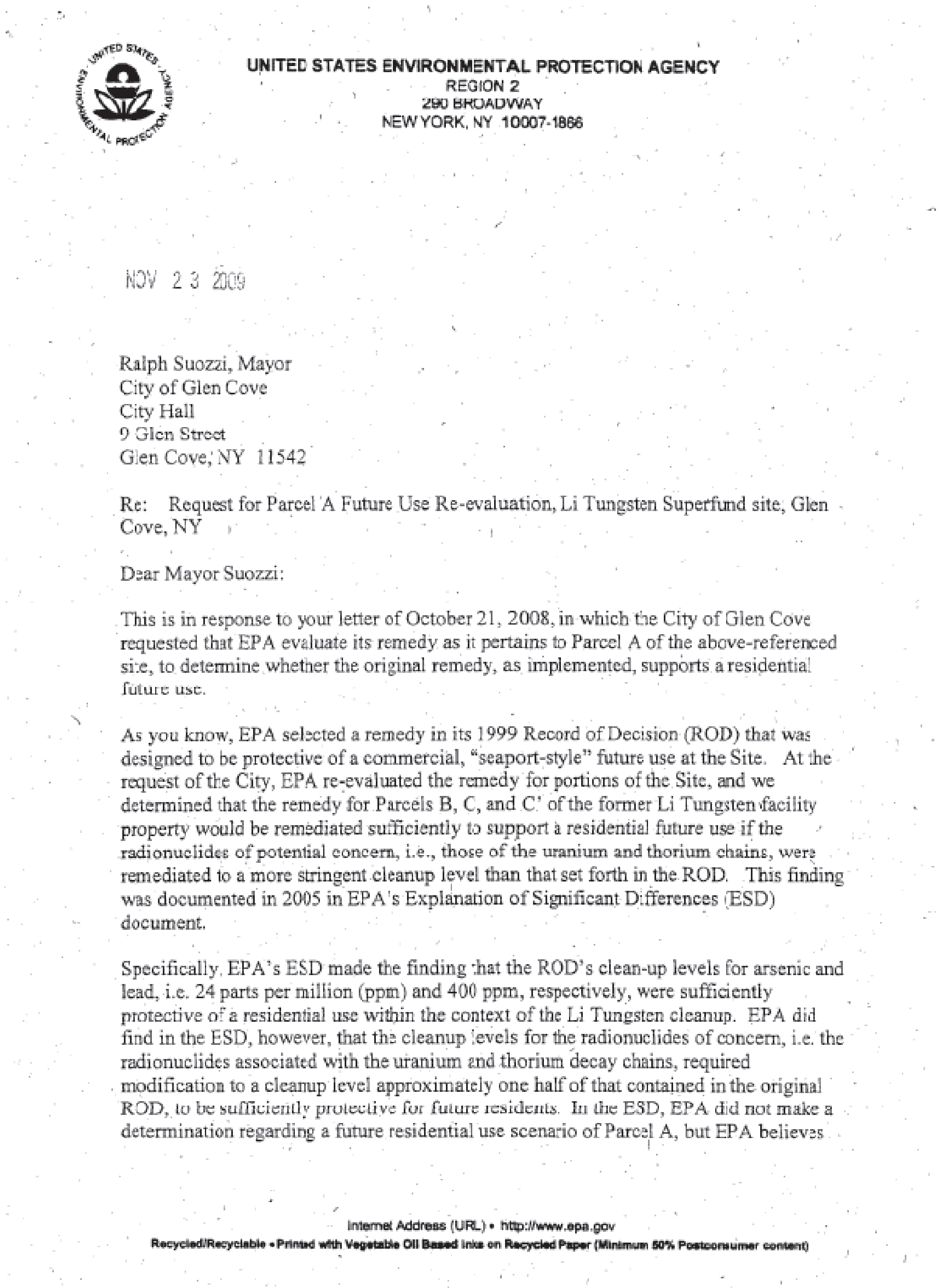
RECEIVED
MAY -5 2010
GLEN COVE
COMMUNITY DEVELOPMENT AGENCY

From: Doyle.James@epamail.epa.gov [mailto:Doyle.James@epamail.epa.gov]
Sent: Tuesday, June 21, 2011 11:29 AM
To: Warren, Charles S.
Subject: Re: FW: Re:

We've typically been added as a third party beneficiary to the standard state easement so that we have rights to enforce the requirements of the remedy. But we are not signatories and do not slow down the process.

Appendix B

EPA Parcel A Restricted Residential Use Requirements Letter in FY10 5-yr Review Report



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

NOV 2 3 2009

Ralph Suozzi, Mayor
City of Glen Cove
City Hall
9 Glen Street
Glen Cove, NY 11542

Re: Request for Parcel A Future Use Re-evaluation, Li Tungsten Superfund site, Glen Cove, NY

Dear Mayor Suozzi:

This is in response to your letter of October 21, 2008, in which the City of Glen Cove requested that EPA evaluate its remedy as it pertains to Parcel A of the above-referenced site, to determine whether the original remedy, as implemented, supports a residential future use.

As you know, EPA selected a remedy in its 1999 Record of Decision (ROD) that was designed to be protective of a commercial, "seaport-style" future use at the Site. At the request of the City, EPA re-evaluated the remedy for portions of the Site, and we determined that the remedy for Parcels B, C, and C' of the former Li Tungsten facility property would be remediated sufficiently to support a residential future use if the radionuclides of potential concern, i.e., those of the uranium and thorium chains, were remediated to a more stringent cleanup level than that set forth in the ROD. This finding was documented in 2005 in EPA's Explanation of Significant Differences (ESD) document.

Specifically, EPA's ESD made the finding that the ROD's clean-up levels for arsenic and lead, i.e. 24 parts per million (ppm) and 400 ppm, respectively, were sufficiently protective of a residential use within the context of the Li Tungsten cleanup. EPA did find in the ESD, however, that the cleanup levels for the radionuclides of concern, i.e. the radionuclides associated with the uranium and thorium decay chains, required modification to a cleanup level approximately one half of that contained in the original ROD, to be sufficiently protective for future residents. In the ESD, EPA did not make a determination regarding a future residential use scenario of Parcel A, but EPA believes that its cleanup of Parcel A with regard to the parameters mentioned above would meet residential cleanup requirements.

However, in response to your request, EPA has performed an evaluation which has determined that the pre-remediation concentrations of other potential contaminants on Parcel A, such as benzo(a)pyrene and other polycyclic aromatic hydrocarbons (PAHs), result in calculations of cumulative risk from all sources that are outside of EPA's cancer risk range. PAHs were not originally targeted by EPA for remediation because PAHs did not present an unacceptable risk for the anticipated commercial future use of the Site. Additionally, based upon new information, EPA has determined that another heavy metal associated with Li Tungsten operations, i.e., cobalt, could result in unacceptable non-cancer health hazards in residential children.

These findings require a note of explanation. This most recent evaluation used available data from Malcolm Pirnie's 1998 Remedial Investigation (RI) report to develop exposure point concentrations for chemicals that were not originally targeted in the ROD for cleanup i.e., it was assumed that these contaminant concentrations had not been reduced as a result of the Site remediation. For contaminants of concern, targeted clean-up values were used as the assumed concentration actually remaining at the Site. For example, the evaluation's exposure point concentration for arsenic was 24 ppm. Furthermore, at least one of these chemicals' toxicity values i.e., cobalt, has changed since the time of the ROD, and EPA believes that the revised toxicity information is appropriate to be used in its present re-evaluation of risk for Parcel A.

Therefore, in order to utilize Parcel A for future residential use, two possible options are:

- Performance of additional sampling to ascertain current conditions and risks on Parcel A. As a result of the 1999 ROD, EPA excavated many areas contaminated by lead, arsenic, and the radionuclides of concern which may have been co-located with cobalt, PAHs, etc. Additional sampling may reveal that levels of these "non ROD" contaminants may also have decreased because of subsequent remediation Sample results and risk evaluation could be used to determine whether residential future use would be acceptable on Parcel A and, if not, the additional sampling could be used to target areas for additional excavation such that risks would be reduced to acceptable levels. Any additional sampling, risk assessment and/or remedial excavation on Parcel A would need to be undertaken by the City and would require EPA and State review and approval.

- Presumptive remediation to address risk by eliminating exposure pathways. Because the exposure pathways presently driving the risk are associated with the potential for extended human contact, the placement and maintenance of an acceptable barrier, e.g., two feet of clean cover between exposure points and final grade, may be an acceptable approach to address it. However, such remediation would naturally require additional restrictions on future development, e.g., maintenance of the two feet of cover and its effectiveness

The above Parcel A discussion can be viewed in the context of the City's ongoing development of a Site Management Plan for the former facility property, which should address both the proper performance of construction activities as well as the necessary institutional controls that require implementation, e.g., no water withdrawals from the underlying Upper Glacial Aquifer, building/infrastructure designs consistent with eliminating the potential for soil vapor intrusion, etc. Also, depending on how the City plans to proceed with respect to Parcel A, EPA may determine that another Explanation of Significant Differences (ESD) or amendment to the remedy set forth in the 1999 ROD is necessary.

Please be advised that the New York State Departments of Environmental Conservation and Health would also have to review and concur on any actions taken with respect to your Parcel A request. Any institutional controls would also need to be implemented prior to development of the parcel.

In summary, should the City wish to proceed with either of these options or would like to discuss this matter further, please call Edward Als of my staff at (212) 637-4272.

Sincerely,

Doug Garbarini, Chief
NY Remediation Branch

cc: K. Morris, GC IDA
H. Dudek, DEC
J. Yavonditte, DEC

Appendix C: Ferry Terminal Documents:

DEC Permit

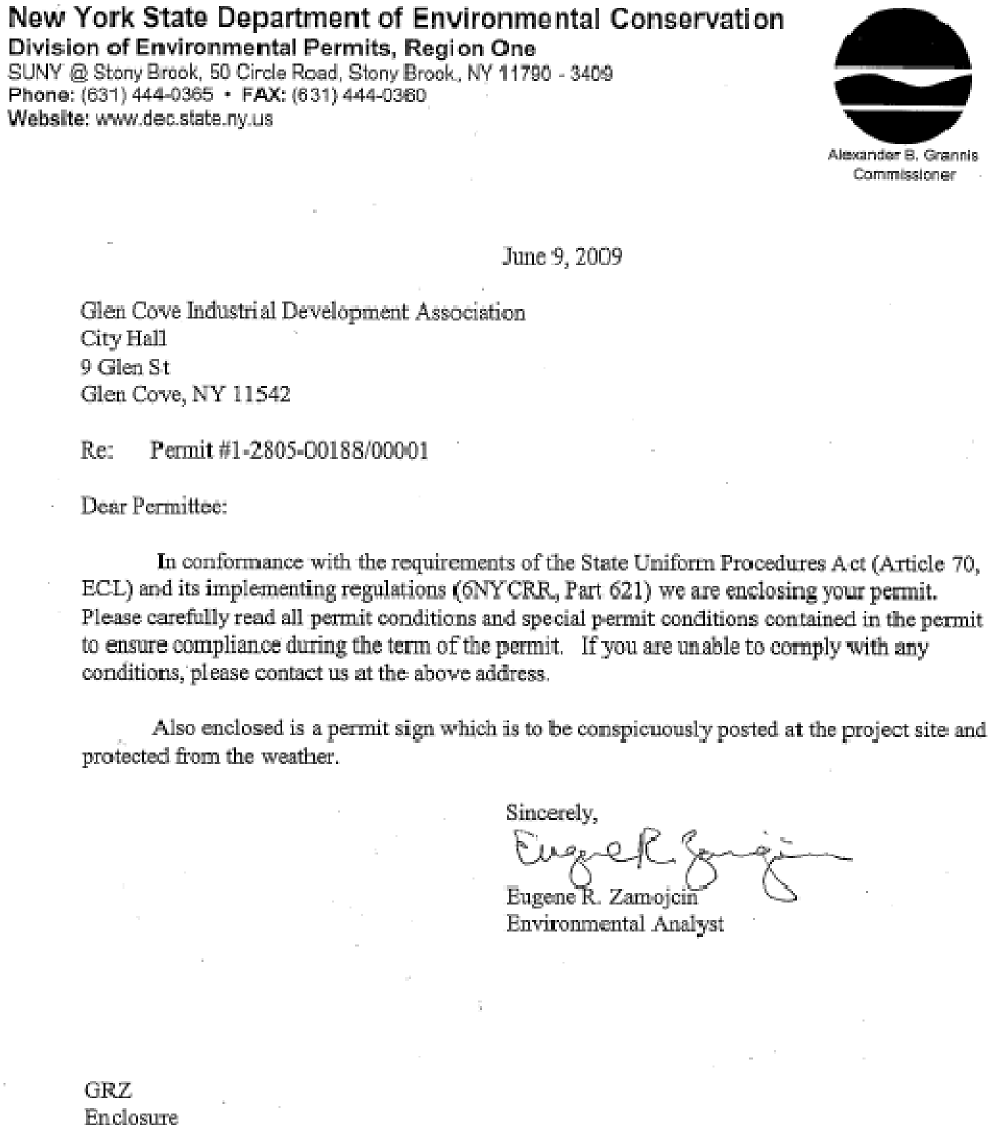
Army Corps of Engineers Permit

Ferry Terminal SMP

Ferry Terminal Dredging-Excavation Work Plan

SSP-13 Results Package

SSP-20 Results Package



New York State Department of Environmental Conservation
Division of Environmental Permits, Region One
SUNY @ Stony Brook, 50 Circle Road, Stony Brook, NY 11790 - 3409
Phone: (631) 444-0365 • **FAX:** (631) 444-0360
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

June 9, 2009

Glen Cove Industrial Development Association
City Hall
9 Glen St
Glen Cove, NY 11542

Re: Permit #1-2805-00188/00001

Dear Permittee:

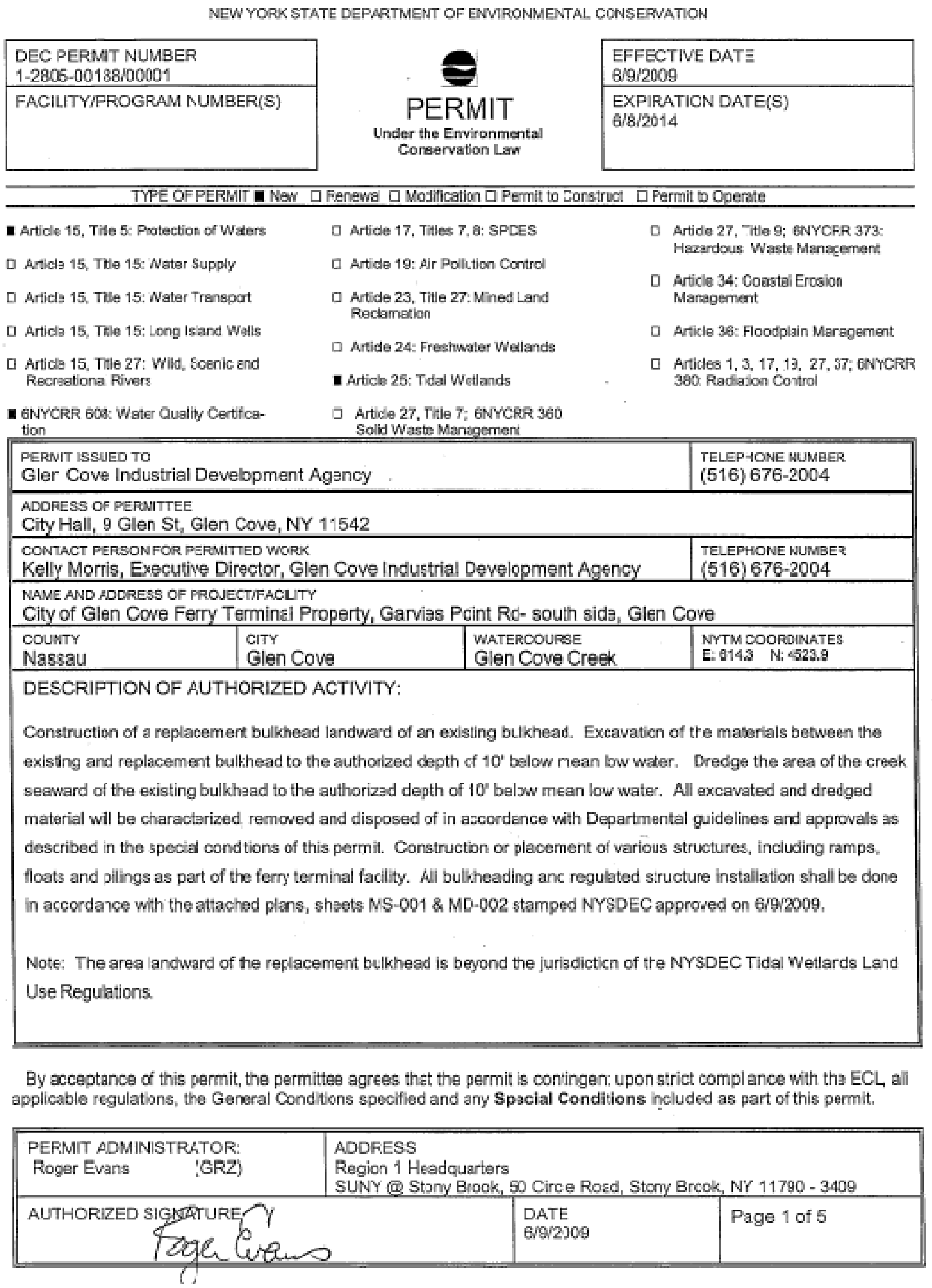
In conformance with the requirements of the State Uniform Procedures Act (Article 70, ECL) and its implementing regulations (6NYCRR, Part 621) we are enclosing your permit. Please carefully read all permit conditions and special permit conditions contained in the permit to ensure compliance during the term of the permit. If you are unable to comply with any conditions, please contact us at the above address.

Also enclosed is a permit sign which is to be conspicuously posted at the project site and protected from the weather.

Sincerely,

Eugene R. Zamojcin
Environmental Analyst

GRZ
Enclosure



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEC PERMIT NUMBER 1-2805-00138/00001	**PERMIT** Under the Environmental Conservation Law	EFFECTIVE DATE 6/9/2009
FACILITY/PROGRAM NUMBER(S)		EXPIRATION DATE(S) 6/8/2014

TYPE OF PERMIT ☒ New ☐ Renewal ☐ Modification ☐ Permit to Construct ☐ Permit to Operate

☒ Article 15, Title 5: Protection of Waters

☐ Article 15, Title 15: Water Supply

☐ Article 15, Title 15: Water Transport

☐ Article 15, Title 15: Long Island Wells

☐ Article 15, Title 27: Wild, Scenic and Recreational Rivers

☒ 6NYCRR 608: Water Quality Certification

☐ Article 17, Titles 7, 8: SPDES

☐ Article 19: Air Pollution Control

☐ Article 23, Title 27: Mined Land Reclamation

☐ Article 24: Freshwater Wetlands

☒ Article 25: Tidal Wetlands

☐ Article 27, Title 7; 6NYCRR 360 Solid Waste Management

☐ Article 27, Title 9; 6NYCRR 373: Hazardous Waste Management

☐ Article 34: Coastal Erosion Management

☐ Article 36: Floodplain Management

☐ Articles 1, 3, 17, 19, 27, 37; 6NYCRR 380: Radiation Control

PERMIT ISSUED TO Glen Cove Industrial Development Agency	TELEPHONE NUMBER (516) 676-2004
ADDRESS OF PERMITTEE City Hall, 9 Glen St, Glen Cove, NY 11542	
CONTACT PERSON FOR PERMITTED WORK Kelly Morris, Executive Director, Glen Cove Industrial Development Agency	TELEPHONE NUMBER (516) 676-2004
NAME AND ADDRESS OF PROJECT/FACILITY City of Glen Cove Ferry Terminal Property, Garvies Point Rd- south side, Glen Cove	

COUNTY	CITY	WATERCOURSE	NYTM COORDINATES
Nassau	Glen Cove	Glen Cove Creek	E: 614.3 N: 4523.9

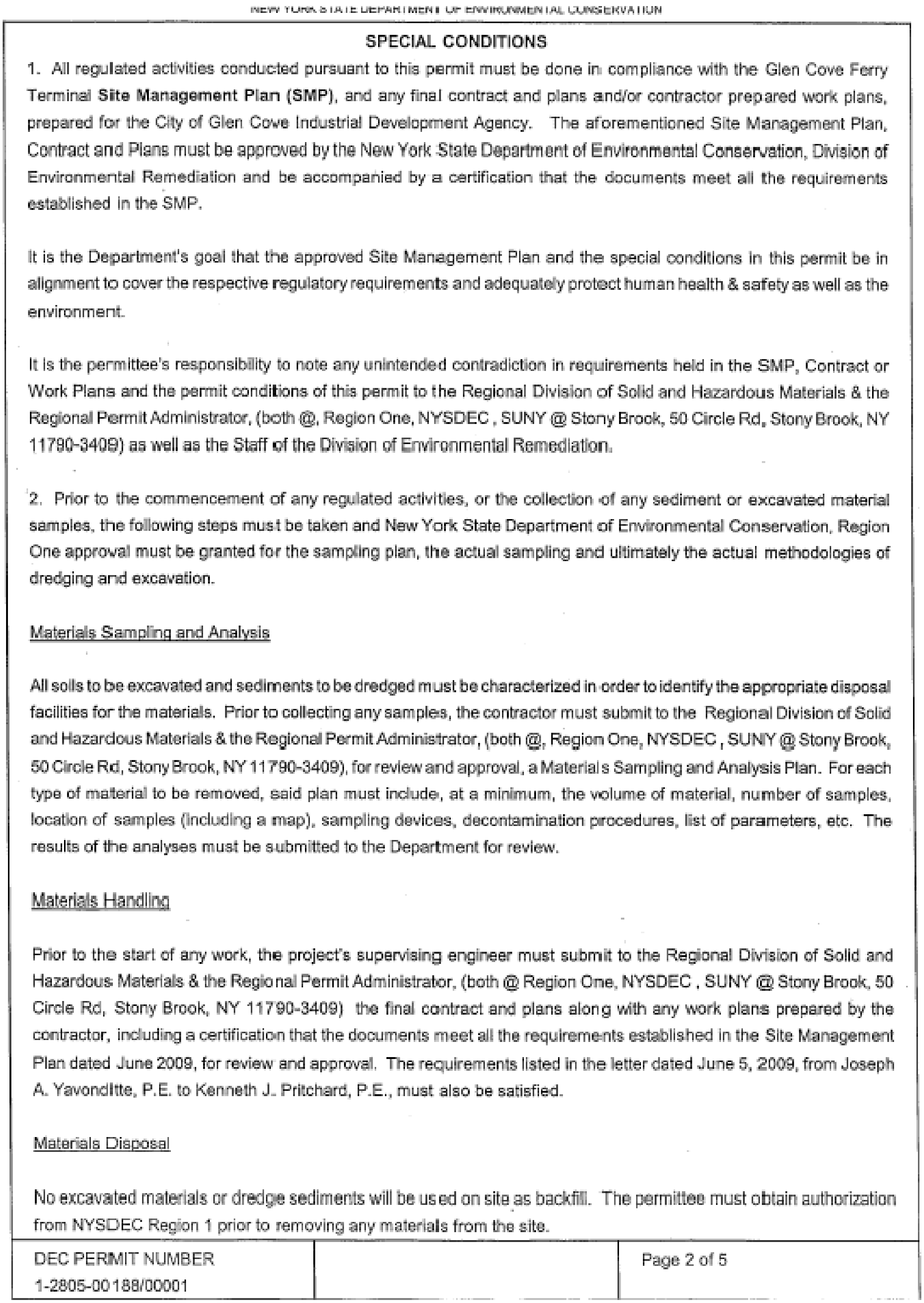
DESCRIPTION OF AUTHORIZED ACTIVITY:

Construction of a replacement bulkhead landward of an existing bulkhead. Excavation of the materials between the existing and replacement bulkhead to the authorized depth of 10' below mean low water. Dredge the area of the creek seaward of the existing bulkhead to the authorized depth of 10' below mean low water. All excavated and dredged material will be characterized, removed and disposed of in accordance with Departmental guidelines and approvals as described in the special conditions of this permit. Construction or placement of various structures, including ramps, floats and pilings as part of the ferry terminal facility. All bulkheading and regulated structure installation shall be done in accordance with the attached plans, sheets MS-001 & MD-002 stamped NYSDEC approved on 6/9/2009.

Note: The area landward of the replacement bulkhead is beyond the jurisdiction of the NYSDEC Tidal Wetlands Land Use Regulations.

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified and any **Special Conditions** included as part of this permit.

PERMIT ADMINISTRATOR: Roger Evans (GRZ)	ADDRESS Region 1 Headquarters SUNY @ Stony Brook, 50 Circle Road, Stony Brook, NY 11790 - 3409	
AUTHORIZED SIGNATURE Roger Evans	DATE 6/9/2009	Page 1 of 5



SPECIAL CONDITIONS

1. All regulated activities conducted pursuant to this permit must be done in compliance with the Glen Cove Ferry Terminal **Site Management Plan (SMP)**, and any final contract and plans and/or contractor prepared work plans, prepared for the City of Glen Cove Industrial Development Agency. The aforementioned Site Management Plan, Contract and Plans must be approved by the New York State Department of Environmental Conservation, Division of Environmental Remediation and be accompanied by a certification that the documents meet all the requirements established in the SMP.

It is the Department's goal that the approved Site Management Plan and the special conditions in this permit be in allignment to cover the respective regulatory requirements and adequately protect human health & safety as well as the environment.

It is the permittee's responsibility to note any unintended contradiction in requirements held in the SMP, Contract or Work Plans and the permit conditions of this permit to the Regional Division of Solid and Hazardous Materials & the Regional Permit Administrator, (both @, Region One, NYSDEC , SUNY @ Stony Brook, 50 Circle Rd, Stony Brook, NY 11790-3409) as well as the Staff of the Division of Environmental Remediation.

2. Prior to the commencement of any regulated activities, or the collection of any sediment or excavated material samples, the following steps must be taken and New York State Department of Environmental Conservation, Region One approval must be granted for the sampling plan, the actual sampling and ultimately the actual methodologies of dredging and excavation.

Materials Sampling and Analysis

All soils to be excavated and sediments to be dredged must be characterized in order to identify the appropriate disposal facilities for the materials. Prior to collecting any samples, the contractor must submit to the Regional Division of Solid and Hazardous Materials & the Regional Permit Administrator, (both @, Region One, NYSDEC , SUNY @ Stony Brook, 50 Circle Rd, Stony Brook, NY 11790-3409), for review and approval, a Materials Sampling and Analysis Plan. For each type of material to be removed, said plan must include, at a minimum, the volume of material, number of samples, location of samples (including a map), sampling devices, decontamination procedures, list of parameters, etc. The results of the analyses must be submitted to the Department for review.

Materials Handling

Prior to the start of any work, the project's supervising engineer must submit to the Regional Division of Solid and Hazardous Materials & the Regional Permit Administrator, (both @ Region One, NYSDEC , SUNY @ Stony Brook, 50 Circle Rd, Stony Brook, NY 11790-3409) the final contract and plans along with any work plans prepared by the contractor, including a certification that the documents meet all the requirements established in the Site Management Plan dated June 2009, for review and approval. The requirements listed in the letter dated June 5, 2009, from Joseph A. Yavonditte, P.E. to Kenneth J. Pritchard, P.E., must also be satisfied.

Materials Disposal

No excavated materials or dredge sediments will be used on site as backfill. The permittee must obtain authorization from NYSDEC Region 1 prior to removing any materials from the site.

SPECIAL CONDITIONS

3. **Sequencing of Work.** The existing bulkhead at the site must not be removed until the new replacement bulkhead is completely constructed landward of the existing one and all excavation and dredging activities between the bulkheads have been completed. No turbidity, sediment or excavated materials shall be allowed to discharge to the creek from behind the existing bulkhead. The final methodology must be described in the Materials Handling Plan that will be submitted for approval.

4. **No Disturbance to Vegetated Tidal Wetlands.** There shall be no disturbance to vegetated tidal wetlands as a result of the permitted activities. Potential exists for impacts to vegetated wetlands at the project site, especially for the approximately 15' x 40' Intertidal Marsh (IM) at the eastern end under the proposed ramp structures. The permittee must prepare a mitigation plan that offsets negative impacts to any IM at the site in the ratio of 3 sq ft of IM plantings for each 1 sq ft of impacted IM (minimum). Department staff will retain the discretion as to whether or not to implement the mitigation plan.

5. **Contain Exposed, Stockpiled Soils.** All disturbed areas where soil will be temporarily exposed or stockpiled shall be contained by a continuous line of staked haybales /silt curtains (or other NYSDEC approved devices) placed to completely contain the fill from entering the wetland. In any case, these activities must also be conducted in accordance with the approved Site Management Plan and supporting documents.

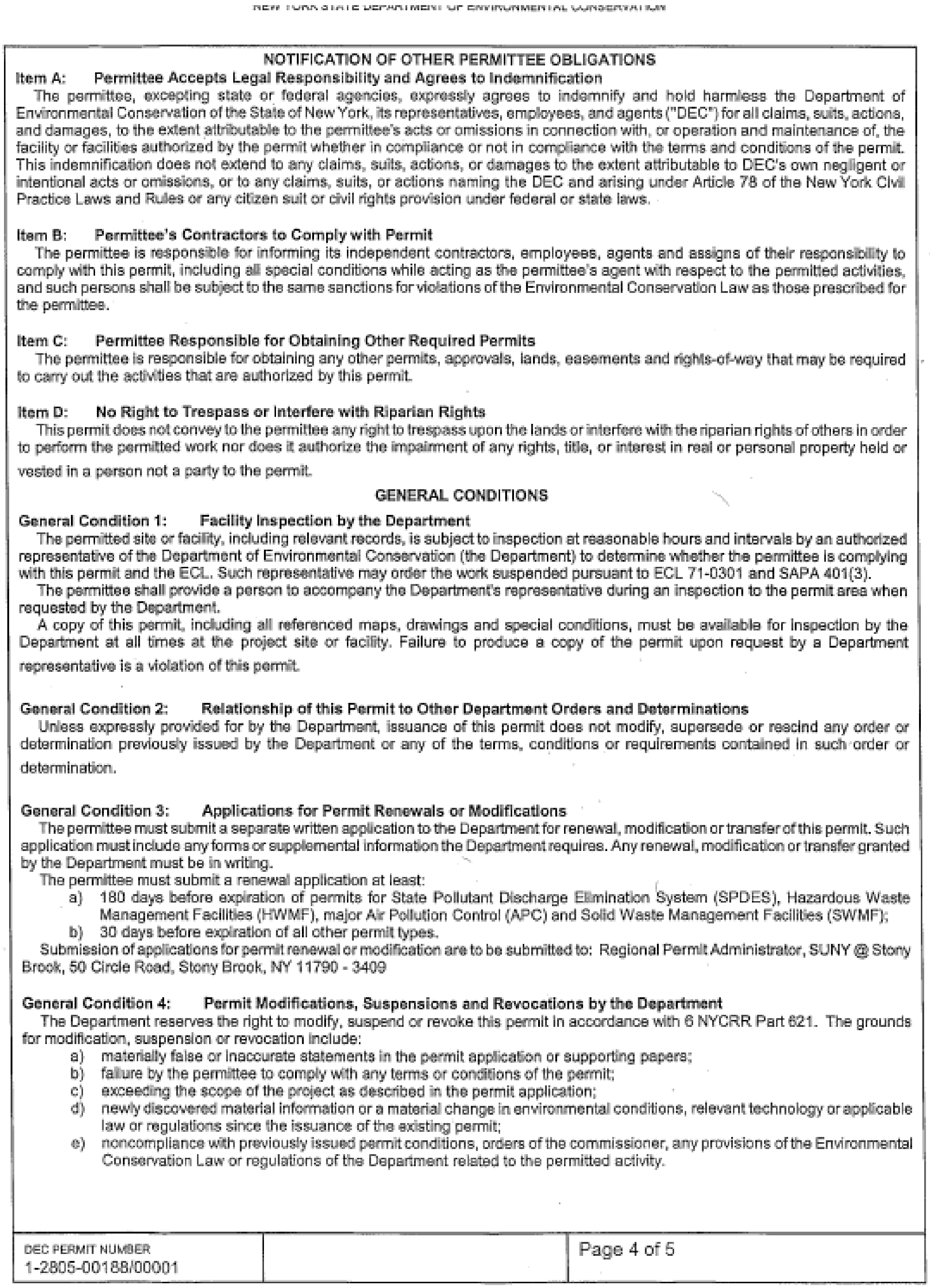
6. **No Construction Debris in Wetland or adjacent Area.** Any debris or excess building material from construction of this project shall be completely removed from the adjacent area (upland) and removed to an approved upland area for disposal. No debris is permitted in tidal wetlands.

7. **Clean Fill Only.** All fill shall consist of clean sand, gravel or soil (no sediments or excavated materials from the site or asphalt, slag, flyash, broken concrete or demolition debris).

8. **Backfilling.** All peripheral berms, cofferdams, rock revetments, seawalls, gabions, bulkheads or other approved shoreline stabilization structures shall be completed prior to placement of the clean fill material behind such structures.

9. **No Runoff Over or Through Bulkhead or into Wetland** There shall be no discharge of runoff or other effluent over or through the bulkhead or shoreline stabilization structure or into tidal wetland.

10. **Notice of Commencement** At least 48 hours prior to commencement of the project, the permittee and contractor shall sign and return the top portion of the enclosed notification form certifying that they are fully aware of, and understand all terms and conditions of, this permit. Within 30 days of completion of project, the bottom portion of the form must also be signed and returned, along with photographs of the completed work.



NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification

The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

GENERAL CONDITIONS

General Condition 1: Facility Inspection by the Department

The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

General Condition 2: Relationship of this Permit to Other Department Orders and Determinations

Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

General Condition 3: Applications for Permit Renewals or Modifications

The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

The permittee must submit a renewal application at least:

a) 180 days before expiration of permits for State Pollutant Discharge Elimination System (SPDES), Hazardous Waste Management Facilities (HWMF), major Air Pollution Control (APC) and Solid Waste Management Facilities (SWMF);

b) 30 days before expiration of all other permit types.

Submission of applications for permit renewal or modification are to be submitted to: Regional Permit Administrator, SUNY @ Stony Brook, 50 Circle Road, Stony Brook, NY 11790 - 3409

General Condition 4: Permit Modifications, Suspensions and Revocations by the Department

The Department reserves the right to modify, suspend or revoke this permit in accordance with 6 NYCRR Part 621. The grounds for modification, suspension or revocation include:

a) materially false or inaccurate statements in the permit application or supporting papers;

b) failure by the permittee to comply with any terms or conditions of the permit;

c) exceeding the scope of the project as described in the permit application;

d) newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e) noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

DEC PERMIT NUMBER 1-2805-00188/00001		Page 4 of 5

ADDITIONAL GENERAL CONDITIONS FOR ARTICLES 15 (TITLE 5), 24, 25, 34 AND 6NYCRR PART 608

(TIDAL WETLANDS)

1. If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

2. The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

3. All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

4. Any material dredged in the conduct of the work herein permitted shall be removed evenly, without leaving large refuse piles, ridges across or along the bed of a waterway or floodplain, deposits within any regulatory floodway, or deep holes that may have a tendency to cause damage to navigable channels or to the banks of a waterway.

5. There shall be no unreasonable interference with navigation by the work herein authorized.

6. If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

7. If granted under 6NYCRR Part 608, the NYS Department of Environmental Conservation hereby certifies that the subject project will not contravene effluent limitations or other limitations or standards under Sections 301, 302, 303, 306 and 307 of the Clean Water Act of 1977 (PL 95-217) provided that all of the conditions listed herein are met.

8. At least 48 hours prior to commencement of the project, the permittee and contractor shall sign and return the top portion of the enclosed notification form certifying that they are fully aware of and understand all terms and conditions of this permit. Within 30 days of completion of project, the bottom portion of the form must also be signed and returned, along with photographs of the completed work and, if required, a survey.

9. All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or his agent as part of the permit application. Such approved plans, Sheets MS-001 & MD-002, which were prepared for the City of Glen Cove, bearing the names of the Architect, Urbitran Group, Consultants, Halcrow Engineers, PC., and Dvirka and Bartilucci, Consulting Engineers dated stamped by L. Glubiak, 6/1/09 in the lower left corner and stamped NYSDEC approved 6/9/09.

95-20-1 (11/03) –9d

New York State
Department of Environmental Conservation

NOTICE

The Department of Environmental Conservation (DEC) has issued permit(s) pursuant to the Environmental Conservation Law for work being conducted at this site. For further information regarding the nature and extent of the approved work and any Department conditions applied to the approval, contact the Regional Permit Administrator listed below. Please refer to the permit number shown when contacting the DEC.

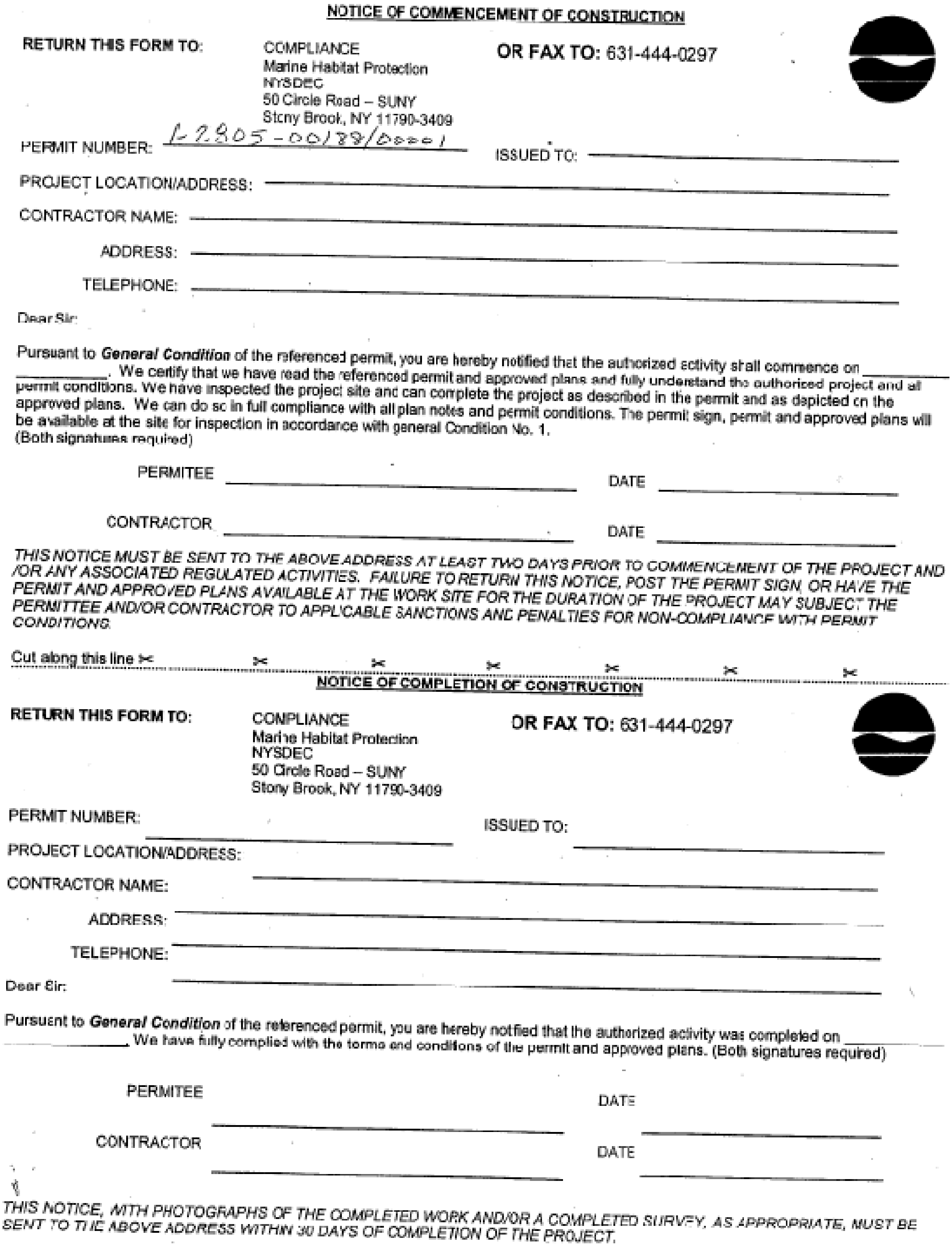
Regional Permit Administrator

ROGER EVANS

Permit Number 1-2805-00188/00001

Expiration Date 6/8/2014

NOTE: This notice is **NOT** a permit



NOTICE OF COMMENCEMENT OF CONSTRUCTION

RETURN THIS FORM TO:

COMPLIANCE
Marine Habitat Protection
NYSDEC
50 Circle Road – SUNY
Stony Brook, NY 11790-3409

OR FAX TO: 631-444-0297

PERMIT NUMBER: 1-2805-00188/00001

ISSUED TO: ____________________

PROJECT LOCATION/ADDRESS: ____________________

CONTRACTOR NAME: ____________________

ADDRESS: ____________________

TELEPHONE: ____________________

Dear Sir:

Pursuant to ***General Condition*** of the referenced permit, you are hereby notified that the authorized activity shall commence on __________ __________. We certify that we have read the referenced permit and approved plans and fully understand the authorized project and all permit conditions. We have inspected the project site and can complete the project as described in the permit and as depicted on the approved plans. We can do so in full compliance with all plan notes and permit conditions. The permit sign, permit and approved plans will be available at the site for inspection in accordance with general Condition No. 1. (Both signatures required)

PERMITEE ____________________ DATE ____________

CONTRACTOR ____________________ DATE ____________

THIS NOTICE MUST BE SENT TO THE ABOVE ADDRESS AT LEAST TWO DAYS PRIOR TO COMMENCEMENT OF THE PROJECT AND /OR ANY ASSOCIATED REGULATED ACTIVITIES. FAILURE TO RETURN THIS NOTICE, POST THE PERMIT SIGN, OR HAVE THE PERMIT AND APPROVED PLANS AVAILABLE AT THE WORK SITE FOR THE DURATION OF THE PROJECT MAY SUBJECT THE PERMITTEE AND/OR CONTRACTOR TO APPLICABLE SANCTIONS AND PENALTIES FOR NON-COMPLIANCE WITH PERMIT CONDITIONS.

Cut along this line ✂ ✂ ✂ ✂ ✂ ✂ ✂

NOTICE OF COMPLETION OF CONSTRUCTION

RETURN THIS FORM TO:

COMPLIANCE
Marine Habitat Protection
NYSDEC
50 Circle Road – SUNY
Stony Brook, NY 11790-3409

OR FAX TO: 631-444-0297

PERMIT NUMBER: ____________________

ISSUED TO: ____________________

PROJECT LOCATION/ADDRESS: ____________________

CONTRACTOR NAME: ____________________

ADDRESS: ____________________

TELEPHONE: ____________________

Dear Sir:

Pursuant to ***General Condition*** of the referenced permit, you are hereby notified that the authorized activity was completed on __________ __________. We have fully complied with the terms and conditions of the permit and approved plans. (Both signatures required)

PERMITEE ____________________ DATE ____________

CONTRACTOR ____________________ DATE ____________

THIS NOTICE, WITH PHOTOGRAPHS OF THE COMPLETED WORK AND/OR A COMPLETED SURVEY, AS APPROPRIATE, MUST BE SENT TO THE ABOVE ADDRESS WITHIN 30 DAYS OF COMPLETION OF THE PROJECT.

DEPARTMENT OF THE ARMY PERMIT

Permittee: Glen Cove Industrial Development Agency
City Hall, 9 Glen street
Glen Cove, NY 11542
(516) 676-2004

Permit No.: NAN-2009-00241

JUN 29 2009

Issuing Office: New York District Corps of Engineers

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: To create a new commercial commuter ferry terminal construct two (2) 53.5-foot-long by 15-foot-wide berthing floats, four (4) 54.5-foot-long by 15-foot-wide berthing floats, a 30-foot-long by 15-foot-wide berthing float, a 16.5-foot-long by 10-foot-wide floating vessel landing, a 33-foot-long by 30-foot-wide fixed pier ferry landing, a 13-foot-long by 10-foot-wide fixed ferry landing, a 31-foot-long by 10-foot-long fixed boat landing, a 16.5-foot-long by 10-foot-wide floating landing, a 30.8-foot-long by 8.3-foot-wide move-able gangway walk ramp and a 30-foot-long by 8.5-foot-wide fixed gangway walk ramp. All of these structures will be constructed parallel to and at the new steel bulkhead.

Construct 510 linear feet of new steel bulkhead landward of the existing steel bulkhead which will be permanently removed. This work will result in approximately 38,500 square feet of new water area which will be part of the ferry terminal's berthing area.

Dredge approximately 2,600 cubic yards of material in an approximate 23,260 square-foot area to a depth of 16 feet below the plane of Mean Low Water (MLW Datum) to allow for adequate berthing. All of the dredged material will be placed at a State-approved upland location.

All work shall be performed in accordance with the attached drawings and special conditions (A) through (H) which are hereby made part of this permit.

Project Location: IN: Glen Cove Creek

AT: City of Glen Cove, Nassau County, New York

PERMITTEE: Glen Cove Industrial Development Agency
PERMIT NO.:NAN-2009-00241

JUN 2 9 2009

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on JUN 2 9 2012. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

(A) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice form the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

(B) The permittee will require the ferry operator to adhere to the mitigatory measures and operating procedures described in Section 6.4 of the Essential Fish Habitat Assessment (Appendix N in the Revised Design Report/Environmental Assessment).

(C) The permittee shall perform the dredging portion of the project using a clamshell raised in a continuous motion through the water column at a velocity not exceed 2 feet/second. Dredged material will be handled in a manner to avoid spillage back into the water.

(D) The permittee shall place the dredged material in an upland location that meets New York State Department of Environmental Conservation (NYSDEC) criteria.

(E) The permittee shall be prohibited from dredging from January 15 to June 30 of any calendar year. The dredging window applies only to extraction of sediments and soils, not equipment mobilization; demobilization; or excavation undertaken landward of the bulkhead while it is in place.

(F) Prior to commencement of soil disturbance activities the permittee shall provide a copy of the Storm Water Pollution Prevention Plan to Diane Rusanowsky, NOAA Fisheries Lab, 212 Rogers Avenue, Milford, CT 06460.

(G) If the monitoring well (PRA-6) will be impacted during inshore excavation activities and cannot be preserved in its present location, the permittee will arrange for its replacement in an adjacent location considered suitable by the Environmental Protection Agency.

(H) Prior to commencement of construction, the permittee shall implement a NYSDEC-approved Site/Soil Management Plan addressing worker health and safety, monitoring, and soil disposal practices. The permittee shall provide a copy of the approved plan to: U.S. Environmental Protection Agency, NY Remedial Branch, Region 2, 290 Broadway, New York, NY 10007.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403).

( ) Section 404 of the Clean Water Act (33 U.S. Code 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization:

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability: In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

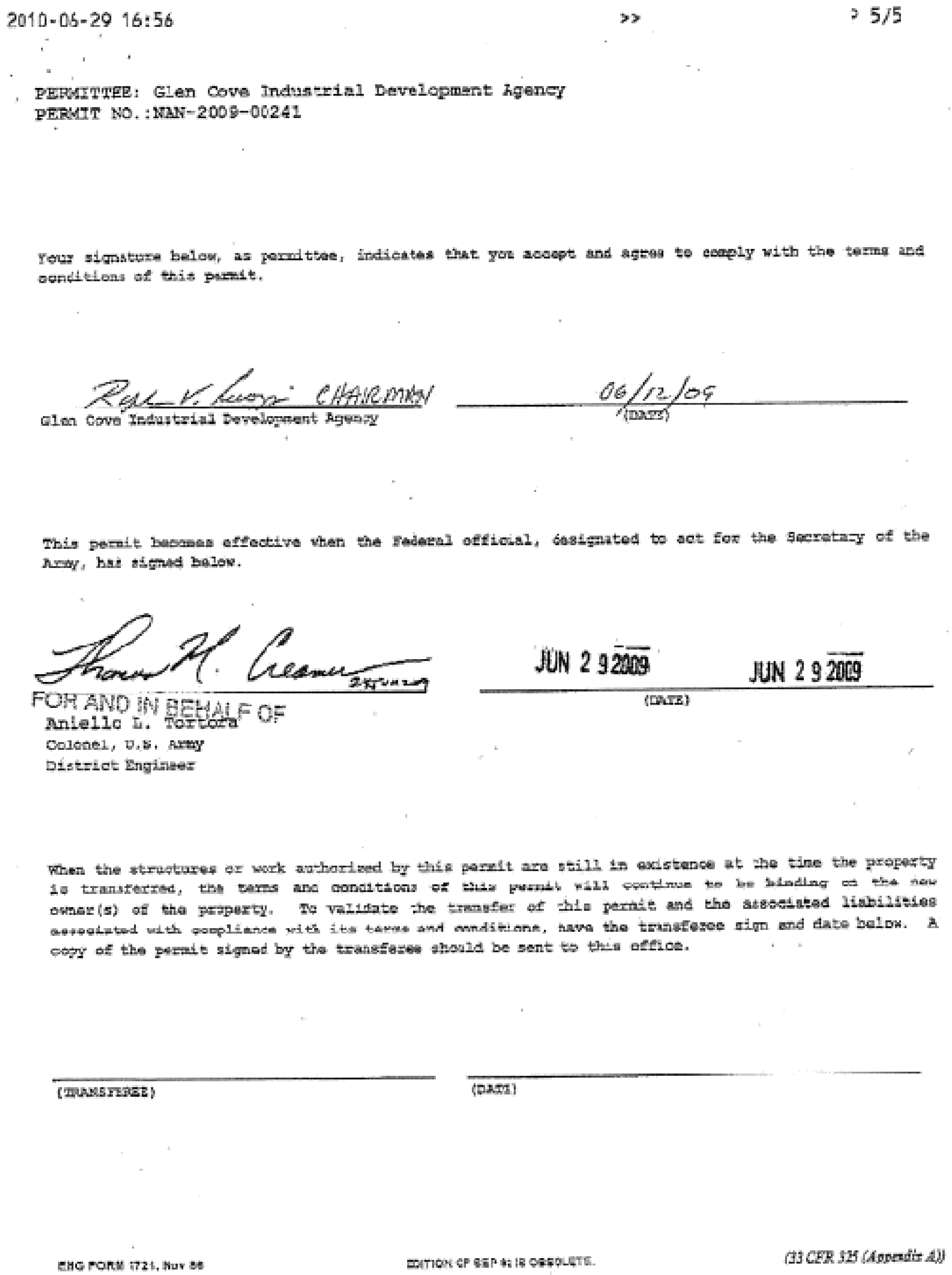
a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.



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PERMITTEE: Glen Cove Industrial Development Agency
PERMIT NO.:NAN-2009-00241

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

CHAIRMAN
Glen Cove Industrial Development Agency

06/12/09
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

FOR AND IN BEHALF OF
Aniello L. Tortora
Colonel, U.S. Army
District Engineer

JUN 29 2009 JUN 29 2009
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below. A copy of the permit signed by the transferee should be sent to this office.

(TRANSFEREE)

(DATE)

ENG FORM 1721, Nov 86 EDITION OF SEP 82 IS OBSOLETE. (33 CFR 325 (Appendix A))

–DRAFT–

SITE MANAGEMENT PLAN

GLEN COVE FERRY TERMINAL
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

Prepared for:

CITY OF GLEN COVE INDUSTRIAL DEVELOPMENT AGENCY

JUNE 2009

SITE MANAGEMENT PLAN
GLEN COVE FERRY TERMINAL
GLEN COVE, NEW YORK

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1.0 INTRODUCTION

The Glen Cove Ferry Terminal project will be located on Garvies Point Road, Glen Cove, New York, at the eastern end of the former Captain's Cove Condominium site, adjacent to the Angler's Club (hereafter referred to as the "Site"), Nassau County, New York (Figure 1). Although the project will be constructed Site on a portion of the former Captain's Cove Condominium site that is a New York State Class 2 Inactive Hazardous Waste Disposal Site, this part of that property was remediated under the federal and state Superfund Programs, as part of the Li Tungsten and Captains Cove remediation. In general, the purpose of this Site Management Plan (SMP) is to ensure that the projected construction is performed in a manner consistent with the requirements identified in the Record of Decision (ROD) for the Captain's Cove site. Specifically, the purpose of this SMP document is to provide the details required to perform the projected construction while minimizing impacts to human health and the environment. This SMP will also guide construction activities in areas due to elevated levels of chemical contaminants in soil and/or groundwater.

This SMP has been prepared for the construction of the Glen Cove Ferry Terminal project – Phase 1 (Waterborne and Site Improvements). A second phase of the work – Phase 2 (Ferry Terminal Building Construction) – will be completed separately and site management activities associated with the building construction will be addresses at that time.

Major components of this SMP include the following:

- Institutional and Engineering Control Plan;
- Soil Management Plan;
- Quality Assurance, and
- Health and Safety

1.1 Background Information

Since the late 1950's, the Captain's Cove property was utilized for the disposal of incinerator ash, sewage sludge, rubbish, household debris, creek sediments and industrial wastes. Ore residuals from the Li Tungsten facility were also disposed of on the western and eastern ends of the property. The New York State Department of Environmental Conservation ("NYSDEC") designated the property as a State Superfund site in the 1990's. The NYSDEC requested that United States Environmental Protection Agency (EPA) address the radioactive contamination associated with the ore residuals from the former Li Tungsten facility, while the State addressed remaining contamination under the State Superfund program. EPA subsequently included those areas of Captain's Cove where ore residuals were disposed of as part of the Li Tungsten site in 1995 after further investigation and sampling indicated that the residuals likely originated from the former facility.

EPA conducted a comprehensive remedial investigation/feasibility study/focused feasibility study ("RI"/"FS"/"FFS") for the Li Tungsten site, including the Site, from 1993 to 1999, which in addition to investigating the nature and extent of contamination, also included interim cleanup activities such as debris and vegetation disposal, bulkhead repair, and ore consolidation/relocation. EPA signed a Record of Decision ("ROD") in September 1999, which selected a comprehensive remedy for both the former facility and the Captain's Cove property. The selected remedy primarily involved excavation and off-site disposal of an estimated 67,000 cubic yards ("cy") of radioactive and heavy-metals contaminated wastes. The NYSDEC also issued a State ROD in March 1999 for the chemical contamination at Captain's Cove, requiring excavation of the landfill and separating the waste stream into various components including solid waste, hazardous waste, construction and demolition debris (C&D) and radiological waste which had been disposed in the interior part of the Captains Cove property.

EPA's actions as part of Operable Unit 1 "OU 1" for the former Li Tungsten facility were directed at the southern half of the former Li Tungsten facility and included the excavation and off-site disposal of all heavy-metals contaminated soils, and the excavation and staging of radioactively contaminated soils in the Dickson Warehouse on Parcel C. For "OU 2", EPA excavated all heavy metals and radioactive soils at Captain's Cove and staged them on that property for disposal. The remediation of the contaminated soils was completed in 2005, as further detailed in the remedial action reports and summarized below.

1.1.1 Operable Unit 2 Background

The selected remedy for soil in the 1999 ROD for both the former Li Tungsten facility and the Captain's Cove property included excavation, segregation of waste streams, and off-Site disposal of waste soils and sediments contaminated above the ROD's cleanup criteria, which were developed to accommodate commercial future use of the Site.

The selected remedy for groundwater was no action, other than long-term groundwater monitoring of the Upper Glacial Aquifer in the vicinity of the Site to determine the effects of the soil remedy on groundwater quality. EPA anticipates that the excavation of inorganic and radioactive contamination to the specified cleanup levels will greatly reduce leaching of the contaminants from the soil to groundwater. As a result, the groundwater beneath the Site is expected to improve, now that the soil excavation work is completed.

The ROD envisioned that the implementation of the selected remedy would allow commercial redevelopment of the Li Tungsten Superfund Site in substantial conformance with the City of Glen Cove's 1998 Glen Cove Creek Revitalization Plan, which included both properties of the Li Tungsten Site. The placement of these properties back into a commercially viable scenario would meet EPA policy objectives regarding the productive future use of such properties.

The ROD estimated that excavation would yield an estimated 13,200 CY of radioactive wastes and 20,550 CY of nonradioactive, metals-contaminated wastes at Captain's Cove. The total estimated Site-wide waste volume was 69,350 CY. The ROD encouraged segregation of radioactive and nonradioactive wastes in order to minimize the volume of material requiring expensive transportation and disposal at radioactive waste disposal facilities. The remaining non-radioactive wastes were anticipated to primarily contain heavy metals associated with the processed ores. Excavated soils that did not exceed cleanup levels or contain debris could be used as backfill.

In developing the final soil cleanup levels, consideration was given to risks posed by the contaminants under the reasonably anticipated future use of the Site as a commercial "Seaportstyle" tourist area; cleanup levels utilized by the NYSDEC and the NYS Department of Health for the State Superfund cleanup at Captain's Cove; and New York State Technical Assistance Guidance Memoranda ("TAGMs"). The selected contaminants were intended to be indicators for other co-located metal contaminants. Due to the spatial and vertical location of contaminants of concern determined during the RI/FS, achieving the cleanup levels for the indicator contaminants should also adequately address other site-related contamination in soils and sediments.

The 1999 ROD cleanup levels for Radium226 ("Ra226") and Thorium232 ("Th232") were subsequently revised in an Explanation of Significant Differences (ESD) that EPA issued in May 2005 as a result of the City's post-ROD decision to allow future residential development of the Li Tungsten Site properties. EPA determined that the ROD's radiation criteria needed some revision, but that the arsenic and lead criteria were sufficiently protective of future residential use and need not be revised. Table 1-1 contains the cleanup parameters used by the EPA for the Site property and the cleanup criteria needed to allow residential development.

1.1.2 Remedial Construction Activities

EPA mobilized to the Captain's Cove property in January 2001 to perform the remedial actions required there under the 1999 ROD. EPA proceeded first with excavation of Area A located on the north western portion of the property, followed by Area G, located on the eastern portion of the property where the Ferry Terminal project will be implemented. Two ancillary areas, known as Areas A Prime and G Prime because of their locations adjacent to the main areas of contamination, were then excavated. Finally, a few small contaminated areas i.e., <1000 cy, which had not been previously excavated because of logistical issues, were excavated last. Figure 2 identifies Area G and Area G prime with respect to the Ferry Terminal property.

Table 1-1
EPA SITE CLEANUP LEVELS

PARAMETER	CLEANUP LEVEL	REMARKS
Lead	400 mg/kg	soil
Lead	31 mg/kg	sediment
Arsenic	24 mg/kg	soil
Arsenic	6 mg/kg	sediment
Ra226+Ra228	5 pCi/g	Plus background
Th230+Th232	5 pCi/g	Plus background

NOTE

mg/kg = milligram/kilogram
pCi/g = picocuries/gram

EPA initiated excavation activities in Area G of Captains Cove in June, 2002. Excavation work was completed in this area in September, 2002. The extent of the excavation covered approximately 1.5 acres and was divided into 29 grids with the approximate dimensions of 40' x 40'. Excavation depths for each of these grids ranged from 3 feet to 14 feet below grade. Post excavation sample results for the floors of each of these completed grids all met the radiological release criteria. The samples collected from the walls of northern and eastern portions of the excavations indicated the presence of elevated levels of contaminants and subsequently remediated as part of the Area G Prime excavation. The final depth of the excavation coincided with the natural sandy layer underlying the contaminated area.

During excavation in Area G, two retaining walls were uncovered, approximately 5 feet below grade and parallel to the existing bulkhead along Glen Cove Creek. The walls were connected to the existing Creek bulkhead by steel rods mounted with turnbuckles. These rods were on average about 3 feet apart and required the implementation of special engineering procedures in order to excavate beneath them. Sampling in this area verified the presence of Ra-226 above the release criteria of 5 pCi/g above background. These areas required special excavation procedures and bulkhead re-enforcing to prevent any damage from occurring to the bulkhead. An engineering plan to address this area was put into effect in May 2003.

In late May 2003 a buried barge was identified in an area adjacent to the Creek bulkhead. The barge soil was surveyed and sampled and results were greater than 6 pCi/g for Ra-226.

Upon completion of excavation along the bulkhead in June 2003, post excavation radiation surveys and sampling of each excavated grid was performed. Metals samples were not taken in these areas for the following reasons: 1) all excavations in these areas went below the water table, which was the depth limitation for excavating arsenic and lead contaminated soil; and 2) the sides of the excavations were formed by the remediated portion of Area G and the Creek bulkhead i.e., uncontaminated boundaries.

In December 2008, Dvirka and Bartilucci Consulting Engineers prepared a Supplemental Phase II Environmental Ste Assessment (ESA) for Urbitran Associates, Inc. for the City of Glen

Cove Ferry Terminal Project. The ESA included sampling of surface soil, subsurface soil, groundwater and soil gas within the limits of the proposed ferry terminal. A Health Based Risk Assessment was also performed as part of the ESA. Based on the results of the ESA, arsenic and barium have been detected in exceedance of the NYSDEC Part 375 Restricted Use Soil Cleanup Objectives (SCOs) for commercial sites in the western portion of the site. The levels of arsenic detected in the surface soil samples from this area also exceeded the EPA response criteria. Asbestos has been detected in the eastern portion of the site predominantly in the surface soil. Elevated levels of barium were detected in subsurface soil samples collected on-site. Unfiltered groundwater samples collected during the ESA indicated the presence of elevated levels of arsenic, barium and mercury. Metals were not detected at concentrations above groundwater standards and guidance values in the filtered samples. Figure 3 identifies proposed areas requiring remediation as part of this ESA.

1.2 Glen Cove Creek Dredging Background

Glen Cove Creek is a designated Federal Navigation Channel. The channel is 1.1 miles long and 100 feet wide with a project depth of 8 feet with 2 feet overdredge. It is the responsibility of the United States Army Corps of Engineers (USACE) to dredge the channel at regular intervals and it is the City of Glen Cove's responsibility to dispose of the dredge materials.

In March of 1996, the City of Glen Cove performed sampling of the Glen Cove Creek to characterize the sediments in support of upland use and disposal of the dredged materials. Funding for the sampling program was provided under a grant from NYSDEC. Seventeen aquatic sediment samples were collected along the 1.1 mile channel. Based on the results of the sampling, dredging of a portion of the creek sediment was performed between 1997 and 1998. Dredging of the remainder of the creek was initiated by USACE in October 2000. In the spring of 2001, an area of petroleum contaminated sediment was encountered in the southern portion of the creek. In addition, the USACE conducted a radiological screening survey and sediment sampling program in October 2001. The purpose of this program was to identify where radioactive materials are present in the creek and to determine the extent of the petroleum-impacted sediment detected during the previous dredging program.

The radiological screening survey was performed over accessible areas from the eastern portion of the creek to the area of the Ferry Terminal project. Gross gamma readings were recorded and 11 discrete areas of elevated gamma readings were identified in areas to be dredged and areas previously dredged. Additional dredging of the creek was performed in 2004.

2.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

The Institutional and Engineering Control Plan details the steps necessary to manage and implement the institutional and engineering controls for the site, consistent with the requirements of the ROD and NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation (DER-10), dated December 24, 2004.

The Institutional and Engineering Control Plan also identifies requirements to be placed on future site development activities within the restricted areas of the site. These requirements are necessary to ensure that any future activities at the site does not result in unacceptable exposure of contamination to the public and the environment.

2.1 Description of Institutional Control

An Institutional Control (IC) is any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to the potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of the remedial program or with the effectiveness and/or integrity of operation, maintenance or monitoring activities at or pertaining to the site. Types of IC include, but are not necessarily limited to, environmental easements, deed restrictions, discharge permits, site security (other than fencing), local permits, consent orders/decrees, zoning restrictions, hazardous waste site registry, deed notice, groundwater use restrictions, condemnation of property, and public health advisories.

Since the work described in this Site Management Plan only applies to the Ferry Terminal project, no institutional controls will be required for this work. Institutional controls for the entire Captain's Cove Condominium Site will be prepared in a separate Site Management Plan.

2.2 Description of Engineering Control

An Engineering Control (EC) is any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of the remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, treatment and filtrations systems, and alternate water supplies.

Engineering controls including a sub-slab depressurization system are currently under design for the Ferry Terminal Project. A sub-slab depressurization system (SSDS) will be installed as part of the Glen Cove Ferry Terminal project – Phase 2 (Ferry Terminal Building Construction). The purpose of SSDS will be to collect vapors emitted from contaminated groundwater and/or soils and reduce the ability of these vapors from entering the building. The design of the SSDS will be done by the Terminal building designers, after the nature of the underlying soils is determined. In general, the SSDS will consist of a series of perforated pipes installed within a bed of permeable gravel that surrounds the piles and pile caps. Piping will be connected through a manifold that will ultimately be connected to an exhaust system. Impermeable barriers may also be installed on either the top and/or bottom of the permeable gravel bed. The Ferry Terminal building floor slab will be installed above the piping. The SSDS system will be installed as part of the Phase 2 (Ferry Terminal Building Construction) project. The final design of the SSDS will be provided to the NYS DEC prior to letting of the Phase 2 bid documents.

The Phase 1 project, as previously described, involves waterborne and site improvements (e.g., grading, utility installation, bulkhead work, landscaping, paving, etc.) and does not require the placement of any engineering controls.

3.0 SOIL/SEDIMENT MANAGEMENT PLAN

The site is currently proposed to be utilized to implement transportation measures to provide improved access to the waterfront area abutting Glen Cove Creek. Since the potential for encountering contaminated soil/sediment exists during implementation of construction of the Ferry Terminal, activities that may result in the exposure of contamination must be handled in accordance with the Site Management Plan.

3.1 Sequencing of Work

Work to be completed at the site is anticipated to be completed in the following sequence:

- Excavate soil behind existing bulkhead to water level.
- Dismantle and remove shallow, buried barge.
- Install new, landward sheeting/bulkhead.
- Remove existing bulkhead.
- Dredge area seaward of new bulkhead to desired elevation

Work will be completed to minimize the potential for impacts to the Glen Cove Creek. Once the buried barge has been removed, endpoint samples shall be collected to ensure no residual contamination remains prior to removal of the existing bulkhead. Endpoint sampling is discussed below.

3.2 Sediment Sampling

Prior to the excavation of sediment in the Glen Cove Creek as part of the Ferry Terminal project, sediment samples will be collected to evaluate the quality of the sediment that will be left exposed after the dredging is completed.

For the construction of the Ferry Terminal, an estimated area of 17,800 square feet of the creek will be dredged approximately 2 feet below the existing creek bottom. As discussed in Section 1.2, the results of 17 sediment samples were used to evaluate dredging of the entire creek. Utilizing this rationale, while understanding that the area to be dredged as part of the Ferry Terminal project is adjacent to a NYSDEC Class 2 site, it is anticipated that the collection of up to 5 sediment samples should provide the necessary information to document sediment quality once sediment is dredged. One sample will be collected every 100 feet approximately 25 feet off the existing bulkhead within the area to be dredged. Sediment cores will be collected from the creek bottom to one foot below the proposed dredging depth (or approximately 3 feet deep). Each core will be inspected for visibly distinct layers. Since the sediment samples will be collected to document the quality of the sediment that will be left exposed after the dredging is complete, only the bottom 6-inch section of the core shall be sent to an off-site laboratory for chemical analysis. Cores will be photographed and screened for radiological contamination. Each sample will be analyzed for parameters listed in NYSDEC Region 1 Marine Habitat Protection sediment sampling guidance. (See Appendix A).

The results of the analysis will be provided to NYSDEC for review prior to commencement of dredging of the creek.

3.3 Excavation of Soil/Sediment

As discussed above, as part of the construction of the Ferry Terminal, soil and sediment will be excavated or dredged from the project site. Due to the potential for encountering contaminated soil and sediment, any soil excavation or sediment dredging required as part of the project must be handled appropriately and the NYSDEC will be notified prior to those excavation activities. A work plan will be developed by the Contractor prior to initiating any excavation activities at the site. The work plan, at a minimum, will be consistent with the requirement specified below for excavating/dredging, screening, handling, storing, sampling, transporting, and disposing of contaminated material. The work plan will also specify that any backfill material used on-site will be from an approved off-site source. No excavated material will be used as on-site backfill. The work plan will identify the procedures for testing and certifying the backfill material.

3.3.1 Excavation/Dredging

As part of the remedial activities performed as part of the Captain's Cove Condominium site in 2000, all excavated soil was subjected to environmental screening prior to staging on-site. Screening of all excavated soil and sediment for volatile organic compounds (VOCs) and radiological parameters was performed. A Radiation Monitoring Plan was prepared (see Appendix B) to assist the Contractor in performance of the required screening. The work to be performed at the Ferry Terminal project will follow the requirements of the Radiation Monitoring Plan with the following exceptions:

1. The scope of work presented in the Radiation Monitoring Plan for the Captain's Cove Condominium Site is not applicable to the Ferry Terminal project.
2. All excavated soil and sediment shall be screened and there shall be no exclusion for the upper three feet of soil.
3. Monitoring shall be performed for each two foot lift of soil excavated instead of three foot lift as discussed in the Radiation Monitoring Plan.

At a minimum, the following requirements apply to all excavations and dredging performed at the site:

1. Excavation shall be conducted in one area at a time.
2. The maximum size bucket to be used for excavation shall be 5 cubic yards.
3. Each bucket shall be screened for staining, discoloration, odors and screened for the presence of VOCs using a Photoionization Detector (PID) and radiation above background levels using a radiation rate meter/scaler.
4. Radiation screening of all excavated material shall be performed in accordance with the Radiation Monitoring Plan with the exceptions as noted above (see Appendix A). Excavated material that exceeds radiological screening criteria shall be stockpiled separately.

5. Screening results shall be made available to the on-site Engineer as the results are obtained.

6. Excavated materials shall be transported to a designated staging area for subsequent off-site disposal or directly loaded into trucks used to transport soil off-site for disposal.

7. Excavated materials must be staged on top of and covered with polyethylene sheeting. Ten (10) mil thick sheeting shall be used to cover the top of stockpiles. Forty (40) mil thick sheeting shall be placed beneath potentially or known contaminated material to prevent contact with undisturbed soils. Stockpiles must be constructed to isolate the contaminated material from the environment.

8. Diversion measures must be employed to prevent storm water run-on and run-off to the stock piles.

9. Roll-off or equivalent units used to store contaminated material must be water tight.

10. Individual stockpiles shall not exceed a volume of 500 cubic yards.

11. Excavated soil shall not be spread or permanently stored on-site.

12. Excavation shall be performed in a manner that will prevent spills and the potential for contaminated soil to be mixed with uncontaminated material.

13. Excavation shall be accomplished by methods which preserve the undisturbed state of subsurface soils.

14. Mobilization of the excavated soil shall be prevented through the use of polyethylene sheeting to cover any soil stockpiles or by using appropriate soil erosion control methods established at the end of each day of excavation activities.

15. At a minimum, one representative sample for each 500 cubic yard stockpile of material that exceeds radiological screening criteria shall be collected. Each sample shall be analyzed for target radionuclides (uranium, thorium and their decay progency) by standard gamma spectroscopy (i.e., United States Department of Energy {USDOE} Method EML-HASL-300 or equivalent). During analysis of radionuclides, the analyzer gain shall be set so that the measured energy range will be from approximately 25keV to approximately 2 MeV with about 0.5 keV per channel (assuming the analyzser is set for 4096 channels). Count times and sample size/geometry shall be able to produce detection limits of 0.1 pCi/g for the radionuclides: Ac-228, Pb-212, Bi-212, Tl-208, Ra-226/U-235, Pb-214, Bi-214; 1 pCi/g for U-235; and 10 pCi/g for Pa-234m. All other quantified radionuclides will be reported. The complete computer-generated gamma spectrum analysis will be supplied to the oversight Engineer. Samples to be analyzed for radionuclides shall be dried samples and will be analyzed before activities of the Ra-226 and its daughter products have returned to equilibrium, the Ra-226/U-235 peak shall be reported as Ra-226.

3.3.2 Endpoint Sampling

Excavation endpoint samples shall be performed in each excavation as part of the Ferry Terminal project. Endpoint samples will be performed in accordance with NYSDEC Division of Environmental Remedial (DER-10) Technical Guidance for Site Investigation and Remediation. For excavations 20 to 300 feet in perimeter:

1. One sample will be collected from the top of each sidewall for every 30 feet of sidewall (if applicable)
2. One sample will be collected from the excavation bottom for every 900 square feet of bottom area.

For excavations greater than 300 feet in perimeter, the proposed sampling frequency considered adequate for documentation of the effectiveness of the soil removal will consist of the following:

1. One sample will be collected from the top of each sidewall for every 100 linear feet of sidewall.
2. One sample will be collected from the excavation bottom for every 2,500 square feet of bottom area.

The Contractor will be required to collect enough volume of soil to split that samples, if requested. Samples shall be sent to the laboratory for analysis via overnight shipment. The laboratory shall analyze the samples within 24 hours. The results of the analysis shall be emailed, telecopied or telephoned to the Contractor who shall report the results to the oversight Engineer within 4 hours after receipt. All samples shall be analyzed for metals in accordance with NYSDEC ASP Method 6010 and in accordance with the Contractor prepared sampling plan. Since the area will have been screened to document no residual radiological contamination, no endpoint samples shall be collected for radiological analysis. Backfill and compaction will not be conducted until satisfactory endpoint sample results are obtained and reviewed and approved by NYSDEC.

3.3.3 Waste Transportation and Disposal

The following requirements apply to the transportation and disposal of material excavated from the site:

1. Sampling, classification, manifesting, labeling, transporting and disposing of material must be performed in accordance with all applicable federal, state, and local laws and regulations.
2. Materials removed from the site must be transported directly to the disposal facility.
3. Sampling frequency, analysis methods, and analytical laboratory must be approved by the NYSDEC prior to removal of any material from the site.
4. Letters of commitment must be obtained from disposal facilities to be used during the project. The letters should state that the disposal facility is permitted to accept and has the available capacity to receive the waste that will be shipped from the site.
5. All vehicles must be decontaminated prior to leaving the site.

3.3.4 Backfill

The following minimum requirements apply to the fill material used to restore the site after excavation has been completed:

1. Fill must be uncontaminated pursuant to the remediation standards applicable to the site.
2. Documentation of the quality of the fill must be provided by a certification stating that it is clean material from a commercial or noncommercial source.
3. If documentation of the quality of the fill material can not be provided, a backfill evaluation proposal, which identifies material characterization protocols, shall be submitted to and approved by the NYSDEC prior to the use of any backfill material.

Further backfill requirements are provided in the Contract Documents.

3.4 Dewatering

Any dewatering activities required at the site must be handled appropriately and the NYSDEC will be notified prior to those activities. The Contractor performing the dewatering will be required to submit an application to NYSDEC for a "Dewatering Permit". The application shall be submitted after the Contractor submits the following information:

- The proposed starting date of the dewatering operation
- The name of the licensed well driller
- The details of the dewatering system to be installed
- The size, number and spacing of wells, well points, etc.
- The pump capacity, pumping rate and expected volume of water to be withdrawn
- The amount of water table drawdown
- Water quality information and proposed treatment required
- The final disposition of the water
- The expected duration of the operation
- All other requirements for a complete dewatering system

The Contractor shall be required to obtain all necessary permits including the NYSDEC Region 1 Well Permit and if necessary a NYSDEC State Pollutant Discharge Elimination System (SPDES) permit.

4.0 QUALITY ASSURANCE

Environmental sample analysis conducted at the Site as part of the work will be performed in accordance with the NYSDEC 2000 Analytical Services Protocol (ASP) or latest revision. Prior to commencement of the work the Contractor shall be required to prepare a site specific quality assurance/quality control plan. This plan will provide the details with regard to the sampling and analysis required to perform the work.

4.1 Data Quality Requirements and Assessments

Data quality requirements and assessments are provided in the NYSDEC ASP, which includes the detection limit for each analyte and sample matrix. Note that the quantification limits, estimated accuracy, accuracy protocol, estimated precision and precision protocol are determined by the laboratory and will be in conformance with the requirements of the NYSDEC ASP (latest revision) and/or USEPA 5/99 SOW for organics and USEPA 1/00 SOW for inorganics, where applicable.

In addition to meeting the requirements provided in the NYSDEC ASP, the data must also be useful in evaluating the soil/sediment quality. Data obtained during the sampling will be compared to SCGs identified in the remedial action objectives. The SCGs to be used include:

Matrix	SCG
Soil	NYSDEC Part 375 Restricted Use-Commercial Soil Cleanup Objectives
Sediment	NYSDEC TOGS 5.1.9 – In-Water and Riparian Management of Sediment and Dredged Material

The methods of analysis will be in accordance with the NYSDEC ASP. Specific analytical procedures and laboratory QA/QC descriptions are not included in this QAPP, but will be available upon request from the laboratory selected to perform the analysis. The laboratory will be New York Department of Health (NYSDOH) Environmental Laboratory Approved Program (ELAP) certified for organic and inorganic analyses.

4.1.1 Data Representativeness

Representative samples will be collected as follows:

- Soil – Samples will be obtained from the excavations. Samples will be collected using a dedicated polyethylene scoop.
- Sediment– Samples will be collected from creek bottom. Samples will be collected using a sediment core.
- Equipment Calibration – Field equipment will be calibrated daily before use according to the manufacturer's procedures.
- Equipment Decontamination – Non sterile sampling equipment will be decontaminated prior to use at each location according to the NYSDEC approved procedures described in Section 4.3.

4.1.2 Data Comparability

All data will be presented in the units designated by the methods specified by a NYSDOH ELAP certified laboratory and the NYSDEC ASP. In addition, sample locations, collection procedures and analytical methods from earlier studies will be evaluated for comparability with current procedures/methods.

4.1.3 Data Completeness

The acceptability of 100% of the data is desired as a goal for the project. The acceptability of less than 100% complete data, meeting all QA/QC protocols/standards, will be evaluated on a case-by-case basis.

4.2 Detailed Sampling Procedures

Two types of environmental samples will be collected from different locations as part of the work. These include soil and sediment samples. Sample locations will consist of soil stockpiles, excavation floors and sidewalls and creek sediment. Sampling procedures and equipment are described in this section.

There will be several steps taken after the transfer of the sample into the sample container that are necessary to properly complete collection activities. Once the sample is transferred into the appropriate container, the container will be capped and, if necessary, the outside of the container will be wiped with a clean paper towel to remove excess sampling material. The container will not be submerged in water in an effort to clean it. Rather, if necessary, a clean paper towel moistened with distilled/deionized water will be used.

The sample container will then be properly labeled. Information such as sample number, location, collection time and sample description will be recorded in the field logbook. Associated forms (e.g., Chain of Custody forms) will then be completed and will stay with the sample. The samples will be packaged in a manner that will allow the appropriate storage temperature (4°C) to be maintained during shipment to the laboratory.

4.2.1 Sample Identification

Each sample container will have a label of durable material affixed to it, which specifies the following sample information:

- Sample location;
- Sample type;
- Sample identification number (including well designation);
- Name(s) of sampler(s);
- Date and time of sample collection;
- Container number for that sample, if more than one container is used (e.g., #1 of 4); and
- Laboratory analyte.

All samples collected during the work will be labeled with a sample identification code. The code will identify the sample type, sample location and QA/QC requirements

4.2.2 Sample Preservation, Handling and Shipment

All analytical samples will be placed in the appropriate sample containers as specified in the NYSDEC ASP. The holding time criteria identified for the individual methods of the ASP will be followed.

Prior to packaging any sample for shipment, the sample containers will be checked for proper identification and compared to the field logbook for accuracy. The samples will then be wrapped with a cushioning material. Sample containers will be placed in a cooler with ice immediately after sample collection and maintained at 4°C throughout the duration of the sampling event and subsequent shipment to and storage at the analytical laboratory until analysis.

All necessary documentation required to accompany the sample during shipment will be placed in a sealed plastic bag and taped to the underside of the cooler lid. The cooler will then be sealed with packaging tape and custody seals will be placed in such a manner that any opening of the cooler prior to arrival at the laboratory can be detected.

All samples will be shipped to ensure laboratory receipt within 48 hours of sample collection in accordance with NYSDEC requirements. The laboratory will be notified prior to the shipment of the samples.

4.3 Decontamination Procedures

All field sampling equipment should be sterile and dedicated to a particular sampling point. In instances where this is not possible, a field cleaning (decontamination) procedure will be used in order to reduce the chances of cross-contamination between sample locations. A decontamination station will be established for all field activities. This will be an area located away from the suspected source of contamination so as not to adversely impact the decontamination procedure, but close enough to the sampling area to keep equipment handling to a minimum.

4.3.1 Field Decontamination Procedures

All nondisposable equipment will be decontaminated at appropriate intervals (e.g., prior to initial use, prior to moving to a new sampling location and prior to leaving the Site). Different decontamination procedures are used for various types of equipment that perform the field activities as discussed below. When using field decontamination, it is advisable to start sampling in the area of the site with the lowest contaminant probability and proceed through to the areas of highest suspected contamination.

4.3.3 Decontamination Procedure for Sampling Equipment

Teflon, PVC, polyethylene, polystyrene and stainless steel sampling equipment decontamination procedures will be the following:

- Wash thoroughly with nonresidual nonionic anionic detergent (such as Alconox) and clean potable tap water using a brush to remove particulate matter or surface film.
- Rinse thoroughly with tap water.
- Rinse thoroughly with distilled water.
- Rinse in a well ventilated area with methanol (pesticide grade) and air dry.
- Rinse thoroughly with distilled water and air dry.
- Wrap completely in clean aluminum foil with dull side against the equipment. For small sampling items, such as scoops, decontamination will take place over a drum specifically used for this purpose.

The first step, a soap and water wash, is to remove all visible particulate matter and residual oils and grease. This is followed by a tap water rinse and a distilled/deionized water rinse to remove the detergent. Next, a high purity solvent rinse is designated for trace organics removal. Methanol has been chosen because it is not an analyte of concern in the Target Compound List (TCL). The solvent must be allowed to evaporate and then a final distilled/deionized water rinse is performed. This rinse removes any residual traces of the solvent. The aluminum wrap protects the equipment and keeps it clean until it is used at another sampling location.

4.4 Laboratory Sample Custody Procedures

A NYSDOH ELAP laboratory meeting the requirements for sample custody procedures, including cleaning and handling sample containers and analytical equipment will be used. The laboratory's standard operating procedures will be available upon request.

4.5 Field Management Documentation

Proper management and documentation of field activities is essential to ensure that all necessary work is conducted in accordance with the monitoring plan and QAPP in an efficient and high quality manner. Field management procedures include following proper chain of custody procedures to track a sample from collection through analysis, noting when and how samples are to be composited (if required), preparing a Location Sketch, completing Sample Information Record Forms, Chain of Custody Forms, maintaining a daily Field Log Book, preparing Daily Field Activity Reports, completing Field Change Forms and filling out a Daily Air Monitoring Form. Proper completion of these forms and the field log book are necessary to support the consequent actions that may result from the sample analysis. This documentation will support that the evidence was gathered and handled properly.

4.5.1 Location Sketch

Each sampling point shall have its own location sketch with permanent references, to the maximum extent practicable.

4.5.2 Sample Information Record

At each sampling location, the Sample Information Record Form is filled out and maintained including, but not limited to, the following information:

- Site name
- Sample crew
- Sample location
- Field sample identification number
- Date
- Time of sample collection
- Weather conditions
- Temperature
- Sample matrix
- Method of sample collection and any factor that may affect its quality adversely
- Field test results
- Constituents sampled
- Remarks (Sample Compositing Information)

4.5.3 Chain of Custody

The Chain of Custody (COC) is initiated at the laboratory with bottle preparation and shipment to the site. The COC remains with the sample at all times and bears the name of the person assuming responsibility for the samples. This person is tasked with ensuring secure and appropriate handling of the bottles and samples. When the form is complete, it should indicate that there were no lapses in sample accountability.

A sample is considered to be in an individual's custody if any of the following conditions are met:

- It is in the individual's physical possession, or
- It is in the individual's view after being in his or her physical possession, or
- It is secured by the individual so that no one can tamper with it, or
- The individual puts it in a designated and identified secure area.

In general, Chain of Custody Forms are provided by the laboratory contracted to perform the analytical services. At a minimum, the following information shall be provided on these forms:

- Project name and address
- Project number
- Sample identification number
- Date
- Time
- Sample location
- Sample type
- Analysis requested
- Number of containers and volume taken
- Remarks
- Type of waste
- Sampler(s) name(s) and signature(s)
- Spaces for relinquished by/received by signature and date/time.

For this particular study, forms provided by the laboratory will be utilized.

The Chain of Custody Form is filled out and signed by the person performing the sampling. The original of the form travels with the sample and is signed and dated each time the sample is relinquished to another party, until it reaches the laboratory or analysis is completed. The field sampler keeps one copy and a copy is retained for the project file. The sample container must also be labeled with an indelible marker with a minimum of the following information:

- Sample number
- Analysis to be performed
- Date of collection
- Compositing information

A copy of the completed form is returned by the laboratory with the analytical results.

4.5.4 Split Samples

Whenever samples are being split with another party, a Receipt for Samples Form must be completed and signed. A copy of the COC Form will accompany this form. The present work plan does not provide for split samples.

4.5.5 Field Log Book

Field log books must be bound and should have consecutively numbered, water resistant pages. All pertinent information regarding the site and sampling procedures must be documented. Notations should be made in log book fashion, noting the time and date of all entries. Information recorded in this notebook should include, but not be limited to, the following:

The first page of the log contains the following information:

- Project name and address
- Name, address and phone number of field contact

- Waste generator and address, if different from above
- Type of process (if known), generating waste
- Type of waste
- Suspected waste composition, including concentrations

Daily entries are made for the following information:

- Purpose of sampling
- Location of sampling point
- Number(s) and volume(s) of sample(s) taken
- Description of sampling point and sampling methodology
- Date and time of collection, arrival and departure
- Collector's sample identification number(s)
- Sample distribution and method of storage and transportation
- References, such as sketches of the sampling site or photographs of sample collection
- Field observations, including results of field analyses (e.g., pH, temperature, specific conductance), water levels, drilling logs, and organic vapor and dust readings
- Signature of personnel responsible for completing log entries.

4.5.6 Daily Field Activity Report

At the end of each day of field work, the Field Operations Manager, or designee, completes this form noting personnel on-site and summarizing the work performed that day, equipment, materials and supplies used, results of field analyses, problems and resolutions. This form is then signed and is subject to review.

4.5.7 Field Changes and Corrective Actions

Whenever there is a required or recommended investigation/sampling change or correction, a Field Change Form must be completed.

4.6 Calibration Procedures and Preventative Maintenance

The following information regarding equipment will be maintained for the project:

1. Equipment calibration and operating procedures which will include provisions for documentation of frequency, conditions, standards and records reflecting the calibration procedures, methods of usage and repair history of the measurement system. Calibration of field equipment will be done daily at the sampling site so that any background contamination can be taken into consideration and the instrument calibrated accordingly.
2. Critical spare parts, necessary tools and manuals will be on hand to facilitate equipment maintenance and repair.

Calibration procedures and preventive maintenance, in accordance with the NYSDEC ASP, for laboratory equipment is contained in the laboratory's standard operating procedures and is available upon request.

4.7 Performance of Field Audits

During field activities, the QA/QC officer may accompany sampling personnel into the field to verify that the site sampling program is being properly implemented and to detect and define problems so that corrective action can be taken. All findings will be documented and provided to the Field Operations Manager.

4.8 Control and Disposal of Contaminated Material

In general, soiled personal protective equipment (PPE) and disposable sampling equipment (i.e., bailers, tongue depressors, scoops) will be considered solid waste and contained and disposed off-Site. If hazardous waste contamination of PPE or disposable equipment is suspected, due to elevated measurements of screening instruments, visual observations, odors or other means, PPE and equipment will be drummed and secured on-site until a hazardous waste determination can be made. Once a determination has been made, an approved disposal method will be employed.

4.9 Documentation, Data Reduction and Reporting

A NYSDOH ELAP laboratory meeting requirements for documentation, data reduction and reporting will be used. All data will be cataloged according to sampling locations and sample identification nomenclature.

NYSDEC "Sample Identification and Analytical Requirement Summary" and "Sample Preparation and Analysis Summary" forms (for VOA Analysis, B/N-A Analysis, Pesticides/PCB Analysis and Inorganic Analysis) will be completed and included with each data package. The sample tracking forms are required and supplied by the NYSDEC ASP.

4.10 Data Validation

Data validation will be performed in order to define and document analytical data quality in accordance with NYSDEC requirements that investigation data must be of known and acceptable quality. The analytical and validation processes will be conducted in conformance with the NYSDEC ASP and/or USEPA 5/99 and 1/00 SOWs.

Because the NYSDEC ASP is based on the USEPA CLP, the USEPA Functional Guidelines for Evaluating Organics Analyses for the Contract Laboratory Program (CLP) will assist in formulating standard operating procedures (SOPs) for the data validation process. The data validation process will ensure that all analytical requirements specific to the QA/QC plan are followed. Procedures will address validation of Routine Analytical Services (RAS) results based on the NYSDEC ASP Target Compound List and Target Analyte List for standard sample matrices.

The data validation process will provide an informed assessment of the laboratory's performance based upon contractual requirements and applicable analytical criteria. The report generated as a result of the data validation process will provide a base upon which the usefulness of the data can be evaluated by the end user of the analytical results. The overall level of effort and specific data validation procedure to be used will be equivalent to a "100% validation" of all data in any given data package.

"Qualified" analytical results for any one field sample will be established and presented based on the results of specific QC samples and procedures associated with its sample analysis group or batch. Precision Accuracy criteria (i.e., QC acceptance limits) will be used in determining the need for qualifying data. Where test data have been reduced by the laboratory, the method of reduction will be discussed in the report. Reduction of laboratory measurements and laboratory reporting of analytical parameters will be verified in accordance with the procedures specified in the NYSDEC and USEPA program documents for each analytical method (i.e., recreate laboratory calculations and data reporting in accordance with the method specific procedure).

The standard operating guideline manuals for any specific analytical methodology required will specify documentation needs and technical criteria and will be taken into consideration in the validation process. Copies of the complete data package and the data validation report, including laboratory result data report sheets, with any qualifiers deemed appropriate by the data reviewer, and supplementary field QC sample result summary statement, will be provided.

The following is a description of the two-phased approach to data validation which will be used for this investigation. The first phase is called checklisting and the second phase is the analytical quality review, with the former being a subset of the latter.

- Checklisting – The data package will be checked for correct submission of the contract required deliverables, correct transcription from the raw data to the required deliverable summary forms and proper calculation of a number of parameters.
- Analytical Data Review – The data package will be closely examined to recreate the analytical process and verify that proper and acceptable analytical techniques have been preformed. Additionally, overall data quality and laboratory performance will be

evaluated by applying the appropriate data quality criteria to the data to reflect conformance with the specified, accepted QA/QC standards and contractual requirements.

At the completion of the data validation, a Data Usability Summary Report (DUSR) will be prepared.

4.11 Performance and System Audits

A NYSDOH ELAP laboratory which has satisfactorily completed performance audits and performance evaluation samples shall be used.

4.12 Corrective Action

A NYSDOH ELAP laboratory shall meet the requirements for corrective action protocols, including sample "clean up" to attempt to eliminate/mitigate "matrix interference."

The NYSDEC ASP protocols include both mandatory and optional sample cleanup and extraction methods. GPC cleanup is required for soil samples by the NYSDEC ASP for semivolatile and pesticide/PCB analyses in order to meet contract required detection limits. Florisil column cleanup is required for the pesticide/PCB fraction of both soil and water samples. There are several optional cleanup and extraction methods noted in the NYSDEC ASP protocol. These include: Silica gel column cleanup, acid-base partition, steam distillation and sulfuric acid cleanup for PCB analysis.

It should be noted, that if these optional cleanup and extraction methods are requested by NYSDEC, holding time requirements should not be exceeded due to negligence of the laboratory.

4.13 Matrix Spikes/Matrix Spike Duplicates and Spiked Blanks

Matrix spike samples and blanks are quality control procedures, consistent with 6/00 NYSDEC ASP specifications, used by the laboratory as part of its internal Quality

Assurance/Quality Control program. The matrix and matrix spike duplicates are aliquots of a designated sample (water or soil) which are spiked with known quantities of specified compounds. They are used to evaluate the matrix effect of the sample upon the analytical methodology as well as to determine the precision of the analytical method used. A matrix spike blank is an aliquot of analyte-free water, prepared in the laboratory, and spiked with the same solution used to spike the MS and MSD. The MSB is subjected to the same analytical procedure as the MS/MSD and used to indicate the appropriateness of the spiking solution by calculating the spike compound recoveries. The procedure and frequency regarding the MS, MSD and MSB are defined in the NYSDEC ASP.

4.14 Method Blanks

A method blank is an aliquot of laboratory water or soil which is spiked with the same internal and surrogate compounds as the samples. Its purpose is to define and determine the level of laboratory background contamination. Frequency, procedure and maximum laboratory containment concentration limits are specified in the NYSDEC ASP as follows:

The laboratory shall prepare and analyze one laboratory reagent blank (method blank) for each group of samples of a similar matrix (for water or soil samples), extracted by a similar method (separatory funnel, continuous liquid extraction or sonication) and a similar concentration level (for volatile and semivolatile soil samples only) for the following, whichever is most frequent:

- Each case of field samples received; or
- Each 20 samples in a case, including matrix spikes and reanalyses; or
- Each 7 calendar day period during which field samples in a case were received (said period beginning with the receipt of the first sample in that sample delivery group); or
- Whenever samples are extracted.

Volatile analysis requires one method blank for each 12-hour time period when volatile target compounds are analyzed.

Semivolatile and pesticide method blanks shall be carried through the entire analytical process from extraction to final GC/MS or GC/EC analysis, including all protocol performance/ delivery requirements.

5.0 HEALTH AND SAFETY

A site specific health and safety plan (HASP) for the work will be prepared by the Contractor. The HASP shall be consistent with the requirements of OSHA (29 CFR 1910 and 1926), federal, state and local authorities. The Contractor shall be required to monitor the health and safety conditions during all phases of the Work and fully enforce Contractor's HASP. The work to be performed will result in possible chemical and low-level radiation exposures. Therefore, Contractor shall be responsible to perform all work in accordance with the applicable regulatory requirements/recommendations of the NYSDEC, USEPA and OSHA.

All Contractor on-site personnel shall have completed OSHA training and medical monitoring requirements for work on hazardous waste sites.

The Contractor shall also be responsible for performing air monitoring for volatile organic compounds and particulates at both upwind and downwind locations to document real time levels of contamination which might be moving off-site in accordance with the New York State Department of Health (NYSDOH) Community Air Monitoring Plan (CAMP).

In addition, all remediation and subsequent construction activities shall be conducted pursuant to the findings and recommendations of the Emilcott Health Based Risk Assessment provided in Appendix C.

FIGURES

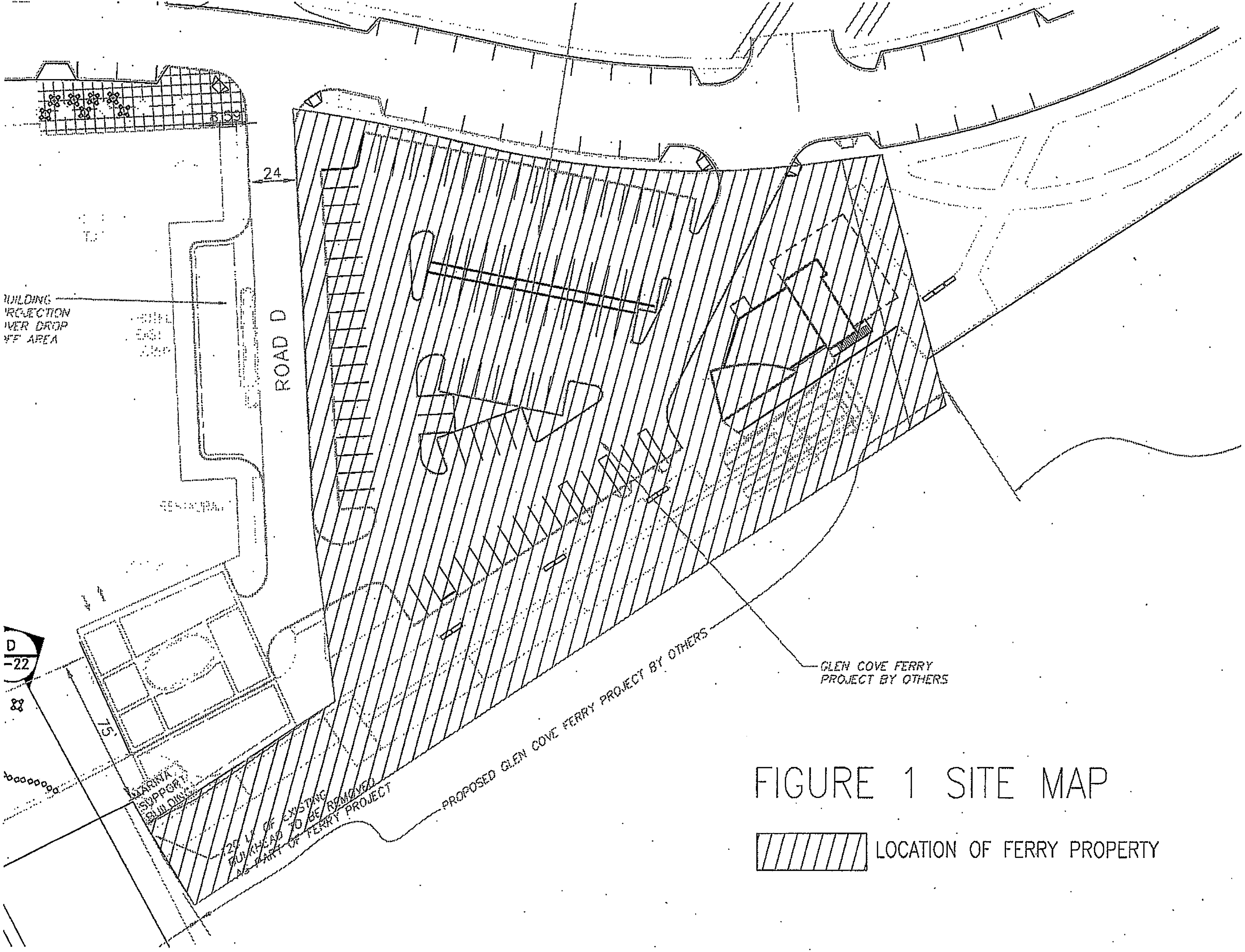


FIGURE 1 SITE MAP

▨ LOCATION OF FERRY PROPERTY

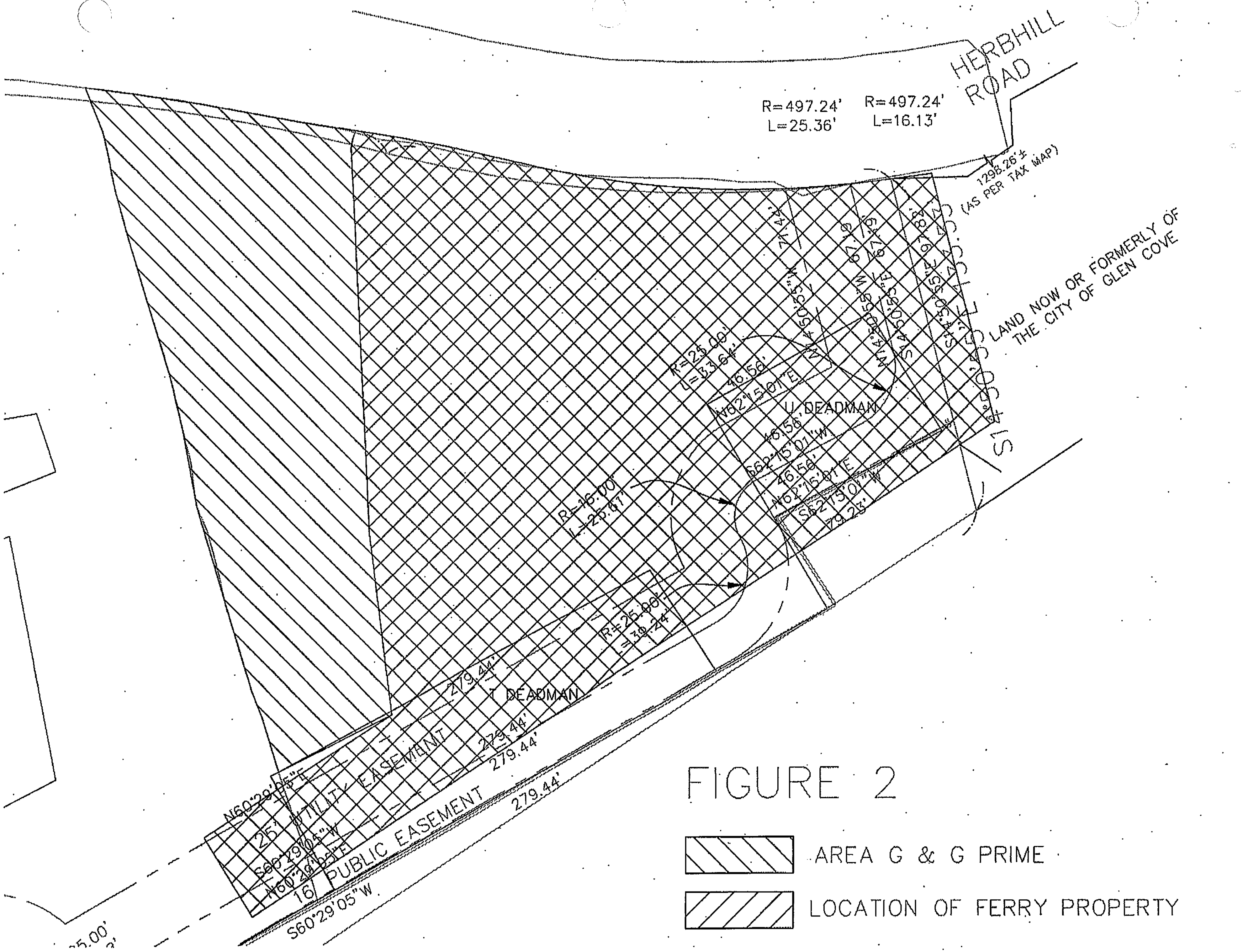
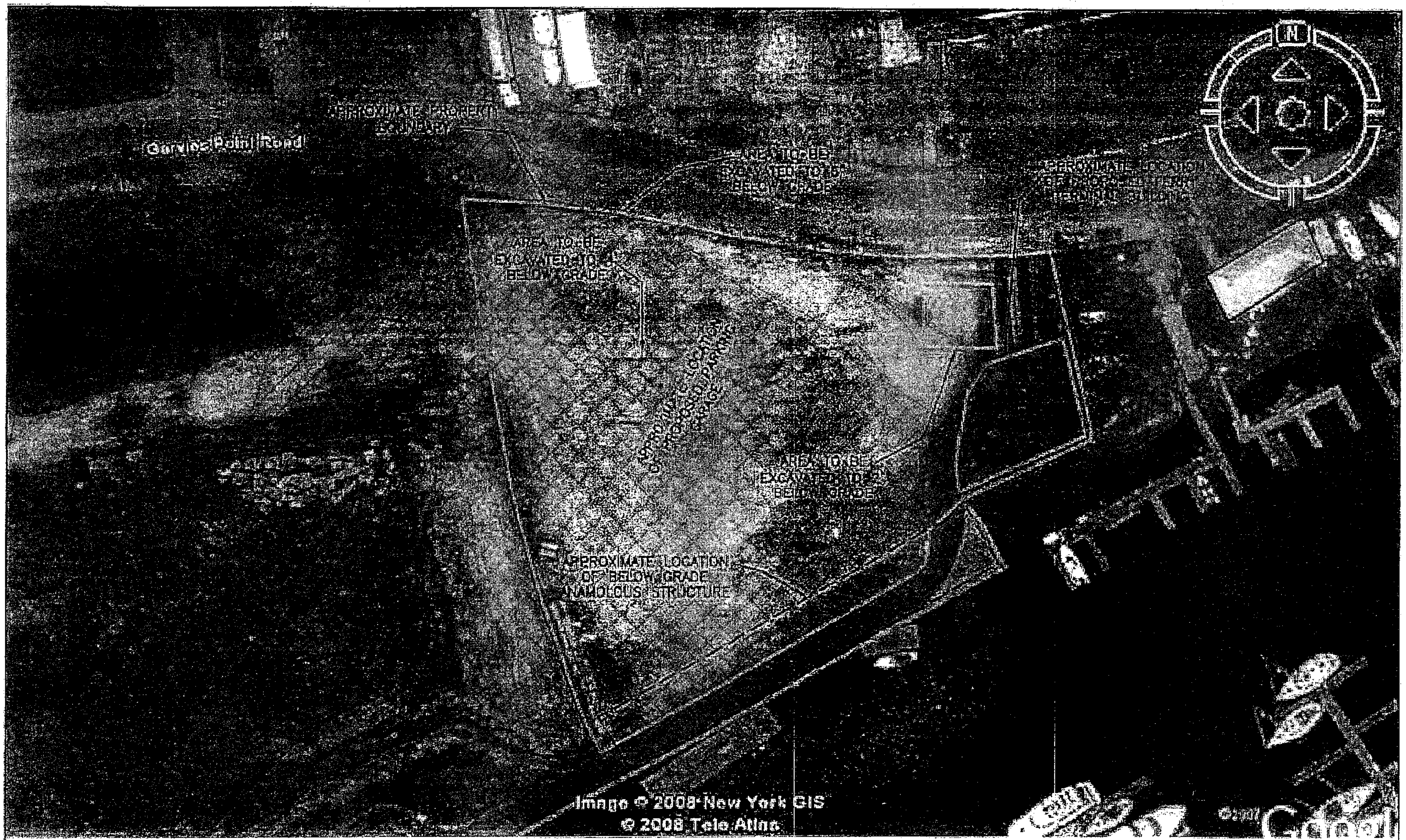


FIGURE 2

▧ AREA G & G PRIME

▨ LOCATION OF FERRY PROPERTY



SOURCE: GOOGLE EARTH GIS 2008

Dvirka and Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

GLEN COVE FERRY TERMINAL
GLEN COVE, NASSAU COUNTY, NEW YORK
PHASE II ENVIRONMENTAL SITE ASSESSMENT

PROPOSED AREAS OF REMEDIATION MAP

N.T.S.

FIGURE 3

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APPENDIX A

NYSDEC REGION 1 MARINE HABITAT PROTECTION SEDIMENT SAMPLING GUIDANCE

Developing Sediment Sampling Plans for Proposed Dredging Projects in Region 1

The information provided below is intended to assist applicants in the development of a suitable sediment sampling plan to provide adequate grain size and contaminant information for the review of dredging projects that are proposed in Region 1. For further information on sediment sampling and analysis, refer to the New York State Department of Environmental Conservation guidance document for **In-Water and Riparian Management of Sediment and Dredged Material**, (TOGS 5.1.9).

Sediment sampling plans are not required for all proposed dredging projects but may be required for certain proposals. The rationale for requesting sampling may include:

- large volumes of material
- materials to be taken offsite for upland disposal (all untested material taken offsite and out of the Department's Tidal Wetland jurisdiction must be taken to a lined landfill for disposal unless an alternative disposal site has been approved by the Division of Solid and Hazardous Materials)
- areas with a history or suspected history of contamination
- areas of new dredging or where dredging has not occurred for a long period
- changes in environmental conditions for maintenance projects

Developing a Sampling Plan:

Sediment sampling plans can and should be tailored to the specific project proposal based on the following general guidance:

- The number and location of sediment sample cores should be determined based on several parameters. Specifically, the size of the proposed area to be dredged (square footage rather than volume) and the availability of previous sediment data are important factors. Larger areas with less data available will require more sampling. Similarly, the likelihood of contamination based on expected sediment type and the history of the area will affect the number and location of samples. Consistency of sediment type throughout the proposed area and how recently the area was last dredged are also factors to be considered.

- Preliminary data collection should identify point sources of potential contamination (outfall pipes, industrial use locations, etc.) within or adjacent to the proposed dredging area. Once these areas are identified, sample locations should always be skewed to pick up areas of potential contamination as well as areas where finer sediments may be anticipated. Proposed marina dredging projects, should consider areas where boat scraping, painting or maintenance activities may have occurred in the past, fueling areas, areas where the smell or sheen of petroleum or other chemicals on certain tides have been noted, etc. This information of prior history and use provide rationale for selection of these areas as sample sites.

- Once the number and location of sample sites are determined, sediment samples should always be collected with core samples rather than grab devices. Core samples should be taken to one foot below the proposed dredging depth or, when applicable, proposed over-depth. This allows an analysis of of the material to be dredged as well as the material that will be exposed on the bottom once the dredging is completed.

- Each core should be inspected for visibly distinct layers. If distinct layers are apparent, they should be analyzed separately. However, if the sediment in the core sample is reasonably consistent, then the core can be composited into two sections for analysis. The top section, comprised of the surface to dredging depth material, represents an analysis of the material to be dredged. The second section, comprised of the first six inches of material below the dredging depth, represents the bottom sediment that will be exposed after the dredging is completed. The last six inches of the core can be set aside for analysis should the proposed exposed bottom sediment show elevated contaminant levels. This last segment can help determine if increasing the dredging depth will provide a reduction in exposed contaminant levels.

- Cores should be photographed and analyzed for sediment grain size. If the grain size of any core sample or segment is finer than 90% sand, additional contaminant analysis will be required. If several core samples require additional contaminant analysis, and the additional analysis becomes too economically burdensome, it is possible to limit testing of samples to those with the finest material and highest organic content – representing the "worst case material". Similarly, samples may be selected that have been subject to specific contamination events based on the known history of the sample site. Proposals to reduce analytical testing by analyzing only a selection of core samples or compositing individual core segments together should be approved by the Department prior to testing.

- The attached list of parameters is recommended as a baseline for contaminant testing of core samples. The list provided can and may need to be refined based on available historic information of known and/or suspected site contamination or prior dredging and/or sampling data. Results should be quantified and provided based on the levels identified below. All testing should be conducted at a NYSDOH approved laboratory. In addition to providing the results of the grain size analysis and contaminant testing, total and percent organic carbons should also be provided.

- Appropriate upland disposal sites may be recommended and identified by Division of Solid and Hazardous Materials based on the physical and chemical characteristics of the dredged material. If the applicant has identified a proposed disposal site (other than a landfill), it may be necessary to test the existing sediment at the proposed disposal site to show whether or not the existing sediment has contaminant levels higher, lower or similar to the material to be dredged. This testing will help identify the feasibility of using the location for spoil disposal. There may also be a need for verification sampling of the dredge material after dredging if the material is to be re-used or if test results of the in-situ dredge material sampling shows that contaminants are present but the results are not adequate for properly characterizing the material.

Once a proposed sampling plan has been developed, it should be submitted to the Department for review and comment before collection is initiated. A summary of the available historical data as well as the rationale for the number and location of samples to be collected must be included with the plan for staff to provide an informed review.

Parameter Sediment/Soil	Suggested EPA Analytical Method CLP\RCRA	Recommended Method Detection Limit (mg/kg, ppm)
Arsenic	EPA 6010B	3.0
Mercury	EPA 6010B, 7470	0.2
Cadmium	EPA 6010B	1.0
Lead	EPA 6010B	2.0
Chromium	EPA 6010B	5.0
Nickel	EPA 6010B	5.0
Silver	EPA 6010B	0.2
Zinc	EPA 6010B	15
Copper	EPA 6010B	5.0
Chlordane	EPA 8081A	0.0017
Sum of DDT+DDE+DDD	EPA 8081A	0.0033
Dieldrin	EPA 8081A	0.0033
PCBs (sum of aroclors)	EPA 8082	0.033
Total PAH	EPA 8270	0.33
Total BTX	EPA 8021, 8260B	0.0008
Benzene	EPA 8021, 8260B	0.0003
Mirex	EPA 8081A	0.189
Dioxin (Toxic Equivalency Total)	EPA 1613B	0.000002

Physical Properties

Grain Size	ASTM D41/D42	
Total Organic Carbon	EPA 9060A	

APPENDIX B

RADIATION MONITORING PLAN

RADIATION MONITORING PLAN

Captain's Cove Condominium
Inactive Hazardous Waste Disposal Site Remedial Action
(Site No. 1-30-032)
Glen Cove, New York

January 6, 2000

Prepared for:

The City of Glen Cove
Glen Cove, New York

Prepared by:

REMEDIAL ENGINEERING, P.C.
AND
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CONTENTS

FIGURE

1.0 GENERAL

This Radiation Monitoring Plan (RMP) has been prepared in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM [NUREG Document No. 1575 and USEPA Document No. EPA-402-R-97-016]) and Roux Associates, Inc. (Roux Associates) Standard Operating Procedures (SOPs). It addresses radiation monitoring activities to be performed during the remedial action at the Captain's Cove Site in the City of Glen Cove, New York (Site). The RMP will be implemented during work at the Site by the Contractor's Health Physics Field Technician in coordination with the Consultant's Field Engineer.

Compliance with this RMP is required for all parties who enter this Site (including representatives of the United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC) and/or the City of Glen Cove). The content of this RMP may undergo revision based upon radiation levels measured in the field after the remediation activities have been initiated. Any changes proposed must be reviewed and approved by the City Consultant's Health Physics Safety Officer (HPSO) (or their designee) and the NYSDEC.

Scope of Work

Based on the results of the Site remedial investigation (RI), buried solid waste across the central portion of the Captain's Cove Site was identified. The subsequent feasibility study (FS) focused on remedial actions to address this buried waste. The scope of Work for implementation of the selected remedy in the ROD based on this FS, includes the following specific components.

- This remedy will consist of excavating the landfill and separating the waste stream into various components including: solid waste, hazardous waste, construction and demolition (C&D) debris, and radiological waste.

- The latter three waste streams will be disposed of offsite.

- The solid waste would be sorted according to size and the smaller material (<1 inch) will be returned to the excavation if appropriate after analysis.

- All of the sorted material (<1 inch) returned to the excavation will be covered by two feet of general fill or other suitable cover material.

- A deed restriction will prevent the site from being used for residential purposes (i.e., long-term single or multi-family housing). Additionally, the deed restriction will include controls to provide for the protection of public health during future subsurface activities.

2.0 RADIATION MONITORING PLAN

Soil excavated during the remediation at the Captain's Cove Site will be monitored for radiation to:

- segregate soil/waste that may contain radioactive contamination (if any); and
- to protect on-site workers from potential exposure to dangerous levels of radiation.

The radiation monitoring will be performed by the Contractor's Health Physics Field Technician (HPFT) under the direction of the Consultant's Field Engineer and Health Physics Safety Officer (HPSO). Any radioactive waste identified as a result of monitoring will be segregated and managed by the Contractor as described in the Contractor's Construction Contingency Plan (CCP).

This monitoring protocol, summarized in Figure 1, entails identification of minimum qualifications for the Contractor's HPFT, selection of suitable monitoring instruments, instrument calibration, monitoring methodology, and establishing background radiation levels at the Site. Each of these considerations is described below.

2.1 Qualifications Health Physics Field Technician

The radiation monitoring will be performed by the Contractor's HPFT. The Contractor's HPFT qualifications will be reviewed by the Consultant and the NYSDEC Health Physicist. At a minimum, the candidate HPFT will have successfully completed Radiation Worker Training, have 2 to 4 years experience performing field gamma radiation monitoring, have experience with the monitoring instruments specified below (including calibration, routine operation, and performing field instrument checks), have demonstrated experience in establishing site background radiation levels, and have experience collecting, handling, and shipping samples for radiological analyses.

2.2 Selection of Radiation Monitoring Instrument

The selection of a radiation monitoring tool was based on the type of radiation in the Li Tungsten mill tailings located adjacent to the Site. The radiation contamination is primarily due to the presence of uranium and thorium contained in mill tailings generated during mineral processing of tungsten ores at the former Li Tungsten Site, located on Herb Hill Road, in Glen Cove, New York. The tailings also contain daughter products, including radium, from the radioactive decay of the parent radionuclides. Radioactivity is produced during the subsequent decay of the daughter products until a stable isotope is achieved. During decay, radioactivity in the form of particles and energy is emitted from the radionuclide. In brief, the decay processes are specific to the individual isotopes, and thus, each decay process produces a specific form of radioactivity (e.g., alpha, beta and gamma radiation). Uranium produces alpha and gamma radiation and is the primary contributing radionuclide to the radioactivity in the Li Tungsten tailings. The other radionuclides, including thorium and radium, also emit gamma and or alpha radiation. Although alpha radiation is produced by the radionuclides present in soil adjacent to the Site, it is a low energy emission and, therefore, is absorbed by most sediments including soil. The ease of absorption by any material present between the source of the radioactivity and the count-rate meter will minimize and may prevent detection of the presence of alpha radiation. Accordingly, a radiation monitoring tool capable of detecting gamma radiation (a high energy radiation) is specified. For this purpose a Ludlum™ Model 2221 count-rate meter and scaler equipped with a 100 cm^2 (2-inch by 2-inch) sodium iodide (NaI) detector is specified.

2.3 Instrument Calibration and Operation

The radiation rate meter/scaler will be calibrated by the supplier in accordance with the instrument manufacturer's specifications. A range of radioactive NBS source materials standards (or traceable to NBS standards) will be used for calibration. A range of response configurations will be used during the calibration process. The response of the meter will be checked throughout each day using the source provided with the instrument. Source checks will be recorded in the field log book. All supplier calibration records and daily response checks will be maintained on-site throughout the duration of the remediation activities. During monitoring the count-rate meter will be operated in the audio mode to aid in detecting radiation above 2-times background.

2.4 Establishing Site Background

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS), and the USEPA Focused Feasibility Study (FFS), the background radiation at the site ranged up to approximately 3,750 cpm. As background at the Site varies according to the media measured (e.g., different soil types etc.) at the onset of the excavation project, the Contractor's HPFT under the direction of the Consultant's HPSO will identify background radiation on soil samples collected around the Site where the absence of non-anthropogenic radioactive material has been confirmed. Measurements on the soil types will be recorded in the field log book. The background radiation values measured will be used in conjunction with previously measured values as a guide to distinguishing radiation readings due to naturally-occurring radiation from those produced by radioactive waste deposited adjacent to the Site.

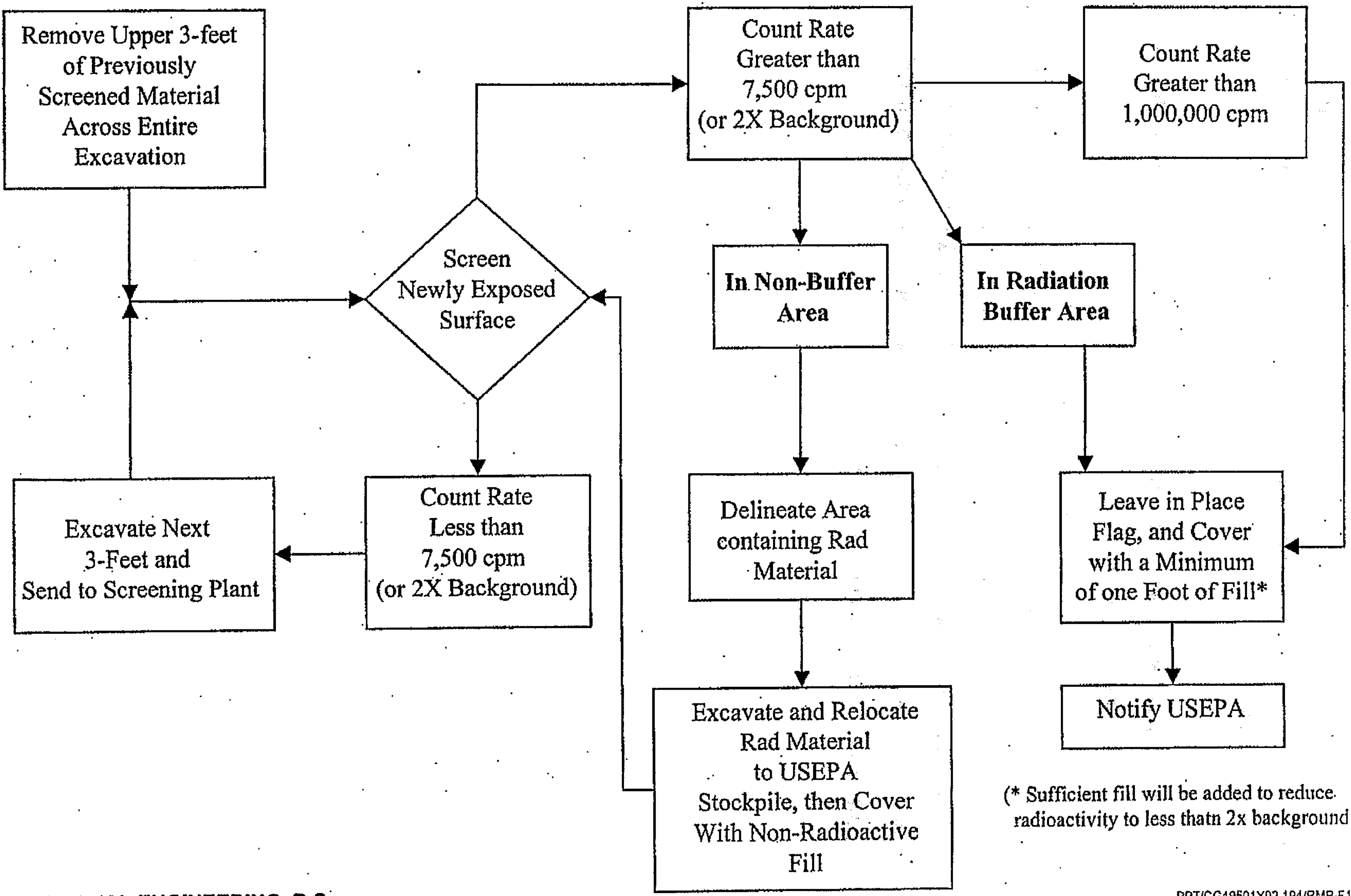
2.5 Radiation Monitoring Methodology

The following radiation monitoring protocol was developed to identify radioactive material that may be encountered during remediation. The monitoring protocol described below was designed to effectively 'see' gamma radiation in approximately 10 to 15 percent, by volume, of the material excavated. In keeping with this goal, it is assumed that the meter selected for the field monitoring will 'see' gamma radiation to a depth of approximately 6-inches below the top of the surface being monitored. Based on this assumption, the monitoring will be performed on three-foot lifts of soil and will result in a monitored volume percent of approximately 17 percent. Note that the upper three feet of the area to be remediated will initially be excavated with no additional radiation monitoring. No monitoring of this upper soil horizon is warranted as the entire surface of the Site has been monitored extensively for radioactivity by the NYSDEC in 1997 and Roux Associates during the RI/FS completed during 1998. Soil horizons exposed by subsequent excavation activities will be monitored by a qualified personnel using the meter, method and scan rate specified below.

Monitoring will entail scanning the count-rate meter detector across the floor of the excavation exposed after each three foot lift of material is excavated. Approximately each foot of the excavation floor will be monitored for radiation. During monitoring the detector will be held at approximately 3-inches or less above the surface being scanned. The detector will be moved over the surface being scanned at a rate not to exceed approximately 0.5 meters per second (m/s) as per the MARSSIM (NUREG Guidance Document 1575). This scan rate will allow the collection of a reasonable number of counts per scan. If count rates exceed 2-times background, then the provisions in the Contractor's CCP will be implemented. In general, the Contractor's CCP for radiation hot spots entail recording the location of the hot spot and the maximum and minimum number of count rates observed (rounded to the nearest 100 cpm) in the bound field notebook. A general description of the material that was scanned (e.g., sand clay, peat, waste, etc.) will also be recorded.

Radioactivity measured above the Site background is considered a potential exposure hazard. However, without exception radiation measurements in excess of approximately 2-times background (i.e., 7,500 counts per minute [cpm]) have not been measured in the excavation footprint. As a protective measure against acute radiation exposure to on-site workers, radioactivity above 100 mrem (or approximately 1,000,000 cpm) will be considered a potential acute exposure risk. Soil that exhibits readings above background but below the threshold for acute exposure risk will be handled as described in the Contractor's CCP as there is no significant exposure risk at these levels.

Figure 1 - Radiation Monitoring Plan Flow Chart for Radioactivity Screening of Soil During Excavation at the Captain's Cove Condominium Inactive Hazardous Waste Disposal Site, Glen Cove, New York



(* Sufficient fill will be added to reduce radioactivity to less thatn 2x background)

APPENDIX C

HEALTH BASED RISK ASSESSMENT

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HEALTH-BASED RISK ASSSSMENT
GLENN COVE FERRY TERMINAL

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October 30, 2008

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1.0 SUMMARY

Emilcott has reviewed Dvirka and Bartilucci's (D&B) *Glenn Cove Ferry Terminal Project, Supplemental Phase II Environmental Site Assessment, D&B No. 2358* which reported surface soil, sub-surface soil, groundwater, and soil gas sampling results. Based on the data reported by D&B Emilcott was contracted to conduct a health-based risk assessment for the construction phase of the Glenn Cove Ferry Terminal Project.

The risk assessment is intended to address the surrounding community and site construction workers. As such, data regarding surface soil, subsurface soil, and soil gas were evaluated as potential sources of exposure. Groundwater related exposures were excluded as excavation of the site is stated to be 4 feet or less below grade and groundwater exists at 12 to 15 feet below grade.

Finding of this risk assessment are based on health-based risk assessment calculations that are typically used to evaluate risk posed by environmental remediation projects. Our findings are summarized below:

- Airborne dust should not exceed background plus 780 micrograms per cubic meter (µg/m^3) of air at the perimeter of the site in order to be protective of the surrounding community. This is based upon arsenic soil data and arsenic toxicity.
- Airborne dust should not exceed 11 milligrams per cubic meter (mg/m^3) of air in the work zone in order to be protective of site workers. This is based upon arsenic soil data and the OSHA Permissible Exposure Limit (PEL) for arsenic.
- Any soil gas released during this project should not adversely affect the community or site workers as the maximum concentration of each soil gas contaminant is below its calculated risk-based vapor concentration and OSHA PEL.
- An effective dust control program should be implemented to control the generation of airborne dusts containing asbestos.

2.0 SOIL DUST

Excavation and construction activity will disturb soils on the site and consequently generate airborne dust. Airborne dust creates a potential for exposure to site workers and the surrounding community; therefore, dust control during excavation and site work is essential so as not to create a potentially hazardous exposure scenario. This risk assessment will focus on documenting the concentration of airborne dust which must be maintained on site so as to not adversely impact site workers and the surrounding community.

The project includes excavation of the majority of the site to a depth of 6 inches below grade, with excavation of smaller areas to depths of 2 to 4 feet below grade. D&B's surface and sub-surface soil data indicates that the following compounds were present above the New York State Department of Environmental Conservations (NYSDEC) Restricted Use Commercial Soil Cleanup Objectives at one or more boring locations:

- Benzo(a)pyrene
- Arsenic
- Barium

Asbestos was also confirmed to be present in surface and sub-surface soils.

2.1 Community Dust

Health risk associated with benzo(a)pyrene, arsenic, and barium can be attributed to non-carcinogenic and/or carcinogenic health effects. Using the following risk assessment calculations the maximum permissible airborne soil concentration can be determined based on the toxicity of each site contaminant.

The exposure scenario assumes 8-hours of site work per day, 5 days per week, for 52 weeks.

Non-carcinogens

$$\text{Airborne Soil}_{NC} = \frac{\text{Reference concentration} * \text{Averaging Time}}{\text{Soil Conc. (mg/kg)} * \text{1 kg/1E+6 mg} * \text{Exposure Time} * \text{Exposure Frequency} * \text{Exposure Duration}}$$

Where:
Reference concentration = Contaminant-specific from http://www.epa.gov/reg3hwmd/risk/human/index.htm.
Averaging Time = 1 year
Soil Concentration = maximum soil concentration (mg/kg)
Exposure Time = Work shift length in hours/24 hours (8 hours/24 hours = 0.33)
Exposure Frequency = Length of actual excavation in days/365 days (260 days/365 days = 0.71)
Exposure Duration = 1 year

Carcinogens

$$\text{Airborne Soil}_{Car} = \frac{\text{Target Risk} * \text{Averaging Time}}{\text{Soil Conc. (mg/kg)} * \text{1 kg/1E+6 mg} * \text{URF} * \text{Exposure Time} * \text{Exposure Frequency} * \text{Exposure Duration}}$$

Where:
Target Risk = 1×10^{-6}
Averaging Time = 70 years
Soil Concentration = Maximum soil concentration (mg/kg)
Unit Risk Factor (URF) = Contaminant-specific in terms of $(\mu g/m3)^{-1}$ from http://www.epa.gov/reg3hwmd/risk/human/index.htm
Exposure Time = Work shift length in hours/24 hours (8 hours/24 hours = 0.33)
Exposure Frequency = Length of actual excavation in days/365 days (260 days/365 days = 0.71)
Exposure Duration = 1 year

Using these formulas, the maximum airborne soil concentration based on non-carcinogenic and carcinogenic effects were calculated and are summarized in Table 1.

Table 1 – Maximum Airborne Soil Concentration

Compound	Airborne $Soil_{NC}$ ($\mu g/m^3$)	Airborne $Soil_{Car}$ ($\mu g/m^3$)
Arsenic	1,400	780
Barium	3,100	No basis
Benzo(a)Pyrene	No basis	220,000

Based on Table 1, the carcinogenic effects of arsenic are clearly the controlling parameter in establishing a maximum airborne soil concentration that will be protective of the surrounding community. Therefore, the Community Air Monitoring Program (CAMP) should establish a downwind Particulate Action Level of upwind background concentration plus 780 $\mu g/m^3$ (upwind + 780 $\mu g/m^3$), as an 8-hour average, in order to minimize potential impacts to the surrounding community.

2.2 Site Worker Dust

Exposures to site workers should be maintained so that the airborne concentrations of site contaminants do not exceed the respective Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL). While it is not possible to directly measure the airborne concentration of individual site contaminants using direct-reading instrumentation, it is possible to directly measure the concentration of airborne dusts in the active work zone in real time. Consequently, a Work Zone Dust Action Level based on OSHA PELs can be calculated using the following formula:

Work Zone Dust Action Level = [OSHA PEL(mg/m^3)] * [1 kg/1E+6 mg] / [maximum soil concentration (mg/kg)] / [safety factor (10)]

Table 2 -Work Zone Dust Action Level

Contaminant	OSHA PEL-TWA	Maximum Soil Concentration (mg/kg)	Airborne Soil Concentration Equivalent to PEL (mg/m^3)
Benzo(a)pyrene	0.2 mg/m^3	1.2	17,000
Arsenic	0.01 mg/m^3	87.7	11
Barium	0.5 mg/m^3	680	74

Based on Table 2, maintaining an airborne particulate concentration in the work zone at a concentration less than 11 mg/m^3 will adequately control occupational exposures.

2.3 Asbestos

It is not possible to directly calculate a particulate action levels based upon asbestos. Instead control of potential asbestos exposures to the community or site workers must focus on implementation of strict dust control measures when excavating or otherwise handling soils when asbestos is known to be present. Such dust control measures should include:

- Wet methods – maintaining soil in a wet/damp condition using water sprays or mist.
- Covering stockpiled soils with tarps when soil is not being actively handled.

As part of the CAMP, the airborne asbestos concentration should be monitored on a daily basis at the downwind perimeter of the site when excavating or otherwise handling soils where asbestos is known to be present. The CAMP should establish an Asbestos Action Level of 0.01 fibers per cubic centimeter of air (0.01 fibers/cc). This is the US EPA Clearance Level for asbestos abatement projects.

Occupational exposures to asbestos should be maintained below the OSHA PEL of 0.1 fibers/cc.

3.0 SOIL GAS

Soil gas samples were collected at 3 to 4 feet below grade. Excavation is expected to reach a maximum of 4 feet. Consequently, excavation has the potential to release soil gas into the air. D&B's report identified the following site contaminants being present in soil gas:

- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- 4-Ethyltoluene
- Acetone
- Benzene
- Carbon Disulfide
- cis-1,2-Dichloroethene
- Ethyl Acetate
- Ethyl Benzene
- Methyl tert-Butyl Ether (MTBE)
- m & p-Xylene
- o-Xylene
- Styrene
- Toluene

Health risk associated with the compounds can be attributed to non-carcinogenic and/or carcinogenic health effects. Using the following risk assessment calculations the maximum permissible airborne concentration of each contaminant can be determined based on the toxicity of each site contaminant.

The exposure scenario assumes 8-hours of site work per day, 5 days per week, for 52 weeks.

Non-carcinogens

$$\text{Airborne Vapor}_{NC} = \frac{\text{Reference concentration * Averaging Time}}{\text{Exposure Time * Exposure Frequency * Exposure Duration}}$$

Where:
Reference concentration = Contaminant-specific from http://www.epa.gov/reg3hwmd/risk/human/index.htm .
Averaging Time = 1 year
Exposure Time = Work shift length in hours/24 hours (8 hours/24 hours = 0.33)
Exposure Frequency = Length of actual excavation in days/365 days (260 days/365 days = 0.71)
Exposure Duration = 1 year

Carcinogens

$$\text{Airborne Vapor}_{Car} = \frac{\text{Target Risk * Averaging Time}}{\text{URF * Exposure Time * Exposure Frequency * Exposure Duration}}$$

Where:
Target Risk = 1×10^{-6}
Averaging Time = 70 years
Unit Risk Factor (URF) = Contaminant-specific in terms of $(\mu g/m3)^{-1}$ from http://www.epa.gov/reg3hwmd/risk/human/index.htm
Exposure Time = Work shift length in hours/24 hours (8 hours/24 hours = 0.33)
Exposure Frequency = Length of actual excavation in days/365 days (260 days/365 days = 0.71)
Exposure Duration = 1 year

Using these formulas, the maximum risk-based vapor concentrations for non-carcinogenic and carcinogenic effects were calculated, and are summarized in Table 3.

Table 3 – Comparison of Maximum Soil Gas Concentration vs. Risk-Based Vapor Concentrations

	Maximum Reported Soil Gas Concentration ($\mu g/m^3$)	Vapor_{NC} ($\mu g/m^3$)	Vapor_{Car} ($\mu g/m^3$)
1,2,4-Trimethylbenzene	15.5	29	No basis
1,3,5-Trimethylbenzene	8.39	25	No basis
4-Ethyltoluene	9.79	No basis	No basis
Acetone	2,820	13,000	3,900
Benzene	31.8	130	3,800
Carbon Disulfide	7.6	2,900	No basis
cis-1,2-Dichloroethene	6	No basis	No basis
Ethyl Acetate	21.6	No basis	No basis
Ethyl Benzene	15.9	4,200	12,000
MTBE	240	12,000	110,000
m&p-Xylene	53	2,900	No basis
o-Xylene	15	2,900	No basis
Styrene	2.6	4,200	No basis
Toluene	99.6	21,000	No basis

Based on these calculations any soil gas released during this project should not adversely affect the community, as the maximum soil gas concentration for each contaminant is below its calculated risk-based vapor concentration.

Any soil gas released during the project also should not adversely affect site workers, as the maximum soil gas concentration is well below the OSHA PEL for each contaminant.

Terms & Conditions:

1. Emilcott's services are undertaken for the sole benefit of the client. Any reports associated with our services may not be used by any other person or entity without the express written consent of Emilcott Associates, Inc. and the client. Any use which a third party makes of such reports, or any reliance on decisions made based on them, is the responsibility of such third parties. Emilcott accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on the reports.
2. Some of the information presented in the reports will result from existing documents or through interviews. While attempts will be made to obtain confirmatory sources of information, Emilcott may be required to assume the information provided is accurate.
3. The conclusions presented by Emilcott represent our best technical judgment based on the data obtained. The conclusions are based on site conditions encountered at the time the work was performed, at specific locations, and cannot be extrapolated to other areas. Due to the nature of the investigation and the limited data available, Emilcott cannot warrant against undiscovered environmental liabilities.
4. If any conditions become apparent that differ significantly from our understanding of conditions as presented, we request that we be notified immediately to reassess the conditions provided.

DREDGING / EXCAVATION WORK PLAN

GLEN COVE FERRY TERMINAL
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

Prepared for:

City of Glen Cove Industrial Development Agency
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Prepared by:

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Contract No. 09-0800R
PIN 0757.52
CEA Project No. CE1008R-01

July ~~6~~14, 2010

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DREDGING / EXCAVATION
WORK PLAN

GLEN COVE FERRY TERMINAL
CITY OF GLEN COVE
NASSAU COUNTY, NEW YORK

1.0 INTRODUCTION

This Dredging / Excavation Work Plan (D / E Work Plan) outlines the work to be conducted at the Glen Cove Ferry Terminal Site (hereinafter referred to as the "Subject Property") located on Garvies Point Road in Glen Cove, New York (see ***Figure 1-1***: Site Location Map).

This document was prepared in accordance with the requirement in ***Section 3.3*** of the June 2009 Draft Site Management Plan (SMP) prepared for the City of Glen Cove Industrial Development Agency (IDA) which states "*a work plan will be developed by the Contractor prior to initiating any excavation activities at the site. The work plan, at a minimum, will be consistent with the requirements specified below for excavating/dredging, screening, handling, storing, sampling, transporting, and disposing of contaminated material….*" Two additional Draft SMP-required work plans including a site-specific Health and Safety Plan (HASP) and a site-specific Quality Assurance / Quality Control Plan (QA / QC Plan) are provided under separate covers.

1.1 Site Background

According to the Draft SMP, the following history pertains to environmental conditions at the Subject Property:

- Since circa 1950's, incinerator ash, sewage sludge, solid waste, creek sediments and industrial waste were disposed at the Captain's Cove property, which is located immediately west of the Subject Property. Additionally, ore residuals from the Li Tungsten Corporation facility (a former Superfund site) were disposed of on the western and eastern sides of the Subject Property. The New York State Department of Conservation (NYSDEC) incorporated the Subject Property as part of a State Superfund site circa 1990's. Soon thereafter, the United States Environmental Protection Agency (USEPA) became involved with remediation efforts to address the radioactive contamination associated with the ore residuals from the former Li Tungsten facility.

- The NYSDEC issued a State Record of Decision (ROD) for the Li Tungsten Site in March 1999. The ROD required excavation of an on-site landfill and separation of the waste stream into solid waste, hazardous waste, construction and demolition (C&D) debris and radiological wastes which were to be disposed of in accordance with prevailing local, state and federal regulations.

- In September 1999, after investigating the nature and extent of contamination, the USEPA executed a ROD which included the remediation of both the former Li Tungsten facility and the Captain's Cove property. The USEPA ROD required that 67,000 cubic yards of radioactive- and heavy metals-contaminated wastes be excavated and disposed of off-site.

- Reportedly, remediation of the Subject Property consisted of the excavation of contaminated soil to a depth ranging from three-to-14-feet bgs and the backfilling of the excavation with clean fill. Subsequent to the remedial activities, the NYSDEC and USEPA determined that all remedial action objectives and goals were met and no further remedial actions were necessary. It should also be noted, that according to the Draft SMP, the final depth of the excavation coincided with a layer of natural sand which was underlying the contaminated area.[1]

- During excavation activities, sub-grade features including retaining walls and a buried barge were encountered on the Subject Property.

- The selected remedy for groundwater was no action. However, long-term monitoring was conducted on the Long Island Upper Glacial Aquifer in the proximity of the Li Tungsten facility. The USEPA anticipated that groundwater quality would improve subsequent to the removal of the contaminated sediments and soils.

- Starting in December 2008, Dvirka and Bartilucci Consulting Engineers (D&B) conducted a Supplemental Phase II Environmental Site Investigation (Phase II) at the Subject Property. Based on the results of the Phase II, elevated concentrations of arsenic and barium exceeding NYSDEC Part 375 Restricted Use Soil Cleanup Objectives (RUSCO) for commercial-use sites, were detected in surface samples along the western portion of the Subject Property; asbestos was detected in surface samples along the eastern portion of the Subject Property; elevated levels of barium were detected in subsurface samples; and unfiltered groundwater samples indicated the presence of elevated levels of arsenic, barium and mercury. No metals were detected above groundwater standards, criteria and guidance values (SCGs) in filtered groundwater samples. D&B did not detect any radiation levels above background levels in any of the samples field screened as part of the Phase II.

- Glen Cove Creek, which runs along the southern portion of the Subject Property, is a 1.1-mile-long; 100-foot-wide designated Federal Navigation Channel with a Unites States Army Corps of Engineers (USACE) project depth of eight feet deep with a two-foot over-dredge allowance. It is the

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[1] *In subsequent recent discussions with the NYSDEC, it was indicated that materials were not excavated to depth in the vicinity of the existing bulkhead due to the presence of groundwater. Further, the materials underlying the buried barge were not evaluated.*

responsibility of the USACE to dredge the channel at regular intervals. It is the responsibility of the City of Glen Cove to dispose of the dredged materials. In October 2001, the USACE conducted a radiological screening survey and sediment sampling program. Eleven discrete areas of elevated gamma readings were identified in areas to be dredged and areas which were previously dredged. Additional dredging of the creek was performed in 2004.

1.2 Project Description

The Subject Property is proposed by the IDA to be used to provide improved access to the waterfront area abutting Glen Cove Creek. Due to the potential that contaminated soil / sediment maybe encountered during the implementation of construction of the Ferry Terminal, activities associated with this contract that may result in the exposure of contamination; therefore, all dredging and excavation activities which involve the disturbance of site materials must be handled in accordance with this D / E Work Plan, HASP and QA / QC Plan.

The work to be conducted at the Subject Property as part of this project includes the following:

- Excavate soil behind existing bulkhead to water level;
- Excavate other areas of on-site soils;
- Transport and dispose of all excavated materials in accordance with prevailing regulations;
- Replace excavated soils with either site materials tested and approved for use as back fill and / or with certified clean back-fill materials;
- Dismantle and remove the buried barge;
- Install new, landward sheeting / bulkhead;
- Remove existing bulkhead; and,
- Dredge area seaward of new bulkhead to desired elevation.

Prior to dredging sediments from Glen Cove Creek in front of the existing on-site bulkhead, sediment samples will be collected to evaluate the quality of the sediment that will be left exposed after dredging is completed (e.g., of the “new sea floor”). An estimated area of 17,800 square feet of Glen Cove Creek will be dredged ~~approximately two feet below the existing creek bottom~~to a target elevation of -14 feet mean sea level (msl). Additionally, similar sediment samples will be collected prior to excavation of materials from between the two bulkheads, also to a target elevation of -14 feet msl.

With NYSDEC approval of the project work plans, the aforementioned sediment sampling and site dredging / excavation program will commence. Due to the potential for encountering impacted materials associated with the two Superfund sites, each bucket of excavated materials will be field screened for the presence of volatile organic compounds (VOCs) utilizing a photo-ionization detector (PID) and for elevated radiation readings with a radiation detector. Further, air monitoring for the presence of VOCs and respirable dust will be conducted in accordance with a New York State Department of Health (NYSDOH)-compliant Community Air Monitoring Plan (CAMP) which has been incorporated into the site-specific HASP.

2.0 PROJECT WORK ELEMENTS

The following sections of this D / E Work Plan include all aspects of the work to be performed as part of this project.

2.1 Radiation Monitoring Plan

In order to address NYSDEC concerns with respect to the potential for encountering materials exhibiting high radiation levels during the conduct of the project,[2] the firm of CoPhysics Corporation (CoPhysics) has been retained to provide health-physicists' and radiological-engineering personnel support for the project. CoPhysics has been issued a broad scope Radioactive Materials License (Z1-98) for surveys, analysis, decontamination and decommissioning (D&D), leak tests and calibration. Under this license, CoPhysics is authorized to perform remediation, decommissioning, source packaging and other activities at client sites using any isotope in any quantity, subject to certain regulatory notification requirements; authorized to use all radioisotopes in any form as samples and calibration standards at its NY facility and at remote sites.

The following provides the SOW to be conducted by CoPhysics during the implementation of the Project:

- Review this Radiation Monitoring Plan, as well as the Radiation Monitoring Plan prepared for the Captains Cove Condominium Site and the Phase II recently conducted at the Subject Property. CoPhysics' recommendations / revisions have been incorporated into this version of the Radiation Monitoring Plan;

- A CoPhysics supervisor-level health physicist will provide oversight / consulting services during the conduct of the initial site excavation activities which will be conducted to determine site-specific radiation background levels, as discussed below; and,

- CoPhysics will be on "standby" to provide heath physics' support in the event that materials exhibiting high radiation levels are encountered during the conduct of the project.

Due to the nearby presence of the Li Tungsten and Captain's Cove sites and the confirmed presence of soils and sediments exhibiting elevated radiation levels in the vicinity of the Subject Property, the creek-bottom sediments collected as part of the project and each

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[2] *It should be noted that this condition is not anticipated based upon the USEPA / NYSDEC remedial actions previously conducted at the Subject Property and the results of a recent soil investigation.*

bucket of excavated materials (both dredge spoils and site soils) will be field-screened for radiation in accordance to the following procedures:[3]

- Radiation screening will be conducted utilizing a counter-rate meter and scaler such as the Ludlum^{TM} Model 221 equipped with a (two-by-two-inch) sodium iodide detector such as the Ludlum^{TM} Model 44-10 (hereinafter referred to as the radiation detector). Conduct the gamma survey of each excavated bucket utilizing the methodologies included in ***Appendix C***. Each bucket of excavated materials will be placed on the ground surface, allowed to spread out, field screened with the radiation detector, PID and by visual and olfactory inspection, then based upon the field screening results, transferred into an appropriate stockpile, as discussed in ***Section 2.3.3***, above.

- As discussed in the Draft SMP, site-specific radiation background levels may vary depending on the soil lithologies encountered. As such, at the initiation of field activities, the following activities will be conducted to determine site-specific radiation background levels:

  - On the landward portion of the Subject Property, a series of test pits will be conducted to the maximum anticipated depth of each area (e.g., ranging from six-inches to 15-to-20-feet below grade surface [bgs]) and encountered native soils will be evaluated;

  - Conduct a background gamma radiation survey of at least ten buckets of excavated material and record results as described in ***Appendix C***;

  - A summary table of the types of materials encountered, their depths and resultant radiation readings will be prepared and reviewed to confirm the site-specific radiation background readings; and,

  - As a safety measure, the test pits may be backfilled with the excavated materials until the associated site area is subject to being excavated.

- Each sediment core associated with the creek bottom sediment sampling program will be field screened utilizing either a Geiger-Mueller frisker (i.e., Ludlum^{TM} 44-9 or equivalent) or a sodium iodide detector, depending on background radiation levels. If a frisker is used, the limit to be used for screening is 100 counts per minute (cpm) above background.

- Each bucket of dredged or excavated materials will be screened for radiation utilizing the radiation detector as described in ***Appendix C***. If radiation levels are less than two times the site-specific background-, they will be considered as acceptable for off-site disposal at the designated facility. In the event materials are encountered which exhibit radiation readings greater than two times background concentrations, they will be stockpiled separately, in

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[3] *This radiation monitoring plan was prepared in general conformance of the January 6, 2000 Radiation Monitoring Plan prepared for the Captain's Cove Condominium Site and the Emilcott October 30, 2008 Health-Based Risk Assessment for the Glen Cove Ferry Terminal, both of which were attached to the Draft SMP.*

accordance with the protocols included in ***Section 2.3.3*** , for waste characterization purposes and eventual off-site disposal.

- Although such materials are not anticipated to be encountered during the excavation work at the Subject Property, in the event materials are encountered exhibiting radiation readings in excess of 200,000 cpm,[4] all work in this portion of the Subject Property will be ceased and the situation assessed. As part of this assessment, the NYSDEC and USEPA will be immediately notified of the situation. Additionally, with the approval of the City of Glen Cove IDA, CoPhysics will be notified and brought into the project to provide heath physicists' support. As an interim measure, if the materials exhibiting the elevated radiation levels are at or above grade, then they will be covered with a minimum of one-foot of non-radiation-impacted soils. Please note that excavation activities, to be conducted with the requisite field screening, on other areas of the Subject Property will continue.

2.2 Glen Cove Creek Sediment Sampling

Per the requirements of the Draft SMP and recent additional NYSDEC requirements, the following borings will be conducted to collect samples representing the top six-inches of sediments which will remain after the proposed dredging / excavation are completed (i.e., zero-to-six-inches below the "*new sea bottom.*" The target dredge depth within the existing Glen Cove Creek, as well as the target excavation depth between the new and existing bulkheads, is -14 feet msl (referenced to the NAVD88 datum).

- Seven locations from within Glen Cove Creek as indicated in ***Figure 2-1***. The borings, which will be conducted to a maximum depth of ~~four feet (i.e., four-feet into the bottom sediments)~~two-feet below the target dredge depth of -14 feet msl, will be advanced utilizing either a vessel-mounted vibra-core sampling rig or a gravity corer. Separate sediment samples from each boring will be collected from zero-to-six-inches and six-to-12-inches below the -14 feet msl elevation;

- Seven sampling locations underlying the prism of materials from between the new and existing bulkheads ~~which will be removed to a target depth of -14.00 feet~~have been identified (see ***Figure 2-1***). These borings will be conducted utilizing a hollow-stem auger drill rig. Separate samples from each boring will be collected from zero-to-six-inches and six-to-12-inches below the -14 feet msl elevation (e.g., approximately 27-to-28-feet bgs, depending on the actual surface elevation of a sampling point)~~Only core samples of the target intervals (i.e., 27-to-30-feet bgs) will be collected~~. It should be noted that a few of these locations are underlain by the buried barge. As such, selected borings maybe

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[4] *200,000 cpm represents approximately 0.2 millirem per hour with a two-by-two-inch sodium iodide detector. This is well above the typical background dose rate of 0.01 millirem per hour. While this is not a level that would cause radiation workers to exceed dose limits, if the work continued over several weeks at this level, then workers would need to be trained as radiation workers.*

conducted post-barge removal, and an alternative sampling methodology may be required (e.g., track-mounted direct push drill rig); and,

- Sediment samples collected for the existing surface to six-inches deep from four locations within Glen Cove Creek will be analyzed to provide ambient chemical and physical conditions. These data will be utilized by the NYSDEC as part of the evaluation of the post-dredge conditions and whether additional dredging maybe required.

The purpose of analyzing the ~~deeper~~ -14 feet msl sediment samples is to allow the NYSDEC to evaluate the chemical and physical nature of the newly-exposed sediments which will represent the "*new sea bottom*." NYSDEC protocols also include the collection of six-to-12-inch deep sediment samples, these samples would be placed on hold at the laboratory pending the analyses of the zero-to-six-inch samples.

All sampling equipment will either be factory decontaminated and / or decontaminated in accordance with the procedures included in the QA / QC Plan. Due to laboratory, sample-volume constraints, two-to-three individual cores per location may be required to collect sufficient sample volumes.

As an interim submission, Apex will provide the NYSDEC with summary tables summarizing the zero-to-six-inch-deep sediment analytical data and the ambient sediment sample analytical data, with recommendations for analyzing the deeper six-to-12-inch samples, if any. Please note that in order to allow the use of the QA / QC samples collected as part of the sampling effort, it is assumed that the NYSDEC will review all such data quickly and provide Apex with their requirements regarding analyses of the deeper samples.

Apex will prepare a brief letter report for submission to the appropriate party(s) (e.g., NYSDEC, IDA, etc.) which will include the following:

- Boring logs detailing lithologic conditions, PID results, any observed layering and radiation readings (all of the samples will be field screened to evaluate radiation levels in accordance with the Radiation Monitoring Plan);
- Photographs of each core;
- Original laboratory data sheets for the analytes included in the Draft SMP, as discussed below;
- Chemical data summary tables;
- A data summary usability report (DUSR), as required by Analytical Services Protocols (ASP) Level B requirements; and,
- A brief summary discussion of the work.

The zero-to-six-inch deep sediment samples and the ambient sediment samples, as well as appropriate QA / QC samples discussed in the QA / QC Plan (e.g., blind duplicate, equipment rinstate blank, etc.), will be analyzed by a NYSDOH Environmental Laboratory Accreditation Program (ELAP)-certified laboratory (with appropriate chain-of-custody) in accordance with ASP B procedures for:

- Metals (arsenic, mercury, cadmium, lead, chromium, nickel, silver, zinc and copper) by the EPA 6010 / 7471 Series;
- Chlordane; sum of DDT, DDE and DDD; dieldrin and mirex by EPA Method 8081A;
- Polychlorinated biphenyls (PCB) (sum of all aroclors) by EPA Method 8082;
- Total poly-aromatic hydrocarbons (PAHs) by EPA Method 8270;
- Total benzene, toluene and xylenes (BTX) by EPA Method 8260;
- ~~Dioxin (Total Equivalency Total) by EPA Method 1613B;~~
- Grain size by ASTM D41 / D42; and,
- Total organic carbon by EPA Method 9060A.[5]

The six-to-12-inch-deep sediment samples will be analyzed for those analytes required by the NYSDEC based upon the zero-to-six-inch-deep sediment analytical data.

The Draft SMP has defined the applicable SCGs for the sediment samples as those included in the NYSDEC Technical and Operational Guidance Series (TOGS) 5.1.9 – In-Water and Riparian Management of Sediment and Dredged Materials.

2.3 Dredging / Excavation

As discussed in the Draft SMP, dredging bottom sediments from the adjacent Glen Cove Creek and excavation of soils from the surface to an estimated maximum depth of 27-feet bgs (i.e., -14 feet msl) in the land-ward portion of the Subject Property will be required as part of the project. The following sections provide for the general procedures to be utilized for field screening, staging~~,~~ and sampling for evaluating the chemical nature of the materials and for waste-characterization purposes~~, transporting and disposing of dredge spoils and excavated soils.~~ This section also includes a management plan for material stockpiles, as well as the decision matrix with respect the final disposition of designated material streams.

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[5] *NYSDEC Region I has waived the requirement to analyze the samples for dioxins.*

2.3.1 Dredging Plan

As indicated in the project Dredging and Excavation Plan – Drawing MD-002 included in ***Appendix A***, a 487-foot-long area of Glen Cove Creek in front of the existing bulkhead, with widths varying from 24 to 64 feet (for a total area of 17,800 square feet) will be dredged to a ~~depth of two feet below the existing creek bottom~~target elevation of -14 feet msl. The materials will be dredged utilizing an environmental bucket to minimize leakage from the closed bucket. Use of a conventional bucket may be required in the event that the environmental bucket proves ineffective. Use of any equipment other than an environmental dredge bucket must first be approved by the NYSDEC.

The dredging equipment will either be land-based, and setup on the landward portion of the Subject Property, or barge-mounted and moored directly adjacent to the bulkhead – as discussed above, all creek sediments will be dredged with an environmental bucket, unless otherwise approved by the NYSDEC. A temporary dewatering area consisting a sufficiently-sized hay-baled enclosure will be installed just landward of the work area. Dredged materials will be placed within the impoundment until they have de-watered sufficiently ~~either~~ for stockpiling ~~or loading onto trucks for transportation to the approved uplands disposal facility, as discussed in detail below~~. Each bucket of dredged material will be screened for radiation levels and with a PID for the presence of VOCs in accordance with the protocols included in ***Section 2.1***, above. ~~The temporary de-watering area will be placed in site areas where the underlying soils require excavation, transport and disposal. As such, it is appropriate to allow the decant to infiltrate into the underlying soils as they will be also excavated and disposed. Care will also be taken to ensure that any dredge spoils exhibiting radiation levels exceeding two time background, if any, are not co-mingled in the de-watering enclosure with non-radiation-impacted dredge spoils~~The sediment de-watering protocols are included in ***Section 4.2***, below.

In order to comply with ***Special Condition No. 3*** of the NYSDEC Tidal Wetlands permit which is being required to protect the quality of the adjacent Glen Cove Creek, the project elements will be conducted in the following sequential order (see ***Figure 1-2, Project Schedule)***:

- Mobilization / Preliminary Site Work which includes the installation of NYSDEC-required, construction-site, stormwater best management practices (BMPs) (e.g., hay bales, silt fence, sediment dam and ditch dam). Please note that the express purpose of the BMPs is to prevent site-related materials (e.g., silts and clays entrained in stormwater runoff) from running off of the Subject Property during precipitation events. The project, construction-related Storm Water Pollution Prevention Plan (SWPPP) (see ***Appendix D***), dated May 2010, requires that all BMPs be inspected at least every seven days and maintained during the life of the project;

- Collection of sediment samples from Glen Cove Creek;

- Initial site work including demolition of existing site structures, initial soil remediation (i.e., **205-1.01 General Soils** discussed in ***Section 2.3.2***, below), dredging of sediments water-side of the existing bulkhead (i.e., **999.02226 Marine Demolitions and Removals** discussed in ***Section 2.3.2***, below) and removal of the buried barge (to be conducted prior to the installation of the new bulkhead);

- Installation of the new bulkhead / dead-man system;

- Removal of the soils from between the existing bulkhead and the newly-installed bulkhead (i.e., **203-1.01 Unclassified Excavation** soils discussed in ***Section 2.3.2***, below);

- Removal of the existing bulkhead / dead-man system; and,

- The remainder of the site work which will not result in any soil / sediment disturbance and potential impacts to the creek (the aforementioned construction-site, stormwater BMPs will remain in-place in accordance with the requirements of the SWPPP.

The following ***Monitoring and Action Plan*** will be implemented to ensure that the integrity of the existing on-site bulkhead is maintained during the excavation of materials from behind it, as well as to protect the adjacent Glen Cove Creek from site-related runoff / impacts:

- The existing soils behind the bulkhead are exerting the maximum stress on the bulkhead / tie back system. The removal of the soils from behind the bulkhead wall will result in a lowering of the stress, thereby minimizing the potential for a failure;

- The existing tie back – dead-man system will be left in-place until the bulkhead is demolished;

- It is not expected that the buried barge is tied into the existing bulkhead system. However, as the excavation work in the vicinity of the buried barge continues, care will be taken to evaluate this condition. In the event that the barge does prove to be an integral part of the dead-man system, temporary tie backs will be installed, either to the newly-installed bulkhead or temporary dead men (e.g., driven steel sheets) in order to stabilize the bulkhead wall during the removal of the barge;

- During excavation activities between the newly-installed and existing bulkheads, the integrity of the existing bulkhead will be visually inspected and photo-documented at least three times a day by qualified Chesterfield personnel to evaluate for the potential of failures (e.g., wall deflection, opening of seams, etc.). Any areas of observed potential failure will be addressed in the manner discussed above;

- During the three-times-a-day inspection, the water-side portion of the existing bulkhead will be inspected to determine if mud, sand, soils, etc., are escaping though pre-existing holes or other existing failures points and impacting the creek. Such conditions will be immediately addressed by placing impermeable materials (e.g., plastic sheeting) on the landward side of the exposed bulkhead to block the opening(s);

- 500 feet of turbidity curtain and hard oil boom will be deployed and in-place within the creek prior to the initiation of any site work;
- During all dredging activities, the turbidity of the Glen Cove Creek will be continuously visually monitored to ensure that the deployed turbidity curtain is being effective;[6]
- The contract-required hard oil boom will be deployed out-board of the turbidity curtain which will act as an additional safety factor in the event of surface turbidity-failure events;
- In the event that the visual turbidity monitoring indicates a failure of the turbidity curtain, the following ***Action Plan*** will be implemented:
    - All dredging activities will be halted;
    - A second 50-foot-length of turbidity curtain, which will be staged on-site for such a contingency, will be deployed with a pre-staged vessel to control the turbidity outside of the existing curtain;
    - The root cause of the failure of the primary turbidity curtain will be immediately evaluated / repaired;
    - The area of the repaired turbidity curtain will be inspected to ensure that no further turbidity excursions are occurring; and,
    - The deployed secondary turbidity curtain will be positioned and the turbid water controlled / contained / allowed to settle out.

2.3.2 Excavation Plan

According to the New York State Department of Transportation (NYSDOT) specifications for the Project, there ~~are~~ were three categories of sediment / soil types that require differing handling, transportation and disposal protocols including:

- **203-1.01 Unclassified Excavation** - Unclassified excavation shall consist of the excavation and disposal of all materials.
- **205-1.01 General** - Soil contamination may include:

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[6] *As discussed elsewhere in this document, each bucket of dredged materials will be field screened as part of the Soil Management Plan. As such, a staff person will be located adjacent to the excavation area to conduct the field screening. This field person, as well as the equipment operators, will be responsible to continually visually inspect the deployed turbidity curtain, as well as turbidity conditions in the surface waters outside of the turbidity curtain.*

  - Petroleum products, which may include, but are not limited to: gasoline, heating oils, diesel fuel, kerosene, jet fuel, lubricating oils, motor oils, greases, and other fractions of crude oil;
  - Contaminants associated with past Manufactured Coal Gas Plant (MGP) operations;
  - Other contamination by organic constituents including volatile organic compounds;
  - Metal(s) such as lead, chromium, and/or other heavy metals; and / or,
  - Any other constituents that require specialty disposal of the soil.
- **999.02226 – Marine Demolition and Removals** – dredged materials.

Although not included or discussed in the NYSDOT specifications for the project, all soils will be field screened with a radiation detector to evaluate for the presence of soils exhibiting elevated radiation levels. Any on-site soils and dredge spoils exhibiting elevated radiation levels will be addressed in accordance with the project-specific protocols included in ***Sections 2.3.3and 2.3.4.3***, below.

Based upon the aforementioned D&B Phase II and NYSDEC / USEPA project records, it is not anticipated that significantly-contaminated groundwater will be encountered during the completion of the project. The facility SWPPP will ensure that turbid waters (e.g., those containing entrained silt and clay) will not runoff of the Subject Property. When encountered, groundwater will be evaluated for visual or olfactory evidence of impacts, as well as with a PID and radiation detector (e.g., sheen, light nonaqueous-phase liquids, odors, positive PID / radiation detector responses, etc.). If groundwater exhibiting such suspect characteristics is encountered, the associated work will cease, the appropriate parties notified (e.g., NYSDEC, oversight engineer, Apex PM, etc.) and the situation will be evaluated.

2.3.2.1 203-1.01 Unclassified Excavation Soils

According to project Drawing MD-001 – Demolition and Excavation Removal Plan included in ***Appendix A***, and the referenced NYSDOT Project Specifications, an estimated 21,072 cubic yards of materials will require addressing under this soil material category:

- A 455-foot-long, varying-width area landward of the proposed bulkhead to a depth of elevation +5.00 feet msl (e.g., approximately 10-feet bgs);
- A 375-foot-long area between the existing and new bulkheads to a depth of elevation -14.00 feet msl (e.g., approximately 27-feet bgs); and,

- An approximately 50-by-200-foot buried barge located within the last two aforementioned areas must be removed.

According to NYSDOT specifications, such materials do not require any specialized transportation and disposal procedures. However, post contract award, the NYSDEC ~~is requiring~~has required additional ~~the~~ assessment of these materials for contaminant conditions due to the nature of the Subject Property and the level of previous remedial activities. As such, the scope of the project has been revised such that these materials will be characterized in accordance with NYSDEC protocols, and depending upon the analytical results, either be designated for on-site re-use as back fill, or disposed of off-site at an appropriately-licensed disposal facility. This is further discussed below in ***Section 2.3.4***, below.

2.3.2.2 205-1.01 General Contaminated Soils

According to project Drawing CD-001 – Existing Site / Site Demolition Plan included in ***Appendix A***, and the referenced NYSDOT Project Specifications, the following materials will require addressing under this soil material category:

- Six inches of soil (estimated 2,420 tons) from the entire northern one-half to two-thirds of the Subject Property;
- An approximately 35-by-50-foot area to two-feet bgs (an estimated 138 tons) located at the northeast corner of the Subject Property; and,
- An approximately 40-by-40-foot area to four-feet bgs (an estimated 355 tons) located in the northern-central area of the Subject Property.

The NYSDOT Project Specifications require that these materials be transported to and disposed of at an appropriately-licensed, NYSDEC-approved facility. This is further discussed below in ***Section 2.3.4***, below.

2.3.2.3 999.0226 Dredge Materials

According to project Drawing MD-002 – Dredging and Excavation Plan included in ***Appendix A***, and the referenced NYSDOT Project Specifications, an estimated 2,591 cubic yards of sediments will be dredged from the bottom of Glen Cove Creek. The NYSDOT Project Specifications required that these materials be transported to and disposed of at an appropriately-licensed, NYSDEC-approved facility. However, post contract award, the scope of the project has been revised such that these materials will be further characterized, and depending upon the analytical results, either be designated for on-site re-use as back fill, or disposed of off-site at an appropriately-licensed disposal facility. This is further discussed below in ***Section 2.3.4***, below.

Depending upon the scope of the excavation and its location, once the materials have been dredged from the creek bottom utilizing an environmental bucket, per ***Section 2.3.1***, above, a variety of equipment may be utilized including, but not necessarily limited to front-end loaders, cranes, back hoes and tracked excavators to manage the dredge spoils on the landward portion of the Subject Property. Each bucket of excavated material will be screened for radiation levels and with a PID for the presence of VOCs.

2.3.3 Material Screening and Stockpiling Protocols

This portion of the D / E Work Plan provides the protocols to be utilized to screen and stockpile dredge spoils and excavated materials. There are five basic material streams that ~~will~~ could potentially be generated as part of the project, including the following:

~~1. ***Unclassified Excavation Soils*** which do not exhibit suspect characteristics (e.g., elevated radiation levels, PID responses, etc.)~~

1. Materials that exhibit radiation levels greater than 200,000 cpm;

2. ~~Soils~~ Materials that exhibit ~~elevated~~ radiation levels between two times background levels and 200,000 cpm~~;~~;

3. ~~Soils~~Materials that exhibit suspect characteristics (e.g., elevated PID responses, odors and / or staining) and acceptable radiation

~~3.~~4. ***Unclassified Excavation Soils*** and ***Dredge Materials*** which do not exhibit suspect characteristics (e.g., elevated radiation levels, PID responses, etc.)~~levels~~; and,

~~4.~~5. ***General Contaminated Soils*** that exhibit acceptable field screening characteristics~~; and,~~.

~~5. ***Dredge Materials*** that exhibit acceptable field screening characteristics.~~

Figure 2.2 has been prepared to graphically illustrate the project's excavated and dredged materials stockpile management protocols. Please note that the primary decision point for each bucket of excavated material is based upon the results of the radiation field screening which take precedence over all other stockpile classifications – this is if a material (no matter its other classification) exhibits elevated radiation levels, it will either be isolated or stockpiled in a designated stockpile(s) for characterization and off-site disposal at an appropriately-licensed facility(s). The secondary decision point is based upon the results of the PID, olfactory and visual (POV) field screening; therefore, the next materials classification is based upon positive or negative POV results. The tertiary decision points are only for those materials that exhibit both acceptable radiation levels and POV screening results.

All of the ~~five potential~~ materials excavated as part of the project ~~streams~~ will be screened and stockpiled in accordance to the following procedures:

- Each bucket of materials will be placed on the ground, allowed to spread out, and screened for the presence of VOCs utilizing a PID, for radiation levels utilizing a radiation detector and by visual / olfactory inspection for evidence of impact. The screening results will be made available to the oversight engineer upon request.

- ~~Each of the~~Applicable ~~five potential~~ material streams will be placed in separate stockpiles which will be placed on top of 40-mil plastic sheeting covered by 10-mil-thick plastic sheeting in areas of the Subject Property where six-inches of soils will be removed at a later date.[7] The maximum 500-cubic yard stockpiles will be constructed to isolate the contaminated materials from the environment. As such, the overlying plastic will be weighted down and cover maintained to prevent infiltration of rain water and prevent the generation of dust. Appropriate soil erosion BMPs (e.g., up-stream hay bales, soil berms, interceptor trenches, etc.) will be utilized to maintain the integrity of any soil stockpile. Based upon contract requirements and field screening results, there is the potential that materials will be placed into one of the following stockpile categories:

  - Materials exhibiting radiation levels greater than 200,000 cpm. As discussed in the Radiation Monitoring Plan and ***Figure 2-2***, if such materials are encountered, all work will cease, the materials isolated and the NYSDEC and USEPA will be immediately notified. Therefore, it is not anticipated that a soil stockpile of these materials will be generated;

  - Materials exhibiting radiation levels in excess of two times background and below 200,000 cpm (see ***Section*** **2.1**, above~~)~~;

  - Materials exhibiting elevated VOCs[8] and / or the materials exhibiting significant olfactory or visual evidence of impact (e.g., positive POV in ***Figure 2-2***);

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[7] *~~The draft SMP originally contemplated placing all of the soil stockpiles on 40-mil-thick plastic sheeting. However, due to the agreed-upon changes to material handling procedures wherein some 50 stockpiles will be required, the project sequencing has been revised so that the required six-inches of soils to be removed will occur late in the project. As such, the placement of the stockpiles on 40-mil-thick plastic has been deleted. It should be noted that the six-inch layer of materials to be removed will be field screened prior to its assignment to an appropriate material stream.~~As discussed in* ***Section 4.2****, materials may require de-watering on portions of the Subject Property which have already been addressed (e.g., remediated, backfilled, etc.). In these cases, endpoint soil samples will be collected and analyzed per* ***Section 2.3.5.2*** *subsequent to the removal of staged materials at the cessation of de-watering activities.*

[8] *Please note that PIDs can exhibit positive responses for a variety of reasons including, but not limited to, the presences of contaminant-related VOCs and the presence of water vapor from moist and wet soils (especially those from near and below the water table). As such, positive PID results related to the presence of water vapor do not reflect impacted soil conditions. The ultimate decision to classify a bucket of dredged / excavated material as impacted based upon positive PID responses will also be based upon visual and olfactory inspection. For instance, if a bucket of materials collected from near the water table exhibits a positive PID result, but no other suspect characteristics (e.g.,*

- ~~De-watered dredge spoils;~~
- Excavated materials and de-watered dredge materials exhibiting acceptable radiation levels, PID reading and visual / olfactory characteristics (e.g., negative POV in ***Figure 2-2***); and / or
- ***General Contaminated Soils*** that exhibit acceptable field screening characteristics.

Subsequent to placement of plastic sheeting and soil erosion BMPs, each soil stockpile will be identified with a label which will, at a minimum, include the following information: 1) unique identifier; 2) date of construct; 3) material stream; 4) anticipated date of receipt of laboratory analytical data; and, 5) if warranted, anticipated date of removal from the Subject Property.

Subsequent to the disposition of the last soil stockpile, the six-inches of ***General Contaminated Soils*** will be removed and, depending upon radiation and POV field screening results: 1) be loaded directly onto trucks for disposal at 110 Sand; or, 2) placed into a final stockpile pending its off-site disposal.

2.3.3.1 Truck / Equipment Decontamination

Subsequent to being loaded and prior to leaving the Subject Property, the trucks transporting impacted soils to the approved disposal facility will be decontaminated in accordance with the following protocols:

- A decontamination pad consisting of clean gravel will be constructed in an appropriate site location (i.e., the ***Stabilized Construction Entrance*** included in ***Section 2.7.1*** of the Project SWPPP included in ***Appendix D***);
- Each truck will stop atop the decontamination pad and brooms and shovels will be utilized to mechanically remove site-related materials from the truck tires and chassis;
- Once a truck has been decontaminated, it will be cleared for access to the public roadway
- Built up materials removed from the truck will be transferred onto an appropriate soil stockpile for transport and disposal at the appropriate facility (after requisite field screening and analytical testing have been conducted);

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staining, odors and / or radiation levels), it will be assumed that the PID readings were due to the presence of water vapor and the materials will not require special handling based solely on the PID results.

- Throughout the day, the decontamination area will be subject to radiation and VOC field screening; and,

- If required, a street sweeper will be retained to clean the public roadway of site-related materials, if any. The road sweepings will be addressed on-site in accordance with previously-discussed protocols.

Prior to any piece of equipment, which was in contact with impacted site materials, being demobilized from the Subject Property, it shall be decontaminated by mechanical brushing, pressure washing, etc.

The NYSDEC is requiring the collection and analyses of an existing surficial soil sample (e.g., zero-to-six-inches bgs) prior to construction of the pad. The sample will be analyzed for NYSDEC DER-10 analytes as discussed in ***Section 2.3.5.2***, below. At the completion of the project, the top six inches of materials will be excavated, field-screened and will be addressed in accordance to the decision matrix in ***Figure 2-2***. A post-removal surficial soil sample (e.g., zero-to-six-inches below new grade) will be collected and analyzed for DER-10 analytes.

2.3.4 Excavated Materials Characterization, On-Site Re-use and / or Off-Site Transportation and Disposal

This portion of the D / E Work Plan presents the protocols to be utilized to characterize the materials excavated as part of the project. Additionally, this section includes the protocols to be utilized to determine if materials can be re-used as on-site backfill materials, or, based upon waste characterization results; require transport and disposal as either non-hazardous regulated waste(s) or hazardous waste(s) to appropriately licensed off-site facilities.

- ~~As discussed above, there are five basic material streams that will potentially be generated as part of the project, including the following:~~

    1. ~~***Unclassified Excavation Soils*** which do not exhibit suspect characteristics (e.g., elevated radiation levels, PID responses, etc.)~~
    2. ~~Soils that exhibit elevated radiation levels;~~
    3. ~~Soils that exhibit suspect characteristics (e.g., elevated PID responses, odors and / or staining) and acceptable radiation levels;~~
    4. ~~***General Contaminated Soils*** that exhibit acceptable field screening characteristics; and,~~
    5. ~~***Dredge Materials*** that exhibit acceptable field screening characteristics.~~

~~Subsequent to placement of plastic sheeting and soil erosion BMPs, each soil stockpile will be identified with a label which will, at a minimum, include the following information: 1) unique identifier; 2) date of construct; 3) material stream; 4) anticipated date of receipt of laboratory analytical data; and, 5) if warranted, anticipated date of removal from the Subject Property.~~

2.3.4.1 Acceptable Field Screening Unclassified Excavation Soils and Dredge Spoils

As discussed above, there are an estimated ~~21,072~~23,663 cubic yards of materials which will require addressing under this soil material category. Much of these materials represent backfill which was emplaced during the earlier remediation of the Subject Property as part of the USEPA and NYSDEC remediation of the Captains Cove property. These materials, which will all have to pass radiation and POV field screening, will handled and characterized in accordance with the following protocols:

- The materials will be staged in 500-cubic yard stockpiles in accordance with the protocols included in ***Section 2.3.3***, above.
- In accordance with ***Table 5.4(e) 10*** of DER-10 (May 2010), during the placement of the materials into a stockpile, five representative discrete samples of the materials will be analyzed for NYSDEC Target Compound List (TCL) VOCs by EPA Method 8260. Two composite samples of the materials stockpile will be analyzed for TCL semi-volatile organic compounds (SVOCs) by EPA Method 8270, Target Analyte List (TAL) metals by the EPA 6010 / 7471 Series; TCL PCBs by EPA Method 8082 and TCL pesticides by EPA Method 8081.[9]
- The samples will be analyzed in accordance with ASP Level B Protocols including applicable QA / QC samples.
- The analytical data will be compared to the NYSDEC Part 375 Restricted Use – Commercial Soil Cleanup Objectives:
    - If all analytes are present at concentration less than or equal to their respective Commercial Soil Cleanup Objectives in all of a stockpile samples, those materials will be designated as appropriate for use as on-site back fill materials as discussed in ***Section 2.3.6***, below; and,
    - If any analyte is present above its respective Commercial Soil Cleanup Objective in an individual soil stockpile sample, those materials will be addressed in accordance with ***Section 2.3.4.2***, below.

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[9] *Per DER-10, each composite sample will be composed of three to five discrete samples collected from the subject stockpile during its construction.*

2.3.4. 2 Non-Radiation-Impacted Soils Exhibiting Suspect Characteristics

Soils exhibiting elevated PID readings; and / or suspect visual or olfactory characteristics; and acceptable radiation levels will be stockpiled in maximum 500-cubic yard stockpiles. Samples will be collected in accordance with the DER-10 protocols included in ***Section 2.3.4.1***.

Due to permit requirements of various disposal facilities, the resulting DER-10 analyses may not be sufficient for waste characterization purposes, or even to determine if the materials represent regulated non-hazardous waste or hazardous waste. As such, it is not feasible to provide a comprehensive list of waste characterization analyses to address the permit requirements of all potential disposal facilities. The following provides a typical list of waste-characterization analyses for a facility in New Jersey:

- Total petroleum hydrocarbons (TPH), either diesel-organics (DRO) and /or gasoline-range organics (GRO) by EPA Method 8015;
- Full-scan VOCs by EPA Method 8260;
- Total metals by the EPA 6010 / 7471 Series;
- Toxicity Characteristics Leaching Procedure (TCLP) metals by the EPA 1311 / 6010 / 7471 Series;
- Paint filter by EPA Method 9095;
- PCBs by EPA Method 8082;
- PAHs by EPA Method 8270; and,
- Reactivity / ignitability by EPA Methods 7.3 and 1010, respectively.

Facilities typically have varying parameter frequency-of-testing requirements which will be conducted in accordance with their permit protocols for this project. Typically, an eight-point composite sample will be collected from each 500 cubic yard stockpile.[10] Based upon the analytical data, an Acceptance Letter from an appropriately-licensed disposal facility(s) (e.g., a facility permitted to accept the materials based upon their waste characterization results – which will either be non-hazardous regulated wastes or hazardous waste) will be acquired

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[10] *This is not in accordance most recent NYSDEC protocols (i.e., May 2010 DER-10); however, this sampling / analyses is being conducted solely for waste-characterization purposes.*

and provided to the appropriate parties (e.g., NYSDEC, City Engineer, etc.) for review and approval prior to the disposal of any wastes.

As the analytical data are generated in support of waste characterization purposes, they will be analyzed by a NYSDOH ELAP-certified laboratory in accordance with ASP A protocols.

2.3.4. 3 Radiation-Impacted Soils

In the event that radiation-impacted soils (i.e., between two times background and 200,000 cpm) are identified during the field screening, they will be placed in maximum 500 cubic yard stockpile as discussed in ***Section 2.3.3***, above. An eight-point composite sample will be collected and analyzed for typical waste-characterization parameters as discussed in ***Section 2.3.4.2***. Further, the eight-point composite sample will be analyzed for target radionuclides (e.g., uranium, thorium and their decay progency) by standard gamma spectroscopy (i.e., United States Department of Energy (USDOE) Method EML-HASL-300, GA-01, or equivalent). Count times and sample size/geometry shall be able to produce detection limits of 0.1 pCi/g for the radionuclides: Ac-228, Pb-212, Bi-212, Tl-208, Ra-226 / U-235, Pb-214, Bi-214; 1 pCi/g for U-235; and 10 pCi/g for Pa-234m. All other quantified radionuclides will be reported. The complete computer-generated gamma spectrum analysis will be supplied to the oversight Engineer. Samples to be analyzed for radionuclides shall be dried samples and will be analyzed before activities of the Ra-226 and its daughter products have returned to equilibrium, the Ra-226/U-235 peak shall be reported as Ra-226.

Based upon the analytical data, an Acceptance Letter from an appropriately-licensed disposal facility(s) (e.g., a facility permitted to accept the materials based upon their waste characterization results) will be acquired and provided to the appropriate parties for review and approval prior to the disposal of any wastes. The qualifications of the transportation company (e.g., NYSDEC Part 381 permit) will also be included in the aforementioned package for review and approval by the appropriate parties.

As the analytical data are generated in support of waste characterization purposes, they will be analyzed by a USDOE -certified laboratory in accordance with ASP A-like protocols (i.e., Level II C of A with QC Summary).

2.3.4.4 General Contaminated Soils

Based upon the results of the D&B Phase II, the 110 Sand Company (110 Sand) located at 136 Spagnoli Road in Melville, New York has issued an Acceptance Letter for ***General Contaminated Soils*** excavated from the Subject Property (see ***Appendix B*** for submission package and Acceptance Letter). However, during their excavation, these materials will be subject to radiation and POV field screening, the results of which take precedence over the contract designation of these materials. As such, in the event that these materials exhibit positive radiation or POV screening results, they will be addressed in accordance with the applicable protocols included in ***Figure 2-2***.~~A similar approval is being acquired for the dredge spoils~~

~~2.3.4.5 Dredge Materials~~

~~As discussed above, dredge materials excavated from the creek bottom will be field screened with a radiation detector, PID and by visual / olfactory inspection. In the event that the materials exhibit suspect characteristics, they will be characterized as discussed above. In the event that these materials do not exhibit elevated suspect characteristics, the results of the field screening and available analytical data will be provided to 110 Sand for potential acceptance. If required, additional waste-characterization analyses, per~~ ~~***Section 2.3.4.2***~~ ~~above, will be conducted to determine an acceptable disposal facility for the materials.~~

~~Based upon the analytical data, an Acceptance Letter from an appropriately-licensed disposal facility will be acquired and provided to the appropriate parties for review and approval prior to the disposal of any wastes.~~

2.3.5 Endpoint Sampling

There are two types of endpoint samples which will be collected and analyzed as part of the project including: 1) post-excavation samples to be analyzed for metals; and, 2) samples collected from under soil stockpiles and / or temporary de-watering areas is site areas where the soils have previously been addressed.

2.3.5.1 Excavation Endpoint Sampling

In accordance with the Draft SMP and discussions with the NYSDEC technical representative, endpoint soil sample will be collected and analyzed for NYSDEC Target Analyte List (TAL) metals (i.e., aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium and zinc) by the EPA 6010 / 7470 Series. The samples will be analyzed in accordance with ASP B protocols.

The following procedures will be followed in collecting the endpoint soil samples:

- **Excavations 20 to 300 feet in perimeter** – One sample will be collected from the top of each side wall on a nominal 30-linear-foot basis. One excavation bottom sample will be collected and analyzed for every 900 square feet of bottom area.

- **Excavations greater than 300 feet in perimeter** – One sample will be collected from the top of each sidewall for every 100-linear feet of sidewall. One excavation bottom sample will be collected and analyzed for every 2,500 square feet of bottom area.

If feasible, the endpoint soil samples will be collected directly from the excavation sidewall or bottom location. The samples maybe collected directly from the equipment bucket in the event that the excavation conditions are unsafe and to not allow for personnel entrance into an excavation. All efforts will be made to collect the endpoint sample directly into the laboratory-supplied glassware and the use of plastic or stainless steel sampling implements will be avoided. If utilized, all sampling implements will be decontaminated in accordance with the protocols included in the QA / QC Plan.

The samples will be analyzed on a nominal 24-hour basis and the analytical data will be compared to the NYSDEC Part 375 Restricted Use – Commercial Soil Cleanup Objectives. The NYSDEC will be provided with a field map indicating the sampling locations, a table summarizing the analytical results and copies of the original laboratory analytical data sheets. Upon approval by the NYSDEC of the endpoint soil data, the open excavation will be considered as cleared for backfilling with clean material, as discussed below.

2.3.5.2 Temporary De-Watering Areas

In the event that de-watering and staging of materials exhibiting passing radiation and POV field screening results are conducted in site areas where soils have been previously addressed as part of this project, the following samples will be collected per de-watering area:

- Pre-activity samples will not be required if the existing materials are either pre-tested site materials which have been approved for on-site re-use, or are imported certified backfill;

- In the event that the pre-deposition surface is not slated for remediation, or has not otherwise been addressed as part of the Project, two surface-to-six-inch deep samples from the area prior to the conduct of the work to confirm ambient site conditions; and,

- Two surface-to-six-inch deep samples per former de-watering area from final grade elevation to confirm post conditions.

The soil samples will be analyzed for the following DER-10 analytes in accordance with ASP B protocols:

- TCL VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, TAL metals by the EPA 6010 / 7471 Series; TCL PCBs by EPA Method 8082 and TCL pesticides by EPA Method 8081.

In the event that the post samples exhibit contaminant concentrations exceeding NYSDEC Commercial Soil Cleanup Objectives, they will be removed in accordance with project protocols.

2.3.6 Backfill Materials

The on-site excavations are required to be backfilled with uncontaminated materials. For the purposes of this section, uncontaminated backfill materials are those that do not contain contaminants in exceedance of the project soil SCGs, namely, NYSDEC Part 375 Restricted Use – Commercial Soil Cleanup Objectives.

2.3.6.1 Re-use of On-site Materials

As discussed in ***Section 2.3.4.1***, above, Unclassified Excavation Soils which exhibit acceptable field screening results and do not contain any contaminant is exceedance of a Commercial Soil Cleanup Objective will be utilized as on-site backfill.[11] The final grades of any site location wherein such materials have been utilized as site backfill with the covered either with an impermeable material (e.g., asphalt, concrete, building envelope, etc.) or one foot of imported clean backfill discussed on ***Section 2.3.6.2***, below.

2.3.6.2 Imported Backfill

There are two protocols for confirming that backfill materials to be imported to the Subject Property are suitable for on-site use,[12] including:

- Receiving a certification from the fill provider that the materials to be utilized on the Subject Property are not contaminated. Any such certification will be provided to the NYSDEC and the IDA's oversight engineer for review and approval prior to the delivery of any material to the Subject Property; or,

- As an alternative, soil samples from an identified fill source site could be collected and analyzed to confirm the material's chemical condition. Such analyses would be conducted by a NYSDOH ELAP-certified laboratory for typical NYSDEC parameters including VOCs, PAHs, metals, PCBs, pesticides and / or herbicides. If required, a Source Site Fill Sampling and Analyses Plan

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[11] *Selected areas may require the use of imported backfill due to geotechnical constraints.*

[12] *Please not that this section only addressed the chemical conditions of the materials. Their geotechnical characteristics would be assessed outside the scope of this Work Plan.*

will be submitted to the NYSDEC for review and approval prior to the use of any backfill from such source sites.

3.0 PROJECT RECORD KEEPING AND REPORTING

In accordance with the Draft SMP, there are several project-required forms of record keeping and reporting, including:

- Project work plans including the D / E Work Plan (including the Radiation Monitoring Plan), HASP and QA / QC Plan;
- Project information / data packages (e.g., site history, waste-characterization results, etc.) and Acceptance Letters from approved disposal facilities. NYSDEC approvals of selected waste disposal facilities;
- Summary report associated with the sediment sampling and analyses work conducted within Glen Cove Creek adjacent to the on-site bulkhead;
- Soil stockpile analytical data tables summarizing analyses results compared to NYSDEC Part 375 Restricted Use – Commercial Soil Cleanup Objectives, original laboratory data sheets and e-mail communications with the NYSDEC transmitting / receiving the data, and the follow up actions (e.g., approval for use as backfill, requires off-site disposal, etc.);
- Field sketch of sampling locations and table summarizing the results of the site-specific work to identify site-specific background radiation levels;
- Waste-characterization analytical results for non-110 Sand facility materials (e.g., wastes exhibiting two times background radiation levels, exhibiting elevated PID results, etc.);
- Waste disposal tracking documents and manifests;
- Field sketches of endpoint sampling locations, data tables summarizing TAL metals results compared to NYSDEC Part 375 Restricted Use – Commercial Soil Cleanup Objectives, original laboratory data sheets and e-mail communications with the NYSDEC transmitting / receiving the data, and the follow up actions (e.g., approval for backfilling, requires additional excavation, etc.);
- Certifications of clean fill;
- Field logs indicating the results of all on-site field screening of excavated materials;
- Field logs indicating the results of all air monitoring conducted in accordance with the NYSDOH CAMP;
- Field logs / forms indicating sample collection information;
- Field logs indicating that all field screening instruments have been calibrated, or their calibration checked, prior to the initiation of each day of field work;

- Sample chains of custody;
- Daily field activity reports; ~~and,~~
- Field change forms~~.~~; and
- The on-site locations where dredge spoils and excavated materials containing contaminant(s) between their respective NYSDEC unrestricted-use Soil Clean Objectives and restricted Commercial Soil Cleanup Objectives have been utilized as on-site backfill (with NYSDEC approval) will be recorded and provided as a project as-built.

4.0 CONTINGENCY PROJECT ELEMENTS

Based upon communications with the NYSDEC, there are project elements and associated protocols which may require addressing / implementation, depending upon several factors, including but not necessarily limited to:

- Actual conditions encountered during the site activities (e.g., impacted groundwater, the presence of highly radioactive materials, etc.); and
- Approval or denial by the IDA and City oversight engineer of value engineering changes to project scopes which will remove the requirement for de-watering to lower the water table for construction purposes.

The following sections provide the contingency project element with respect to de-watering. Please note that if additional contingency items are identified during the conduct of the Project, addenda to the project work plans summarizing the issue(s) and the protocol(s) to address same will be prepared and provided to the appropriate parties for review and comment with sufficient lead time to allow for any such review, acquisition of permits (if any), etc.

4.1 De-Watering Plan for Groundwater Depression

Based upon the current project plans, de-watering of in-situ soils will not be required as part of the project. However, in the event soil excavations below the water table are required, a temporary de-watering system will be required.

Currently, the only two specific project elements which may require excavation of materials below the water table include:

- The materials along the bulkhead which will require excavation as part of the project (i.e., A 375-foot-long area between the existing and new bulkheads to a depth of elevation -14.00 feet (e.g., approximately 27-feet bgs)). The current project plans include removing these materials by “wet” excavation, similar to a dredging project; and,
- The installation of a sub-grade sand filter as part of the permanent stormwater treatment system. Chesterfield has submitted an alternative approach to the City of Glen Cove IDA which includes the installation and use of pre-cast, sub-surface infiltration galleys, versus the specified system. If approved, the proposed system would not require installation of project infrastructure below the water table and associated de-watering. If the alternative approach is not approved, the start date of any required de-watering would be January 2011 (see ***Figure 1-2 – Project Schedule***).

If de-watering proves to be required, a NYSDEC Long Island Well Permit (a requirement if total extraction rates of the de-watering system exceed 45 gallons per minute (gpm) (or 64,800 gallons per day)) will need to be applied for and acquired prior to conducting any de-watering activities. A copy of the NYSDEC well permit application, as well as the NYSDEC Region I-required Supplemental Data Sheet, are included in ***Appendix E***.

The **De-Watering Plan** for Groundwater Depression includes the following elements:

- According to the Project schedule, the installation of the sand filter is scheduled for January 2011. It is anticipated that the installation will require three-to-four weeks to complete. Due to the short expected operational period, it is a typical construction-industry practice to field design, install and operate a temporary de-watering system as discussed below;

- The de-watering system will consist of well points, likely installed to a target depth of 30-feet bgs. A NYS-licensed well driller will be responsible for installing the well points (see ***Appendix F*** for details regarding the Chesterfield well driller);

- The number and spacing of the de-watering points, as well as the overall flow rate of the temporary system, will be dependent upon the site-specific hydrogeologic conditions and project-specific infrastructure elements. This is typically an iterative process wherein one or two de-watering points are installed, groundwater is extracted, and additional points are added and / or flow rates are increased until the desired lowering of the water table is achieved;

- Sufficient high-capacity pumps will be available to ensure the desired lowering of the water table is achieved;

- Due to typical nine-to-ten-foot tidal variations in the adjacent Glen Cove Creek, the actual required amount of water table draw down could vary over the course of a day. Assuming a static depth to water of 10-to-12-feet below grade surface (bgs) and a target bottom depth of the sand filter of 19-feet bgs, lowering the water table elevation by as much as 12-to-15-feet could be required;

- According to the available information, the on-site groundwater is not significantly impacted by VOCs, SVOCs or dissolved metals. Additionally, it is currently planned to recharge all of the pumped groundwater back onto the site. Therefore, the only treatment believed to be warranted is to discharge the groundwater directly into the sediment filter area BMP, as required in the project SWPPP (see Note No. 24 in project drawing CD-004 included in ***Appendix A*** for the specific citation). The system discharge will be periodically monitored during pumping activities for the presence of suspect characteristics (e.g., sheens, odors, etc.) which may indicate unanticipated contaminant conditions. If such conditions are observed, pumping will be immediately halted, the appropriate parties (e.g., NYSDEC, City of Glen Cove engineers, Apex PM, etc.) notified, and the situation evaluated;

- There is the potential that the system flow rates would be too high to allow complete recharge of the discharged groundwater on the Subject Property. If this event occurs, it may prove necessary to discharge the extracted groundwater to the adjacent Glen Cove Creek. The quality of the creek water would be protected by the following: 1) the discharge would first be run through the sediment filter BMP; 2) it is only the first few hours of pumping which results in turbid discharge (which would be address by the aforementioned BMP) and the follow on discharge would likely be “clear,” as well as being addressed by the BMP; and, 3) the water would be discharged within the area of the creek within the deployed turbidity curtain and hard oil boom. If discharge to the creek is required, a sample of the groundwater will be collected and analyzed for NYSDEC TCL VOCs be EPA Method 8260. If any VOCs are detected in exceedance of NYSDEC effluent limitations to surface water bodies, no discharge will be allowed. The maximum system flow rate will be evaluated, and a temporary treatment system (e.g., a stripping tower) will be set up and operated. Prior to any operations which require discharge to the creek, a treatment system collection and analysis plan which will include such details as pre- and post-treatment sampling, sampling, analyses and schedule will be submitted to and approved to the NYSDEC as an addendum to this Work Plan; and,

- It is anticipated that de-watering activities will be required for three-to-four-weeks circa January of 2011.

4.2 Dredged Sediment / Excavated Soil De-Watering Plan

Based upon the project elements, the dredge spoils and the deeper materials removed from between the two bulkheads will be saturated with water and will require de-watering prior to their placement into on-site stockpiles for analytical testing. The following provides the plan to de-water sediments and materials upon their dredging and / or excavation:

- A temporary dewatering area consisting of a sufficiently-sized hay-baled enclosure[13] will be installed just landward of the dredging work area or adjacent to the excavation. The size and configuration of the temporary de-watering areas will be determined in the field and be based upon observed infiltration rates and acceptable retention times;

- Dredged materials will be placed directly into an adjacent impoundment directly from the environmental bucket, and the wet materials excavated from between the two bulkheads will be placed into an adjacent impoundment until they have de-watered; and,

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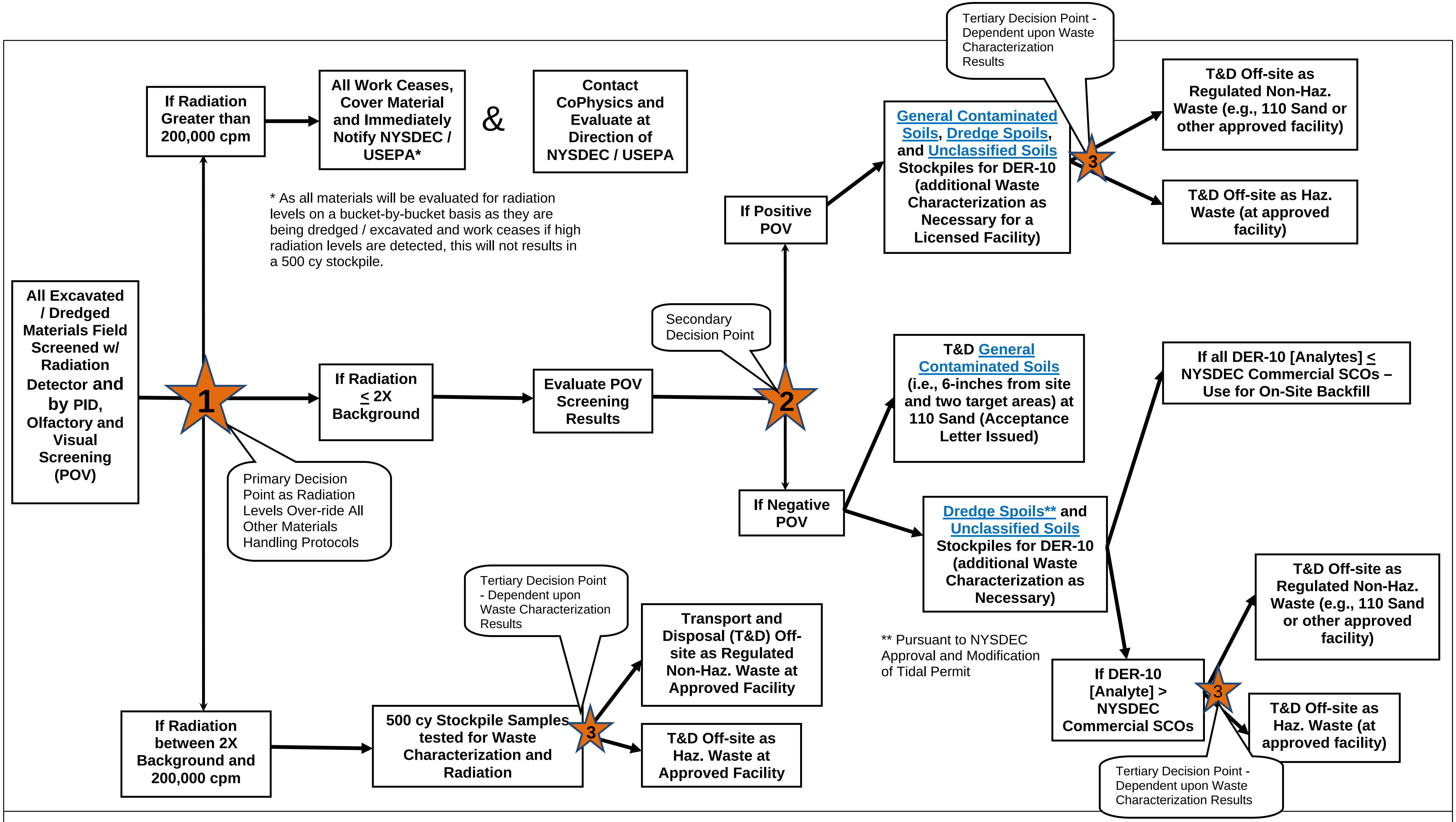
[13] *The hay-bale-enclosure methodology is an industry-standard technique. Please note that the “dewatering” discussed in this item will result in relatively minimal amounts of decant which will either infiltrate through the bottom of the enclosure, or through the hay bales. The passage of the decant through the hay bales will effectively remove any entrained silts and clays. Additionally, the stormwater BMPs associated with the facility’s SWPPP will further protect adjacent properties and surface water bodies from any unanticipated soils and clays entrained in the decant.*

- During the placement of the materials in the de-watering areas, samples will be collected and analyzed in accordance with ***Section 2.3.4.1*** for chemical analysis purposes. It is anticipated that the de-watering process will require a longer time period than the analytical testing; therefore, sufficient testing data will be available prior to completion of de-watering and will allow for the determination of the final disposition of the de-watered materials.

FIGURES



* As all materials will be evaluated for radiation levels on a bucket-by-bucket basis as they are being dredged / excavated and work ceases if high radiation levels are detected, this will not results in a 500 cy stockpile.

** Pursuant to NYSDEC Approval and Modification of Tidal Permit

Apex Companies, LLC

Figure 2-2
Excavated and Dredged Materials Stockpile Management Plan / Decision Matrix

Client: Chesterfield
Project No.: 85185.001
Project Location: Glen Cove, NY
Date: July 2010

Soil Stockpile No. 20
DER-10 Analytical Results for TCL VOCs
Glen Cove Ferry Terminal Project

		Soil Stockpile Representative Samples					QA / QC Samples
TCL VOCs	NY-Restricted Use Commercial Criteria	SSP-20-VOC1 11/15/2010	SSP-20-VOC2 11/15/2010	SSP-20-VOC3 11/15/2010	SSP-20-VOC4 11/15/2010	SSP-20-VOC5 11/15/2010	TRIP BLANK 11/15/2010
1,1,1-Trichloroethane	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,1,2,2-Tetrachloroethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,1,2-Trichloro-1,2,2-trifluoroethane*	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,1,2-Trichloroethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,1-Dichloroethane	240	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,1-Dichloroethene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,2,4-Trichlorobenzene	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,2-Dibromo-3-chloropropane*	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,2-Dibromoethane*	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,2-Dichlorobenzene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,2-Dichloroethane	30	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,2-Dichloropropane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,3-Dichlorobenzene	280	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
1,4-Dichlorobenzene	130	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
2-Butanone (MEK)	500	0.00201 U	0.00216 U	0.00211 U	0.00285	0.00219 U	1.00 U
2-Hexanone	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
4-Methyl-2-pentanone	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Acetone	500	0.0101 U	0.0108 U	0.0105 U	0.0621	0.0121	5.00 U
Benzene	44	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Bromodichloromethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Bromoform	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Bromomethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Carbon disulfide	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Carbon tetrachloride	22	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Chlorobenzene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Chloroethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Chloroform	350	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Chloromethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
cis-1,2-Dichloroethene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
cis-1,3-Dichloropropene	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Cyclohexane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Dibromochloromethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Dichlorodifluoromethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Ethylbenzene	390	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Isopropylbenzene	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
m&p-Xylene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Methyl acetate*	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Methyl tert-butyl ether	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Methylcyclohexane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Methylene chloride	500	0.0101 U	0.0108 U	0.0105 U	0.0106 U	0.0110 U	1.00 U
o-Xylene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Styrene*	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Tetrachloroethene	150	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Toluene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
trans-1,2-Dichloroethene	500	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
trans-1,3-Dichloropropene	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Trichloroethene	200	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Trichlorofluoromethane	--	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U
Vinyl chloride	13	0.00201 U	0.00216 U	0.00211 U	0.00212 U	0.00219 U	1.00 U

1. Soil results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All VOC samples were analyzed by US EPA Method 8260 for TCL VOCs.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).
4. -- = Regulatory Guidance Value is not available.
5. Trip Blank results in micrograms per liter (ug/l) unless otherwise noted.
6. Sample is a Blind Duplicate of SSP-19-VOC-5.

* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

Soil Stockpile No. 20
DER-10 Analytical Results for TCL SVOCs
Glen Cove Ferry Terminal Project

		Composite Samples	
TCL SVOCs	**NY-Restricted Use Commercial Criteria**	**SSP-20-C1 11/15/2010**	**SSP-20-C2 11/15/2010**
1,1'-Biphenyl*	--	0.358 U	0.358 U
2,4,5-Trichlorophenol	--	0.358 U	0.358 U
2,4,6-Trichlorophenol	--	0.358 U	0.358 U
2,4-Dichlorophenol	--	0.358 U	0.358 U
2,4-Dimethylphenol	--	0.358 U	0.358 U
2,4-Dinitrophenol	--	0.358 U	0.358 U
2,4-Dinitrotoluene	--	0.358 U	0.358 U
2,6-Dinitrotoluene	--	0.358 U	0.358 U
2-Chloronaphthalene	--	0.358 U	0.358 U
2-Chlorophenol	--	0.358 U	0.358 U
2-Methylnaphthalene	--	0.358 U	0.358 U
2-Methylphenol	--	0.358 U	0.358 U
2-Nitroaniline	--	0.358 U	0.358 U
2-Nitrophenol	--	0.358 U	0.358 U
3,3'-Dichlorobenzidine	--	0.358 U	0.358 U
3-Nitroaniline	--	0.358 U	0.358 U
4,6-Dinitro-2-methylphenol	--	0.358 U	0.358 U
4-Bromophenyl-phenylether	--	0.358 U	0.358 U
4-Chloro-3-methylphenol	--	0.358 U	0.358 U
4-Chloroaniline	--	0.358 U	0.358 U
4-Chlorophenyl-phenylether	--	0.358 U	0.358 U
4-Methylphenol	--	0.358 U	0.358 U
4-Nitroaniline	--	0.358 U	0.358 U
4-Nitrophenol	--	0.358 U	0.358 U
Acenaphthene	500	1.93	1.98
Acenaphthylene	500	0.358 U	0.358 U
Acetophenone*	--	0.358 U	0.358 U
Anthracene	500	1.42	2.08
Atrazine*	--	0.358 U	0.358 U
Benzaldehyde*	--	0.358 U	0.358 U
Benzo(a)anthracene	5.6	1.67	1.99
Benzo(a)pyrene	1	**1.04**	**1.20**
Benzo(b)fluoranthene	5.6	1.27	1.53
Benzo(g,h,i)perylene	500	0.421	0.518
Benzo(k)fluoranthene	56	0.445	0.696
bis(2-chloroethoxy)methane	--	0.358 U	0.358 U
Bis(2-chloroethyl)ether	--	0.358 U	0.358 U
bis(2-Chloroisopropyl)ether	--	0.358 U	0.358 U
bis(2-Ethylhexyl)phthalate	--	0.446	0.592
Butylbenzylphthalate	--	0.358 U	0.358 U
Caprolactam*	--	0.358 U	0.358 U
Carbazole	--	0.803	1.14
Chrysene	56	1.43	1.73
Di-n-butylphthalate	--	0.358 U	0.358 U
Di-n-octylphthalate	--	0.358 U	0.358 U
Dibenz(a,h)anthracene	0.56	0.358 U	0.358 U
Dibenzofuran	350	0.779	0.716
Diethylphthalate	--	0.358 U	0.358 U
Dimethylphthalate	--	0.358 U	0.358 U
Fluoranthene	500	8.01	7.74
Fluorene	500	1.09	1.09
Hexachlorobenzene	6	0.358 U	0.358 U
Hexachlorobutadiene	--	0.358 U	0.358 U
Hexachlorocyclopentadiene	--	0.358 U	0.358 U
Hexachloroethane	--	0.358 U	0.358 U
Indeno(1,2,3-cd)pyrene	5.6	0.384	0.481
Isophorone	--	0.358 U	0.358 U
N-Nitroso-di-n-propylamine	--	0.358 U	0.358 U
N-Nitrosodiphenylamine	--	0.358 U	0.358 U
Naphthalene	500	0.358 U	0.358 U
Nitrobenzene	--	0.358 U	0.358 U
Pentachlorophenol	6.7	0.358 U	0.358 U
Phenanthrene	500	6.96	5.81
Phenol	500	0.358 U	0.358 U
Pyrene	500	4.23	4.28

Notes:

1. All results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All SVOC samples were analyzed by US EPA Method 8270 for TCL SVOCs.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).

* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8270 analysis protocols are not explicitly employed for reporting these analytes.

Soil Stockpile No. 20
DER-10 Analytical Results for TAL Metals
Glen Cove Ferry Terminal Project

TAL Metals	NY-Restricted Use Commercial Criteria	Composite Samples	
		SSP-20-C1 11/15/2010	SSP-20-C2 11/15/2010
Aluminum	--	5,830	5,900
Antimony	--	5.27 U	5.53 U
Arsenic	16	7.38	8.44
Barium	400	54.5	57.6
Beryllium	590	0.527 U	0.553 U
Cadmium	9.3	0.497	0.491
Calcium	--	3,500	6,510
Chromium	1,500	14.1	14.4
Cobalt	--	7.22	7.43
Copper	270	45.9	41.8
Iron	--	11,500 B	12,400 B
Lead	1,000	74.0	71.4
Magnesium	--	1,740	2,030
Manganese	10,000	287	648
Nickel	310	16.1	13.9
Potassium	--	768	815
Selenium	1,500	4.22 U	4.42 U
Silver	1,500	1.82	1.78
Sodium	--	193 B	221 B
Thallium	--	2.11 U	2.21 U
Vanadium	--	15.1	15.9
Zinc	10,000	87.6 B	85.2 B
Mercury	2.8	0.124	0.121

Notes:

1. All results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All Inorganic samples were analyzed by SW 846 6010B for TCL Inorganic.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).
4. B = Parameter detected in the Method Blank above the MDL.
5. -- = Regulatory Guidance Value is not available.
6. The total chromium data are compared to the trivalent chomium SCO.

Soil Stockpile No. 20
DER-10 Analytical Results for TCL PCBs and TCL Pesticides
Glen Cove Ferry Terminal Project

		Composite Samples	
PCB's	**NY-Restricted Use Commercial Criteria**	**SSP-20-C1 11/15/2010**	**SSP-20-C2 11/15/2010**
Aroclor 1016	1	0.0515 U	0.0532 U
Aroclor 1221	1	0.0515 U	0.0532 U
Aroclor 1232	1	0.0515 U	0.0532 U
Aroclor 1242	1	0.0515 U	0.0532 U
Aroclor 1248	1	0.0679 PE	0.0653 PE
Aroclor 1254	1	0.172 AF	0.137 AF
Aroclor 1260	1	0.0515 U	0.0532 U
Aroclor 1262	1	0.0515 U	0.0532 U
Aroclor 1268	1	0.0515 U	0.0532 U
Total PCB Amount > RL	1	0.2399	0.2023
Pesticides			
Aldrin	0.68	0.00265 U	0.00269 U
alpha Chlordane	24	0.0115	0.0082
alpha-BHC	3.4	0.00265 U	0.00269 U
beta-BHC	3.0	0.00265 U	0.00269 U
delta-BHC	500	0.00265 U	0.00269 U
Dieldrin	1.4	0.00265 U	0.00269 U
Endosulfan I	200	0.00265 U	0.00269 U
Endosulfan II	200	0.00265 U	0.00269 U
Endosulfan sulfate	200	0.00265 U	0.00269 U
Endrin	89	0.00265 U	0.00269 U
Endrin aldehyde	--	0.00265 U	0.00269 U
Endrin ketone	--	0.00265 U	0.00269 U
gamma Chlordane	--	0.0151 Z	0.0116 Z
gamma-BHC (Lindane)	9.2	0.00265 U	0.00269 U
Heptachlor	15	0.00265 U	0.00269 U
Heptachlor epoxide	--	0.00265 U	0.00269 U
Methoxychlor	--	0.00265 U	0.00269 U
p,p'-DDD	92	0.021	0.0186
p,p'-DDE	62	0.00616 Z	0.00542 Z
p,p'-DDT	47	0.00624 Z	0.0132 Z
Toxaphene	--	0.265 U	0.269 U

Notes:

1. All results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All samples were analyzed by SW-846 8081 for Pesticides.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).
4. B = Parameter detected in the Method Blank above the MDL.
5. -- = Regulatory Guidance Value is not available.
6. AF = Aroclor 1254 is being reported at the best Aroclor match. The sample exhibits an altered PCB pattern.
7. PE = Aroclor 1248 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1248 is not present in the sample, but is reported to more accurately quanitfy PCB present in sample that has undergone environmental alteration.

CHAIN OF CUSTODY RECORD

NORTHEAST ANALYTICAL, INC.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.nealab.com information @nealab.com

PAGE 1 OF 1

<10110126P1>

LRF # 101101261

DISPOSAL REQUIREMENTS: (To be filled in by Client)

○ RETURN TO CLIENT
☑ DISPOSAL BY NORTHEAST ANALYTICAL
○ ARCHIVAL BY NORTHEAST ANALYTICAL

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): Apex

PROJECT MANAGER: Rich Baldwin

PHONE: (631) 567-1777

SAMPLED BY: (Please Print) Robert M. Bennett

SAMPLING FIRM:

PROJECT#/PROJECT NAME: 85185.003

PROJECT LOCATION (CITY/STATE) ADDRESS: Glen Cove Ferry Terminal

REQUIRED TURN AROUND TIME: Standard

NAME OF COURIER (IF USED): Impulse

Data Report: ☐ CLP* ☐ Certificates Only

ELECTRONIC RESULTS FORMAT: .PDF ☐ EXCEL (.CSV) ☑

E-MAIL ADDRESS: rbaldwin@apexcos.com

FAXED RESULTS ☐ FAX #: 631· [illegible] 1957

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

PRESERVATIVE CODE:	0	1
BOTTLE TYPE:	glass jar	vial
BOTTLE SIZE:	2oz	40ml
	TCL VOCs	TCL VOCs

PRESERVATIVE KEY
0 - NONE
1 - HCL
2 - HNO3
3 - H2SO4
4 - NaOH
5 - Zn. Acetate
6 - MeOH
7 - NaHSO4
8 - Other ______

SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (NEA USE ONLY)	NUMBER OF CONTAINERS	TCL VOCs	TCL VOCs						REMARKS:
SSP-20-VOC1	11/15/10	1130	S	Grab	AN19833		X							
SSP-20-VOC2	↓	1135	↓	↓	AN19834		X							
SSP-20-VOC3	↓	1305	↓	↓	AN19835		X							
SSP-20-VOC4	↓	1315	↓	↓	AN19836		X							
SSP-20-VOC5	↓	1525	↓	↓	AN19837		X							
trip blank	↓	1345	↓	↓	AN19838			X						trip blank

AMBIENT OR CHILLED: Ice TEMP: 4.0
RECEIVED BROKEN OR LEAKING: Y [✓ N]
COC TAPE: Y [✓ N]
COC DISCREPANCIES: Y [✓ N]
PROPERLY PRESERVED: [✓ Y] N
RECVD W/I HOLDING TIMES: [✓ Y] N
OTHER NOTES:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE	SIGNATURE	SIGNATURE	SIGNATURE	SIGNATURE	SIGNATURE K Haughten
PRINTED NAME Robert M. Bennett	PRINTED NAME Kevin Williams	PRINTED NAME Kevin Williams	PRINTED NAME M. RANUCCI	PRINTED NAME M. RANUCCI	PRINTED NAME K Haughten
COMPANY Apex	COMPANY Impulse 54	COMPANY Impulse 54	COMPANY PACE	COMPANY PACE	COMPANY PACE
DATE/TIME 11/16/10 1315	DATE/TIME 11/16/10 1325	DATE/TIME 11/16/10 15:44	DATE/TIME 11-16-10 1544	DATE/TIME 11-16-10 1745	DATE/TIME 11-16-10 1745

* CLP LIKE DATA PACKAGE ADDITIONAL COST

Category B deliverable

S:\ADMIN\COC FORM 01.XLS (Revised July 1, 2005)

NEA Pace Analytical®

NEA Laboratory, Division of
Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-VOC1
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19833 **NEA LRF:** 10110126-01
DATE SAMPLED: 11/15/2010 **TIME:** 11:30
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.01	ug/kg	11/17/2010	U
1,1,2,2-Tetrachloroethane	ND	2.01	ug/kg	11/17/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.01	ug/kg	11/17/2010	U
1,1,2-Trichloroethane	ND	2.01	ug/kg	11/17/2010	U
1,1-Dichloroethane	ND	2.01	ug/kg	11/17/2010	U
1,1-Dichloroethene	ND	2.01	ug/kg	11/17/2010	U
1,2,4-Trichlorobenzene	ND	2.01	ug/kg	11/17/2010	U
1,2-Dibromo-3-chloropropane	ND	2.01	ug/kg	11/17/2010	U
1,2-Dibromoethane	ND	2.01	ug/kg	11/17/2010	U
1,2-Dichlorobenzene	ND	2.01	ug/kg	11/17/2010	U
1,2-Dichloroethane	ND	2.01	ug/kg	11/17/2010	U
1,2-Dichloropropane	ND	2.01	ug/kg	11/17/2010	U
1,3-Dichlorobenzene	ND	2.01	ug/kg	11/17/2010	U
1,4-Dichlorobenzene	ND	2.01	ug/kg	11/17/2010	U
2-Butanone	ND	2.01	ug/kg	11/17/2010	U
2-Hexanone	ND	2.01	ug/kg	11/17/2010	U
4-Methyl-2-pentanone	ND	2.01	ug/kg	11/17/2010	U
Acetone	ND	10.1	ug/kg	11/17/2010	U
Benzene	ND	2.01	ug/kg	11/17/2010	U
Bromodichloromethane	ND	2.01	ug/kg	11/17/2010	U
Bromoform	ND	2.01	ug/kg	11/17/2010	U
Bromomethane	ND	2.01	ug/kg	11/17/2010	U
Carbon disulfide	ND	2.01	ug/kg	11/17/2010	U
Carbon tetrachloride	ND	2.01	ug/kg	11/17/2010	U
Chlorobenzene	ND	2.01	ug/kg	11/17/2010	U
Chloroethane	ND	2.01	ug/kg	11/17/2010	U
Chloroform	ND	2.01	ug/kg	11/17/2010	U
Chloromethane	ND	2.01	ug/kg	11/17/2010	U
cis-1,2-Dichloroethene	ND	2.01	ug/kg	11/17/2010	U

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CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

NEA Laboratory, Division of
Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

CUSTOMER ID: SSP-20-VOC1
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19833 **NEA LRF:** 10110126-01
DATE SAMPLED: 11/15/2010 **TIME:** 11:30
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.01	ug/kg	11/17/2010	U
Cyclohexane	ND	2.01	ug/kg	11/17/2010	U
Dibromochloromethane	ND	2.01	ug/kg	11/17/2010	U
Dichlorodifluoromethane	ND	2.01	ug/kg	11/17/2010	U
Ethylbenzene	ND	2.01	ug/kg	11/17/2010	U
Isopropylbenzene	ND	2.01	ug/kg	11/17/2010	U
m&p-Xylene	ND	2.01	ug/kg	11/17/2010	U
Methyl acetate	ND	2.01	ug/kg	11/17/2010	U
Methyl tert-butyl ether	ND	2.01	ug/kg	11/17/2010	U
Methylcyclohexane	ND	2.01	ug/kg	11/17/2010	U
Methylene chloride	ND	10.1	ug/kg	11/17/2010	U
o-Xylene	ND	2.01	ug/kg	11/17/2010	U
Styrene	ND	2.01	ug/kg	11/17/2010	U
Tetrachloroethene	ND	2.01	ug/kg	11/17/2010	U
Toluene	ND	2.01	ug/kg	11/17/2010	U
trans-1,2-Dichloroethene	ND	2.01	ug/kg	11/17/2010	U
trans-1,3-Dichloropropene	ND	2.01	ug/kg	11/17/2010	U
Trichloroethene	ND	2.01	ug/kg	11/17/2010	U
Trichlorofluoromethane	ND	2.01	ug/kg	11/17/2010	U
Vinyl chloride	ND	2.01	ug/kg	11/17/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

NEA
Pace Analytical®

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11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-VOC2
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19834 **NEA LRF:** 10110126-02
DATE SAMPLED: 11/15/2010 **TIME:** 11:35
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.16	ug/kg	11/17/2010	U
1,1,2,2-Tetrachloroethane	ND	2.16	ug/kg	11/17/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.16	ug/kg	11/17/2010	U
1,1,2-Trichloroethane	ND	2.16	ug/kg	11/17/2010	U
1,1-Dichloroethane	ND	2.16	ug/kg	11/17/2010	U
1,1-Dichloroethene	ND	2.16	ug/kg	11/17/2010	U
1,2,4-Trichlorobenzene	ND	2.16	ug/kg	11/17/2010	U
1,2-Dibromo-3-chloropropane	ND	2.16	ug/kg	11/17/2010	U
1,2-Dibromoethane	ND	2.16	ug/kg	11/17/2010	U
1,2-Dichlorobenzene	ND	2.16	ug/kg	11/17/2010	U
1,2-Dichloroethane	ND	2.16	ug/kg	11/17/2010	U
1,2-Dichloropropane	ND	2.16	ug/kg	11/17/2010	U
1,3-Dichlorobenzene	ND	2.16	ug/kg	11/17/2010	U
1,4-Dichlorobenzene	ND	2.16	ug/kg	11/17/2010	U
2-Butanone	ND	2.16	ug/kg	11/17/2010	U
2-Hexanone	ND	2.16	ug/kg	11/17/2010	U
4-Methyl-2-pentanone	ND	2.16	ug/kg	11/17/2010	U
Acetone	ND	10.8	ug/kg	11/17/2010	U
Benzene	ND	2.16	ug/kg	11/17/2010	U
Bromodichloromethane	ND	2.16	ug/kg	11/17/2010	U
Bromoform	ND	2.16	ug/kg	11/17/2010	U
Bromomethane	ND	2.16	ug/kg	11/17/2010	U
Carbon disulfide	ND	2.16	ug/kg	11/17/2010	U
Carbon tetrachloride	ND	2.16	ug/kg	11/17/2010	U
Chlorobenzene	ND	2.16	ug/kg	11/17/2010	U
Chloroethane	ND	2.16	ug/kg	11/17/2010	U
Chloroform	ND	2.16	ug/kg	11/17/2010	U
Chloromethane	ND	2.16	ug/kg	11/17/2010	U
cis-1,2-Dichloroethene	ND	2.16	ug/kg	11/17/2010	U

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Fax: 518.381.6055

CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-VOC2
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19834 **NEA LRF:** 10110126-02
DATE SAMPLED: 11/15/2010 **TIME:** 11:35
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.16	ug/kg	11/17/2010	U
Cyclohexane	ND	2.16	ug/kg	11/17/2010	U
Dibromochloromethane	ND	2.16	ug/kg	11/17/2010	U
Dichlorodifluoromethane	ND	2.16	ug/kg	11/17/2010	U
Ethylbenzene	ND	2.16	ug/kg	11/17/2010	U
Isopropylbenzene	ND	2.16	ug/kg	11/17/2010	U
m&p-Xylene	ND	2.16	ug/kg	11/17/2010	U
Methyl acetate	ND	2.16	ug/kg	11/17/2010	U
Methyl tert-butyl ether	ND	2.16	ug/kg	11/17/2010	U
Methylcyclohexane	ND	2.16	ug/kg	11/17/2010	U
Methylene chloride	ND	10.8	ug/kg	11/17/2010	U
o-Xylene	ND	2.16	ug/kg	11/17/2010	U
Styrene	ND	2.16	ug/kg	11/17/2010	U
Tetrachloroethene	ND	2.16	ug/kg	11/17/2010	U
Toluene	ND	2.16	ug/kg	11/17/2010	U
trans-1,2-Dichloroethene	ND	2.16	ug/kg	11/17/2010	U
trans-1,3-Dichloropropene	ND	2.16	ug/kg	11/17/2010	U
Trichloroethene	ND	2.16	ug/kg	11/17/2010	U
Trichlorofluoromethane	ND	2.16	ug/kg	11/17/2010	U
Vinyl chloride	ND	2.16	ug/kg	11/17/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

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11/24/2010
APEX COMPANIES LLC
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Phone: 518.346.4592
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CUSTOMER ID: SSP-20-VOC3
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19835 **NEA LRF:** 10110126-03
DATE SAMPLED: 11/15/2010 **TIME:** 13:05
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.11	ug/kg	11/17/2010	U
1,1,2,2-Tetrachloroethane	ND	2.11	ug/kg	11/17/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.11	ug/kg	11/17/2010	U
1,1,2-Trichloroethane	ND	2.11	ug/kg	11/17/2010	U
1,1-Dichloroethane	ND	2.11	ug/kg	11/17/2010	U
1,1-Dichloroethene	ND	2.11	ug/kg	11/17/2010	U
1,2,4-Trichlorobenzene	ND	2.11	ug/kg	11/17/2010	U
1,2-Dibromo-3-chloropropane	ND	2.11	ug/kg	11/17/2010	U
1,2-Dibromoethane	ND	2.11	ug/kg	11/17/2010	U
1,2-Dichlorobenzene	ND	2.11	ug/kg	11/17/2010	U
1,2-Dichloroethane	ND	2.11	ug/kg	11/17/2010	U
1,2-Dichloropropane	ND	2.11	ug/kg	11/17/2010	U
1,3-Dichlorobenzene	ND	2.11	ug/kg	11/17/2010	U
1,4-Dichlorobenzene	ND	2.11	ug/kg	11/17/2010	U
2-Butanone	ND	2.11	ug/kg	11/17/2010	U
2-Hexanone	ND	2.11	ug/kg	11/17/2010	U
4-Methyl-2-pentanone	ND	2.11	ug/kg	11/17/2010	U
Acetone	ND	10.5	ug/kg	11/17/2010	U
Benzene	ND	2.11	ug/kg	11/17/2010	U
Bromodichloromethane	ND	2.11	ug/kg	11/17/2010	U
Bromoform	ND	2.11	ug/kg	11/17/2010	U
Bromomethane	ND	2.11	ug/kg	11/17/2010	U
Carbon disulfide	ND	2.11	ug/kg	11/17/2010	U
Carbon tetrachloride	ND	2.11	ug/kg	11/17/2010	U
Chlorobenzene	ND	2.11	ug/kg	11/17/2010	U
Chloroethane	ND	2.11	ug/kg	11/17/2010	U
Chloroform	ND	2.11	ug/kg	11/17/2010	U
Chloromethane	ND	2.11	ug/kg	11/17/2010	U
cis-1,2-Dichloroethene	ND	2.11	ug/kg	11/17/2010	U

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CUSTOMER ID: SSP-20-VOC3
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19835 **NEA LRF:** 10110126-03
DATE SAMPLED: 11/15/2010 **TIME:** 13:05
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.11	ug/kg	11/17/2010	U
Cyclohexane	ND	2.11	ug/kg	11/17/2010	U
Dibromochloromethane	ND	2.11	ug/kg	11/17/2010	U
Dichlorodifluoromethane	ND	2.11	ug/kg	11/17/2010	U
Ethylbenzene	ND	2.11	ug/kg	11/17/2010	U
Isopropylbenzene	ND	2.11	ug/kg	11/17/2010	U
m&p-Xylene	ND	2.11	ug/kg	11/17/2010	U
Methyl acetate	ND	2.11	ug/kg	11/17/2010	U
Methyl tert-butyl ether	ND	2.11	ug/kg	11/17/2010	U
Methylcyclohexane	ND	2.11	ug/kg	11/17/2010	U
Methylene chloride	ND	10.5	ug/kg	11/17/2010	U
o-Xylene	ND	2.11	ug/kg	11/17/2010	U
Styrene	ND	2.11	ug/kg	11/17/2010	U
Tetrachloroethene	ND	2.11	ug/kg	11/17/2010	U
Toluene	ND	2.11	ug/kg	11/17/2010	U
trans-1,2-Dichloroethene	ND	2.11	ug/kg	11/17/2010	U
trans-1,3-Dichloropropene	ND	2.11	ug/kg	11/17/2010	U
Trichloroethene	ND	2.11	ug/kg	11/17/2010	U
Trichlorofluoromethane	ND	2.11	ug/kg	11/17/2010	U
Vinyl chloride	ND	2.11	ug/kg	11/17/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

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CUSTOMER ID: SSP-20-VOC4
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19836 **NEA LRF:** 10110126-04
DATE SAMPLED: 11/15/2010 **TIME:** 13:15
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.12	ug/kg	11/17/2010	U
1,1,2,2-Tetrachloroethane	ND	2.12	ug/kg	11/17/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.12	ug/kg	11/17/2010	U
1,1,2-Trichloroethane	ND	2.12	ug/kg	11/17/2010	U
1,1-Dichloroethane	ND	2.12	ug/kg	11/17/2010	U
1,1-Dichloroethene	ND	2.12	ug/kg	11/17/2010	U
1,2,4-Trichlorobenzene	ND	2.12	ug/kg	11/17/2010	U
1,2-Dibromo-3-chloropropane	ND	2.12	ug/kg	11/17/2010	U
1,2-Dibromoethane	ND	2.12	ug/kg	11/17/2010	U
1,2-Dichlorobenzene	ND	2.12	ug/kg	11/17/2010	U
1,2-Dichloroethane	ND	2.12	ug/kg	11/17/2010	U
1,2-Dichloropropane	ND	2.12	ug/kg	11/17/2010	U
1,3-Dichlorobenzene	ND	2.12	ug/kg	11/17/2010	U
1,4-Dichlorobenzene	ND	2.12	ug/kg	11/17/2010	U
2-Butanone	2.85	2.12	ug/kg	11/17/2010	
2-Hexanone	ND	2.12	ug/kg	11/17/2010	U
4-Methyl-2-pentanone	ND	2.12	ug/kg	11/17/2010	U
Acetone	62.1	10.6	ug/kg	11/17/2010	
Benzene	ND	2.12	ug/kg	11/17/2010	U
Bromodichloromethane	ND	2.12	ug/kg	11/17/2010	U
Bromoform	ND	2.12	ug/kg	11/17/2010	U
Bromomethane	ND	2.12	ug/kg	11/17/2010	U
Carbon disulfide	ND	2.12	ug/kg	11/17/2010	U
Carbon tetrachloride	ND	2.12	ug/kg	11/17/2010	U
Chlorobenzene	ND	2.12	ug/kg	11/17/2010	U
Chloroethane	ND	2.12	ug/kg	11/17/2010	U
Chloroform	ND	2.12	ug/kg	11/17/2010	U
Chloromethane	ND	2.12	ug/kg	11/17/2010	U
cis-1,2-Dichloroethene	ND	2.12	ug/kg	11/17/2010	U

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CUSTOMER ID: SSP-20-VOC4
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19836 **NEA LRF:** 10110126-04
DATE SAMPLED: 11/15/2010 **TIME:** 13:15
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.12	ug/kg	11/17/2010	U
Cyclohexane	ND	2.12	ug/kg	11/17/2010	U
Dibromochloromethane	ND	2.12	ug/kg	11/17/2010	U
Dichlorodifluoromethane	ND	2.12	ug/kg	11/17/2010	U
Ethylbenzene	ND	2.12	ug/kg	11/17/2010	U
Isopropylbenzene	ND	2.12	ug/kg	11/17/2010	U
m&p-Xylene	ND	2.12	ug/kg	11/17/2010	U
Methyl acetate	ND	2.12	ug/kg	11/17/2010	U
Methyl tert-butyl ether	ND	2.12	ug/kg	11/17/2010	U
Methylcyclohexane	ND	2.12	ug/kg	11/17/2010	U
Methylene chloride	ND	10.6	ug/kg	11/17/2010	U
o-Xylene	ND	2.12	ug/kg	11/17/2010	U
Styrene	ND	2.12	ug/kg	11/17/2010	U
Tetrachloroethene	ND	2.12	ug/kg	11/17/2010	U
Toluene	ND	2.12	ug/kg	11/17/2010	U
trans-1,2-Dichloroethene	ND	2.12	ug/kg	11/17/2010	U
trans-1,3-Dichloropropene	ND	2.12	ug/kg	11/17/2010	U
Trichloroethene	ND	2.12	ug/kg	11/17/2010	U
Trichlorofluoromethane	ND	2.12	ug/kg	11/17/2010	U
Vinyl chloride	ND	2.12	ug/kg	11/17/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

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CUSTOMER ID: SSP-20-VOC5
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19837 **NEA LRF:** 10110126-05
DATE SAMPLED: 11/15/2010 **TIME:** 13:25
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.19	ug/kg	11/17/2010	U
1,1,2,2-Tetrachloroethane	ND	2.19	ug/kg	11/17/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.19	ug/kg	11/17/2010	U
1,1,2-Trichloroethane	ND	2.19	ug/kg	11/17/2010	U
1,1-Dichloroethane	ND	2.19	ug/kg	11/17/2010	U
1,1-Dichloroethene	ND	2.19	ug/kg	11/17/2010	U
1,2,4-Trichlorobenzene	ND	2.19	ug/kg	11/17/2010	U
1,2-Dibromo-3-chloropropane	ND	2.19	ug/kg	11/17/2010	U
1,2-Dibromoethane	ND	2.19	ug/kg	11/17/2010	U
1,2-Dichlorobenzene	ND	2.19	ug/kg	11/17/2010	U
1,2-Dichloroethane	ND	2.19	ug/kg	11/17/2010	U
1,2-Dichloropropane	ND	2.19	ug/kg	11/17/2010	U
1,3-Dichlorobenzene	ND	2.19	ug/kg	11/17/2010	U
1,4-Dichlorobenzene	ND	2.19	ug/kg	11/17/2010	U
2-Butanone	ND	2.19	ug/kg	11/17/2010	U
2-Hexanone	ND	2.19	ug/kg	11/17/2010	U
4-Methyl-2-pentanone	ND	2.19	ug/kg	11/17/2010	U
Acetone	12.1	11.0	ug/kg	11/17/2010	
Benzene	ND	2.19	ug/kg	11/17/2010	U
Bromodichloromethane	ND	2.19	ug/kg	11/17/2010	U
Bromoform	ND	2.19	ug/kg	11/17/2010	U
Bromomethane	ND	2.19	ug/kg	11/17/2010	U
Carbon disulfide	ND	2.19	ug/kg	11/17/2010	U
Carbon tetrachloride	ND	2.19	ug/kg	11/17/2010	U
Chlorobenzene	ND	2.19	ug/kg	11/17/2010	U
Chloroethane	ND	2.19	ug/kg	11/17/2010	U
Chloroform	ND	2.19	ug/kg	11/17/2010	U
Chloromethane	ND	2.19	ug/kg	11/17/2010	U
cis-1,2-Dichloroethene	ND	2.19	ug/kg	11/17/2010	U

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11/24/2010
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CUSTOMER ID: SSP-20-VOC5
NEA ID: AN19837 **NEA LRF:** 10110126-05
MATRIX: SOIL
DATE SAMPLED: 11/15/2010 **TIME:** 13:25
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
PROJECT: 85185.003
SAMPLED BY: R. BENNETT
LOCATION:
CUSTOMER PO: N/A
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.19	ug/kg	11/17/2010	U
Cyclohexane	ND	2.19	ug/kg	11/17/2010	U
Dibromochloromethane	ND	2.19	ug/kg	11/17/2010	U
Dichlorodifluoromethane	ND	2.19	ug/kg	11/17/2010	U
Ethylbenzene	ND	2.19	ug/kg	11/17/2010	U
Isopropylbenzene	ND	2.19	ug/kg	11/17/2010	U
m&p-Xylene	ND	2.19	ug/kg	11/17/2010	U
Methyl acetate	ND	2.19	ug/kg	11/17/2010	U
Methyl tert-butyl ether	ND	2.19	ug/kg	11/17/2010	U
Methylcyclohexane	ND	2.19	ug/kg	11/17/2010	U
Methylene chloride	ND	11.0	ug/kg	11/17/2010	U
o-Xylene	ND	2.19	ug/kg	11/17/2010	U
Styrene	ND	2.19	ug/kg	11/17/2010	U
Tetrachloroethene	ND	2.19	ug/kg	11/17/2010	U
Toluene	ND	2.19	ug/kg	11/17/2010	U
trans-1,2-Dichloroethene	ND	2.19	ug/kg	11/17/2010	U
trans-1,3-Dichloropropene	ND	2.19	ug/kg	11/17/2010	U
Trichloroethene	ND	2.19	ug/kg	11/17/2010	U
Trichlorofluoromethane	ND	2.19	ug/kg	11/17/2010	U
Vinyl chloride	ND	2.19	ug/kg	11/17/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

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CUSTOMER ID:	TRIP BLANK	**NEA ID:** AN19838	**NEA LRF:** 10110126-06
MATRIX:	WATER	**DATE SAMPLED:** 11/15/2010	**TIME:** 13:45
DATE RECEIVED:	11/16/2010 **TIME:** 17:45	**PROJECT:** 85185.003	
SAMPLED BY:	R. BENNETT	**LOCATION:**	
CUSTOMER PO:	N/A	**LAB ELAP#:** 11078	

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	1.00	ug/L	11/17/2010	U
1,1,2,2-Tetrachloroethane	ND	1.00	ug/L	11/17/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.00	ug/L	11/17/2010	U
1,1,2-Trichloroethane	ND	1.00	ug/L	11/17/2010	U
1,1-Dichloroethane	ND	1.00	ug/L	11/17/2010	U
1,1-Dichloroethene	ND	1.00	ug/L	11/17/2010	U
1,2,4-Trichlorobenzene	ND	1.00	ug/L	11/17/2010	U
1,2-Dibromo-3-chloropropane	ND	1.00	ug/L	11/17/2010	U
1,2-Dibromoethane	ND	1.00	ug/L	11/17/2010	U
1,2-Dichlorobenzene	ND	1.00	ug/L	11/17/2010	U
1,2-Dichloroethane	ND	1.00	ug/L	11/17/2010	U
1,2-Dichloropropane	ND	1.00	ug/L	11/17/2010	U
1,3-Dichlorobenzene	ND	1.00	ug/L	11/17/2010	U
1,4-Dichlorobenzene	ND	1.00	ug/L	11/17/2010	U
2-Butanone	ND	1.00	ug/L	11/17/2010	U
2-Hexanone	ND	1.00	ug/L	11/17/2010	U
4-Methyl-2-pentanone	ND	1.00	ug/L	11/17/2010	U
Acetone	ND	5.00	ug/L	11/17/2010	U
Benzene	ND	1.00	ug/L	11/17/2010	U
Bromodichloromethane	ND	1.00	ug/L	11/17/2010	U
Bromoform	ND	1.00	ug/L	11/17/2010	U
Bromomethane	ND	1.00	ug/L	11/17/2010	U
Carbon disulfide	ND	1.00	ug/L	11/17/2010	U
Carbon tetrachloride	ND	1.00	ug/L	11/17/2010	U
Chlorobenzene	ND	1.00	ug/L	11/17/2010	U
Chloroethane	ND	1.00	ug/L	11/17/2010	U
Chloroform	ND	1.00	ug/L	11/17/2010	U
Chloromethane	ND	1.00	ug/L	11/17/2010	U
cis-1,2-Dichloroethene	ND	1.00	ug/L	11/17/2010	U

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CONTACT: RICH BALDWIN

CUSTOMER ID: TRIP BLANK
MATRIX: WATER
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19838 **NEA LRF:** 10110126-06
DATE SAMPLED: 11/15/2010 **TIME:** 13:45
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	1.00	ug/L	11/17/2010	U
Cyclohexane	ND	1.00	ug/L	11/17/2010	U
Dibromochloromethane	ND	1.00	ug/L	11/17/2010	U
Dichlorodifluoromethane	ND	1.00	ug/L	11/17/2010	U
Ethylbenzene	ND	1.00	ug/L	11/17/2010	U
Isopropylbenzene	ND	1.00	ug/L	11/17/2010	U
m&p-Xylene	ND	1.00	ug/L	11/17/2010	U
Methyl acetate	ND	1.00	ug/L	11/17/2010	U
Methyl tert-butyl ether	ND	1.00	ug/L	11/17/2010	U
Methylcyclohexane	ND	1.00	ug/L	11/17/2010	U
Methylene chloride	ND	1.00	ug/L	11/17/2010	U
o-Xylene	ND	1.00	ug/L	11/17/2010	U
Styrene	ND	1.00	ug/L	11/17/2010	U
Tetrachloroethene	ND	1.00	ug/L	11/17/2010	U
Toluene	ND	1.00	ug/L	11/17/2010	U
trans-1,2-Dichloroethene	ND	1.00	ug/L	11/17/2010	U
trans-1,3-Dichloropropene	ND	1.00	ug/L	11/17/2010	U
Trichloroethene	ND	1.00	ug/L	11/17/2010	U
Trichlorofluoromethane	ND	1.00	ug/L	11/17/2010	U
Vinyl chloride	ND	1.00	ug/L	11/17/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CHAIN OF CUSTODY RECORD

NORTHEAST ANALYTICAL, INC.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.nealab.com information @nealab.com

PAGE 1 OF 1

<10110128P1>

LRF # 101101281

DISPOSAL REQUIREMENTS: (To be filled in by Client)

○ RETURN TO CLIENT
☑ DISPOSAL BY NORTHEAST ANALYTICAL
○ ARCHIVAL BY NORTHEAST ANALYTICAL

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): Apex
PROJECT#/PROJECT NAME: 85185.003
PROJECT MANAGER: Rich Baldwin
PROJECT LOCATION (CITY/STATE) ADDRESS: Glen Cove Ferry Terminal
PHONE: (631) 567-1977
SAMPLED BY: (Please Print) Robert M. Bennett
REQUIRED TURN AROUND TIME: Standard
SAMPLING FIRM: Apex
NAME OF COURIER (IF USED): Impulse
Data Report: ☐ CLP* ☐ Certificates Only
ELECTRONIC RESULTS FORMAT: .PDF ☐ EXCEL (.CSV) ☑
E-MAIL ADDRESS: rbaldwin@apexcos.com
FAXED RESULTS ☐
FAX #: 631-567-1967

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

PRESERVATIVE CODE:	0 →								
BOTTLE TYPE:	Glass jar →								
BOTTLE SIZE:	8oz →								

SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (NEA USE ONLY)	NUMBER OF CONTAINERS	TAL Metals	TCL SVOCs	TCL PCBs	TCL Pesticides				REMARKS:
SSR-20-C1	11/15/10	1145	S	Comp	AN19849	1	X	X	X	X				
SSR-20-C2	↓	1335	↓	↓	AN19850	1	X	X	X	X				

PRESERVATIVE KEY
- 0 - NONE
- 1 - HCL
- 2 - HNO3
- 3 - H2SO4
- 4 - NaOH
- 5 - Zn. Acetate
- 6 - MeOH
- 7 - NaHSO4
- 8 - Other ________

AMBIENT OR CHILLED: Ice TEMP: 4.0
RECEIVED BROKEN OR LEAKING: Y [✓ N]
COC TAPE: Y [✓ N]
COC DISCREPANCIES: Y [✓ N]
PROPERLY PRESERVED: [✓ Y] N
RECVD W/I HOLDING TIMES: [✓ Y] N
OTHER NOTES:

	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE		Kevin Williams	Kevin Williams			K Laughleen
PRINTED NAME	Robert M. Bennett	Kevin Williams	Kevin Williams	M. Ranucci	M. Ranucci	K Laughleen
COMPANY	Apex	Impulse 54	Impulse 54	PACE	PACE	PACE
DATE/TIME	11/16/10 1315	11/16/10 1325	11/16/10 15:44	11-16-10 1544	11-16-10 1745	11-16-10 1745

* CLP LIKE DATA PACKAGE ADDITIONAL COST

Category B deliverable

S:\ADMIN\COC FORM 01.XLS (Revised July 1, 2005)

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CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

NEA Laboratory, Division of
Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

CUSTOMER ID: SSP-20-C1
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19849 **NEA LRF:** 10110128-01
DATE SAMPLED: 11/15/2010 **TIME:** 11:45
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
1,1'-Biphenyl	ND	358	ug/kg	11/23/2010	U
2,4,5-Trichlorophenol	ND	358	ug/kg	11/23/2010	U
2,4,6-Trichlorophenol	ND	358	ug/kg	11/23/2010	U
2,4-Dichlorophenol	ND	358	ug/kg	11/23/2010	U
2,4-Dimethylphenol	ND	358	ug/kg	11/23/2010	U
2,4-Dinitrophenol	ND	358	ug/kg	11/23/2010	U
2,4-Dinitrotoluene	ND	358	ug/kg	11/23/2010	U
2,6-Dinitrotoluene	ND	358	ug/kg	11/23/2010	U
2-Chloronaphthalene	ND	358	ug/kg	11/23/2010	U
2-Chlorophenol	ND	358	ug/kg	11/23/2010	U
2-Methylnaphthalene	ND	358	ug/kg	11/23/2010	U
2-Methylphenol	ND	358	ug/kg	11/23/2010	U
2-Nitroaniline	ND	358	ug/kg	11/23/2010	U
2-Nitrophenol	ND	358	ug/kg	11/23/2010	U
3,3'-Dichlorobenzidine	ND	358	ug/kg	11/23/2010	U
3-Nitroaniline	ND	358	ug/kg	11/23/2010	U
4,6-Dinitro-2-methylphenol	ND	358	ug/kg	11/23/2010	U
4-Bromophenyl-phenylether	ND	358	ug/kg	11/23/2010	U
4-Chloro-3-methylphenol	ND	358	ug/kg	11/23/2010	U
4-Chloroaniline	ND	358	ug/kg	11/23/2010	U
4-Chlorophenyl-phenylether	ND	358	ug/kg	11/23/2010	U
4-Methylphenol	ND	358	ug/kg	11/23/2010	U
4-Nitroaniline	ND	358	ug/kg	11/23/2010	U
4-Nitrophenol	ND	358	ug/kg	11/23/2010	U
Acenaphthene	1930	358	ug/kg	11/23/2010	
Acenaphthylene	ND	358	ug/kg	11/23/2010	U
Acetophenone	ND	358	ug/kg	11/23/2010	U
Anthracene	1420	358	ug/kg	11/23/2010	
Atrazine	ND	358	ug/kg	11/23/2010	U

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CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C1
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19849 **NEA LRF:** 10110128-01
DATE SAMPLED: 11/15/2010 **TIME:** 11:45
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
Benzaldehyde	ND	358	ug/kg	11/23/2010	U
Benzo(a)anthracene	1670	358	ug/kg	11/23/2010	
Benzo(a)pyrene	1040	358	ug/kg	11/23/2010	
Benzo(b)fluoranthene	1270	358	ug/kg	11/23/2010	
Benzo(g,h,i)perylene	421	358	ug/kg	11/23/2010	
Benzo(k)fluoranthene	445	358	ug/kg	11/23/2010	
bis(2-chloroethoxy)methane	ND	358	ug/kg	11/23/2010	U
Bis(2-chloroethyl)ether	ND	358	ug/kg	11/23/2010	U
bis(2-Chloroisopropyl)ether	ND	358	ug/kg	11/23/2010	U
bis(2-Ethylhexyl)phthalate	446	358	ug/kg	11/23/2010	
Butylbenzylphthalate	ND	358	ug/kg	11/23/2010	U
Caprolactam	ND	358	ug/kg	11/23/2010	U
Carbazole	803	358	ug/kg	11/23/2010	
Chrysene	1430	358	ug/kg	11/23/2010	
Di-n-butylphthalate	ND	358	ug/kg	11/23/2010	U
Di-n-octylphthalate	ND	358	ug/kg	11/23/2010	U
Dibenz(a,h)anthracene	ND	358	ug/kg	11/23/2010	U
Dibenzofuran	779	358	ug/kg	11/23/2010	
Diethylphthalate	ND	358	ug/kg	11/23/2010	U
Dimethylphthalate	ND	358	ug/kg	11/23/2010	U
Fluoranthene	8010	1790	ug/kg	11/23/2010	
Fluorene	1090	358	ug/kg	11/23/2010	
Hexachlorobenzene	ND	358	ug/kg	11/23/2010	U
Hexachlorobutadiene	ND	358	ug/kg	11/23/2010	U
Hexachlorocyclopentadiene	ND	358	ug/kg	11/23/2010	U
Hexachloroethane	ND	358	ug/kg	11/23/2010	U
Indeno(1,2,3-cd)pyrene	384	358	ug/kg	11/23/2010	
Isophorone	ND	358	ug/kg	11/23/2010	U
N-Nitroso-di-n-propylamine	ND	358	ug/kg	11/23/2010	U

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APEX COMPANIES LLC
120-D WILBUR PLACE
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Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

CUSTOMER ID: SSP-20-C1

MATRIX: SOIL

DATE RECEIVED: 11/16/2010 **TIME:** 17:45

SAMPLED BY: R. BENNETT

CUSTOMER PO: N/A

NEA ID: AN19849 **NEA LRF:** 10110128-01

DATE SAMPLED: 11/15/2010 **TIME:** 11:45

PROJECT: 85185.003

LOCATION:

LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
N-Nitrosodiphenylamine	ND	358	ug/kg	11/23/2010	U
Naphthalene	ND	358	ug/kg	11/23/2010	U
Nitrobenzene	ND	358	ug/kg	11/23/2010	U
Pentachlorophenol	ND	358	ug/kg	11/23/2010	U
Phenanthrene	6960	1790	ug/kg	11/23/2010	
Phenol	ND	358	ug/kg	11/23/2010	U
Pyrene	4230	358	ug/kg	11/23/2010	

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

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Pace Analytical Services, Inc.
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CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C2
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19850 **NEA LRF:** 10110128-02
DATE SAMPLED: 11/15/2010 **TIME:** 13:35
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
1,1'-Biphenyl	ND	358	ug/kg	11/23/2010	U
2,4,5-Trichlorophenol	ND	358	ug/kg	11/23/2010	U
2,4,6-Trichlorophenol	ND	358	ug/kg	11/23/2010	U
2,4-Dichlorophenol	ND	358	ug/kg	11/23/2010	U
2,4-Dimethylphenol	ND	358	ug/kg	11/23/2010	U
2,4-Dinitrophenol	ND	358	ug/kg	11/23/2010	U
2,4-Dinitrotoluene	ND	358	ug/kg	11/23/2010	U
2,6-Dinitrotoluene	ND	358	ug/kg	11/23/2010	U
2-Chloronaphthalene	ND	358	ug/kg	11/23/2010	U
2-Chlorophenol	ND	358	ug/kg	11/23/2010	U
2-Methylnaphthalene	ND	358	ug/kg	11/23/2010	U
2-Methylphenol	ND	358	ug/kg	11/23/2010	U
2-Nitroaniline	ND	358	ug/kg	11/23/2010	U
2-Nitrophenol	ND	358	ug/kg	11/23/2010	U
3,3'-Dichlorobenzidine	ND	358	ug/kg	11/23/2010	U
3-Nitroaniline	ND	358	ug/kg	11/23/2010	U
4,6-Dinitro-2-methylphenol	ND	358	ug/kg	11/23/2010	U
4-Bromophenyl-phenylether	ND	358	ug/kg	11/23/2010	U
4-Chloro-3-methylphenol	ND	358	ug/kg	11/23/2010	U
4-Chloroaniline	ND	358	ug/kg	11/23/2010	U
4-Chlorophenyl-phenylether	ND	358	ug/kg	11/23/2010	U
4-Methylphenol	ND	358	ug/kg	11/23/2010	U
4-Nitroaniline	ND	358	ug/kg	11/23/2010	U
4-Nitrophenol	ND	358	ug/kg	11/23/2010	U
Acenaphthene	1980	358	ug/kg	11/23/2010	
Acenaphthylene	ND	358	ug/kg	11/23/2010	U
Acetophenone	ND	358	ug/kg	11/23/2010	U
Anthracene	2080	358	ug/kg	11/23/2010	
Atrazine	ND	358	ug/kg	11/23/2010	U

CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C2
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19850 **NEA LRF:** 10110128-02
DATE SAMPLED: 11/15/2010 **TIME:** 13:35
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
Benzaldehyde	ND	358	ug/kg	11/23/2010	U
Benzo(a)anthracene	1990	358	ug/kg	11/23/2010	
Benzo(a)pyrene	1200	358	ug/kg	11/23/2010	
Benzo(b)fluoranthene	1530	358	ug/kg	11/23/2010	
Benzo(g,h,i)perylene	518	358	ug/kg	11/23/2010	
Benzo(k)fluoranthene	696	358	ug/kg	11/23/2010	
bis(2-chloroethoxy)methane	ND	358	ug/kg	11/23/2010	U
Bis(2-chloroethyl)ether	ND	358	ug/kg	11/23/2010	U
bis(2-Chloroisopropyl)ether	ND	358	ug/kg	11/23/2010	U
bis(2-Ethylhexyl)phthalate	592	358	ug/kg	11/23/2010	
Butylbenzylphthalate	ND	358	ug/kg	11/23/2010	U
Caprolactam	ND	358	ug/kg	11/23/2010	U
Carbazole	1140	358	ug/kg	11/23/2010	
Chrysene	1730	358	ug/kg	11/23/2010	
Di-n-butylphthalate	ND	358	ug/kg	11/23/2010	U
Di-n-octylphthalate	ND	358	ug/kg	11/23/2010	U
Dibenz(a,h)anthracene	ND	358	ug/kg	11/23/2010	U
Dibenzofuran	716	358	ug/kg	11/23/2010	
Diethylphthalate	ND	358	ug/kg	11/23/2010	U
Dimethylphthalate	ND	358	ug/kg	11/23/2010	U
Fluoranthene	7740	1790	ug/kg	11/23/2010	
Fluorene	1090	358	ug/kg	11/23/2010	
Hexachlorobenzene	ND	358	ug/kg	11/23/2010	U
Hexachlorobutadiene	ND	358	ug/kg	11/23/2010	U
Hexachlorocyclopentadiene	ND	358	ug/kg	11/23/2010	U
Hexachloroethane	ND	358	ug/kg	11/23/2010	U
Indeno(1,2,3-cd)pyrene	481	358	ug/kg	11/23/2010	
Isophorone	ND	358	ug/kg	11/23/2010	U
N-Nitroso-di-n-propylamine	ND	358	ug/kg	11/23/2010	U

NEA Laboratory, Division of
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Phone: 518.346.4592
Fax: 518.381.6055

CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID:	SSP-20-C2	**NEA ID:** AN19850	**NEA LRF:** 10110128-02
MATRIX:	SOIL	**DATE SAMPLED:** 11/15/2010	**TIME:** 13:35
DATE RECEIVED:	11/16/2010 **TIME:** 17:45	**PROJECT:** 85185.003	
SAMPLED BY:	R. BENNETT	**LOCATION:**	
CUSTOMER PO:	N/A	**LAB ELAP#:** 11078	

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
N-Nitrosodiphenylamine	ND	358	ug/kg	11/23/2010	U
Naphthalene	ND	358	ug/kg	11/23/2010	U
Nitrobenzene	ND	358	ug/kg	11/23/2010	U
Pentachlorophenol	ND	358	ug/kg	11/23/2010	U
Phenanthrene	5810	1790	ug/kg	11/23/2010	
Phenol	ND	358	ug/kg	11/23/2010	U
Pyrene	4280	358	ug/kg	11/23/2010	

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

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Phone: 518.346.4592
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CERTIFICATE OF ANALYSIS

11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C1
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19849 **NEA LRF:** 10110128-01
DATE SAMPLED: 11/15/2010 **TIME:** 11:45
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	METHOD	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
Mercury	SW-846 7471A	0.124	0.0210	mg/kg	11/19/2010	
Aluminum	SW-846 6010B	5830	5.47	mg/kg	11/22/2010	
Antimony	SW-846 6010B	ND	5.27	mg/kg	11/22/2010	U
Arsenic	SW-846 6010B	7.38	3.45	mg/kg	11/22/2010	
Barium	SW-846 6010B	54.5	0.206	mg/kg	11/22/2010	
Beryllium	SW-846 6010B	ND	0.527	mg/kg	11/22/2010	U
Cadmium	SW-846 6010B	0.497	0.209	mg/kg	11/22/2010	
Calcium	SW-846 6010B	3500	41.4	mg/kg	11/22/2010	
Chromium	SW-846 6010B	14.1	1.05	mg/kg	11/22/2010	
Cobalt	SW-846 6010B	7.22	0.424	mg/kg	11/22/2010	
Copper	SW-846 6010B	45.9	0.980	mg/kg	11/22/2010	
Iron	SW-846 6010B	11500	4.24	mg/kg	11/22/2010	B
Lead	SW-846 6010B	74.0	4.22	mg/kg	11/22/2010	
Magnesium	SW-846 6010B	1740	5.88	mg/kg	11/22/2010	
Manganese	SW-846 6010B	287	1.05	mg/kg	11/22/2010	
Nickel	SW-846 6010B	16.1	0.936	mg/kg	11/22/2010	
Potassium	SW-846 6010B	768	3.26	mg/kg	11/22/2010	
Selenium	SW-846 6010B	ND	4.22	mg/kg	11/22/2010	U
Silver	SW-846 6010B	1.82	1.16	mg/kg	11/22/2010	
Sodium	SW-846 6010B	193	12.0	mg/kg	11/22/2010	B
Thallium	SW-846 6010B	ND	2.11	mg/kg	11/22/2010	U
Vanadium	SW-846 6010B	15.1	0.857	mg/kg	11/22/2010	
Zinc	SW-846 6010B	87.6	0.443	mg/kg	11/22/2010	B

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director

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Phone: 518.346.4592
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CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C2
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19850 **NEA LRF:** 10110128-02
DATE SAMPLED: 11/15/2010 **TIME:** 13:35
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	METHOD	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
Mercury	SW-846 7471A	0.121	0.0209	mg/kg	11/19/2010	
Aluminum	SW-846 6010B	5900	5.74	mg/kg	11/22/2010	
Antimony	SW-846 6010B	ND	5.53	mg/kg	11/22/2010	U
Arsenic	SW-846 6010B	8.44	3.61	mg/kg	11/22/2010	
Barium	SW-846 6010B	57.6	0.216	mg/kg	11/22/2010	
Beryllium	SW-846 6010B	ND	0.553	mg/kg	11/22/2010	U
Cadmium	SW-846 6010B	0.491	0.219	mg/kg	11/22/2010	
Calcium	SW-846 6010B	6510	43.4	mg/kg	11/22/2010	
Chromium	SW-846 6010B	14.4	1.11	mg/kg	11/22/2010	
Cobalt	SW-846 6010B	7.43	0.444	mg/kg	11/22/2010	
Copper	SW-846 6010B	41.8	1.03	mg/kg	11/22/2010	
Iron	SW-846 6010B	12400	4.44	mg/kg	11/22/2010	B
Lead	SW-846 6010B	71.4	4.42	mg/kg	11/22/2010	
Magnesium	SW-846 6010B	2030	6.17	mg/kg	11/22/2010	
Manganese	SW-846 6010B	648	1.11	mg/kg	11/22/2010	
Nickel	SW-846 6010B	13.9	0.982	mg/kg	11/22/2010	
Potassium	SW-846 6010B	815	3.42	mg/kg	11/22/2010	
Selenium	SW-846 6010B	ND	4.42	mg/kg	11/22/2010	U
Silver	SW-846 6010B	1.78	1.22	mg/kg	11/22/2010	
Sodium	SW-846 6010B	221	12.6	mg/kg	11/22/2010	B
Thallium	SW-846 6010B	ND	2.21	mg/kg	11/22/2010	U
Vanadium	SW-846 6010B	15.9	0.899	mg/kg	11/22/2010	
Zinc	SW-846 6010B	85.2	0.464	mg/kg	11/22/2010	B

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director

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2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

CERTIFICATE OF ANALYSIS

11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C1
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19849 **NEA LRF:** 10110128-01
DATE SAMPLED: 11/15/2010 **TIME:** 11:45
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 8082 (PCB)					
Aroclor 1016	ND	0.0515	ug/g	11/19/2010	U
Aroclor 1221	ND	0.0515	ug/g	11/19/2010	U
Aroclor 1232	ND	0.0515	ug/g	11/19/2010	U
Aroclor 1242	ND	0.0515	ug/g	11/19/2010	U
Aroclor 1248	0.0679	0.0515	ug/g	11/19/2010	PE
Aroclor 1254	0.172	0.0515	ug/g	11/19/2010	AF
Aroclor 1260	ND	0.0515	ug/g	11/19/2010	U
Aroclor 1262	ND	0.0515	ug/g	11/19/2010	U
Aroclor 1268	ND	0.0515	ug/g	11/19/2010	U
Total PCB Amount > RL	0.2399				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
AF-Aroclor 1254 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.
PE-Aroclor 1248 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1248 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.
Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

NEA
PaceAnalytical®

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11/24/2010
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120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

NEA Laboratory, Division of
Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

CUSTOMER ID: SSP-20-C2
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19850 **NEA LRF:** 10110128-02
DATE SAMPLED: 11/15/2010 **TIME:** 13:35
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 8082 (PCB)					
Aroclor 1016	ND	0.0532	ug/g	11/19/2010	U
Aroclor 1221	ND	0.0532	ug/g	11/19/2010	U
Aroclor 1232	ND	0.0532	ug/g	11/19/2010	U
Aroclor 1242	ND	0.0532	ug/g	11/19/2010	U
Aroclor 1248	0.0653	0.0532	ug/g	11/19/2010	PE
Aroclor 1254	0.137	0.0532	ug/g	11/19/2010	AF
Aroclor 1260	ND	0.0532	ug/g	11/19/2010	U
Aroclor 1262	ND	0.0532	ug/g	11/19/2010	U
Aroclor 1268	ND	0.0532	ug/g	11/19/2010	U
Total PCB Amount > RL	0.2023				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
AF-Aroclor 1254 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.
PE-Aroclor 1248 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1248 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.
Note: There were several non-target peaks.

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CERTIFICATE OF ANALYSIS

11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C1
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19849 **NEA LRF:** 10110128-01
DATE SAMPLED: 11/15/2010 **TIME:** 11:45
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 Method 8081, Pesticides					
Aldrin	ND	0.00265	ug/g	11/20/2010	U
alpha Chlordane	0.0115	0.00265	ug/g	11/20/2010	
alpha-BHC	ND	0.00265	ug/g	11/20/2010	U
beta-BHC	ND	0.00265	ug/g	11/20/2010	U
delta-BHC	ND	0.00265	ug/g	11/20/2010	U
Dieldrin	ND	0.00265	ug/g	11/20/2010	U
Endosulfan I	ND	0.00265	ug/g	11/20/2010	U
Endosulfan II	ND	0.00265	ug/g	11/20/2010	U
Endosulfan sulfate	ND	0.00265	ug/g	11/20/2010	U
Endrin	ND	0.00265	ug/g	11/20/2010	U
Endrin aldehyde	ND	0.00265	ug/g	11/20/2010	U
Endrin ketone	ND	0.00265	ug/g	11/20/2010	U
gamma Chlordane	0.0151	0.00265	ug/g	11/20/2010	Z
gamma-BHC	ND	0.00265	ug/g	11/20/2010	U
Heptachlor	ND	0.00265	ug/g	11/20/2010	U
Heptachlor epoxide	ND	0.00265	ug/g	11/20/2010	U
Methoxychlor	ND	0.00265	ug/g	11/20/2010	U
p,p'-DDD	0.0210	0.00265	ug/g	11/20/2010	
p,p'-DDE	0.00616	0.00265	ug/g	11/20/2010	Z
p,p'-DDT	0.00624	0.00265	ug/g	11/20/2010	Z
Toxaphene	ND	0.265	ug/g	11/20/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
Z - Laboratory Reserved Qualifier (explained in associated Case Narrative)
Note: There were many non-target peaks.

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CERTIFICATE OF ANALYSIS
11/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICH BALDWIN

CUSTOMER ID: SSP-20-C2
MATRIX: SOIL
DATE RECEIVED: 11/16/2010 **TIME:** 17:45
SAMPLED BY: R. BENNETT
CUSTOMER PO: N/A

NEA ID: AN19850 **NEA LRF:** 10110128-02
DATE SAMPLED: 11/15/2010 **TIME:** 13:35
PROJECT: 85185.003
LOCATION:
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 Method 8081, Pesticides					
Aldrin	ND	0.00269	ug/g	11/20/2010	U
alpha Chlordane	0.00820	0.00269	ug/g	11/20/2010	
alpha-BHC	ND	0.00269	ug/g	11/20/2010	U
beta-BHC	ND	0.00269	ug/g	11/20/2010	U
delta-BHC	ND	0.00269	ug/g	11/20/2010	U
Dieldrin	ND	0.00269	ug/g	11/20/2010	U
Endosulfan I	ND	0.00269	ug/g	11/20/2010	U
Endosulfan II	ND	0.00269	ug/g	11/20/2010	U
Endosulfan sulfate	ND	0.00269	ug/g	11/20/2010	U
Endrin	ND	0.00269	ug/g	11/20/2010	U
Endrin aldehyde	ND	0.00269	ug/g	11/20/2010	U
Endrin ketone	ND	0.00269	ug/g	11/20/2010	U
gamma Chlordane	0.0116	0.00269	ug/g	11/20/2010	Z
gamma-BHC	ND	0.00269	ug/g	11/20/2010	U
Heptachlor	ND	0.00269	ug/g	11/20/2010	U
Heptachlor epoxide	ND	0.00269	ug/g	11/20/2010	U
Methoxychlor	ND	0.00269	ug/g	11/20/2010	U
p,p'-DDD	0.0186	0.00269	ug/g	11/20/2010	
p,p'-DDE	0.00542	0.00269	ug/g	11/20/2010	Z
p,p'-DDT	0.0132	0.00269	ug/g	11/20/2010	Z
Toxaphene	ND	0.269	ug/g	11/20/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
Z - Laboratory Reserved Qualifier (explained in associated Case Narrative)
Note: There were many non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

Soil Stockpile No. 13
DER-10 Analytical Results for TCL VOCs
Glen Cove Ferry Terminal Project

		Soil Stockpile Representative Samples					QA / QC Samples	
	NY-Restricted Use	SSP-13-VOC-1	SSP-13-VOC-2	SSP-13-VOC-3	SSP-13-VOC-4	SSP-13-VOC-5	TBV-12-1	TBV-13-2
TCL VOCs	Commercial Criteria	8/13/2010	8/13/2010	8/13/2010	8/24/2010	8/25/2010	8/13/2010	8/25/2010
1,1,1-Trichloroethane	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,1,2,2-Tetrachloroethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,1,2-Trichloro-1,2,2-trifluoroethane*	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,1,2-Trichloroethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,1-Dichloroethane	240	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,1-Dichloroethene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,2-Dibromo-3-chloropropane*	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,2-Dibromoethane*	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,2-Dichlorobenzene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,2-Dichloroethane	30	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,2-Dichloropropane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,3-Dichlorobenzene	280	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
1,4-Dichlorobenzene	130	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
2-Butanone (MEK)	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00319	1.00 U	1.00 U
2-Hexanone	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
4-Methyl-2-pentanone	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Acetone	500	0.0107 U	0.0118 U	0.0111 U	0.0109 U	0.0222	5.00 U	5.00 U
Benzene	44	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Bromodichloromethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Bromoform	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Bromomethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Carbon disulfide	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Carbon tetrachloride	22	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Chlorobenzene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Chloroethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Chloroform	350	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Chloromethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
cis-1,2-Dichloroethene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
cis-1,3-Dichloropropene	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Cyclohexane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Dibromochloromethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Dichlorodifluoromethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Ethylbenzene	390	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Isopropylbenzene	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
m&p-Xylene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Methyl acetate*	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Methyl tert-butyl ether	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Methylcyclohexane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Methylene chloride	500	0.0107 U	0.0118 U	0.0111 U	0.0109 U	0.0116 U	1.00 U	1.00 U
o-Xylene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Styrene*	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Tetrachloroethene	150	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Toluene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	500	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Trichloroethene	200	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Trichlorofluoromethane	--	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U
Vinyl chloride	13	0.00214 U	0.00237 U	0.00222 U	0.00218 U	0.00232 U	1.00 U	1.00 U

1. Soil results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All VOC samples were analyzed by US EPA Method 8260 for TCL VOCs.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).
4. -- = Regulatory Guidance Value is not available.
5. Trip Blank results in micrograms per liter (ug/l) unless otherwise noted.

* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

Soil Stockpile No. 13
DER-10 Analytical Results for TCL SVOCs
Glen Cove Ferry Terminal Project

		Composite Samples	
	NY-Restricted Use	SSP-13-C-1	SSP-13-C-2
TCL SVOCs	Commercial Criteria	8/13/2010	8/25/2010
1,1'-Biphenyl*	--	0.354 U	0.397 U
2,4,5-Trichlorophenol	--	0.354 U	0.397 U
2,4,6-Trichlorophenol	--	0.354 U	0.397 U
2,4-Dichlorophenol	--	0.354 U	0.397 U
2,4-Dimethylphenol	--	0.354 U	0.397 U
2,4-Dinitrophenol	--	0.354 U	0.397 U
2,4-Dinitrotoluene	--	0.354 U	0.397 U
2,6-Dinitrotoluene	--	0.354 U	0.397 U
2-Chloronaphthalene	--	0.354 U	0.397 U
2-Chlorophenol	--	0.354 U	0.397 U
2-Methylnaphthalene	--	0.354 U	0.397 U
2-Methylphenol	--	0.354 U	0.397 U
2-Nitroaniline	--	0.354 U	0.397 U
2-Nitrophenol	--	0.354 U	0.397 U
3,3'-Dichlorobenzidine	--	0.354 U	0.397 U
3-Nitroaniline	--	0.354 U	0.397 U
4,6-Dinitro-2-methylphenol	--	0.354 U	0.397 U
4-Bromophenyl-phenylether	--	0.354 U	0.397 U
4-Chloro-3-methylphenol	--	0.354 U	0.397 U
4-Chloroaniline	--	0.354 U	0.397 U
4-Chlorophenyl-phenylether	--	0.354 U	0.397 U
4-Methylphenol	--	0.354 U	0.397 U
4-Nitroaniline	--	0.354 U	0.397 U
4-Nitrophenol	--	0.354 U	0.397 U
Acenaphthene	500	0.354 U	0.397 U
Acenaphthylene	500	0.354 U	0.397 U
Acetophenone*	--	0.354 U	0.397 U
Anthracene	500	0.354 U	0.397 U
Atrazine*	--	0.354 U	0.397 U
Benzaldehyde*	--	0.354 U	0.397 U
Benzo(a)anthracene	5.6	0.354 U	0.398
Benzo(a)pyrene	1	0.354 U	0.397 U
Benzo(b)fluoranthene	5.6	0.354 U	0.426
Benzo(g,h,i)perylene	500	0.354 U	0.397 U
Benzo(k)fluoranthene	56	0.354 U	0.397 U
bis(2-chloroethoxy)methane	--	0.354 U	0.397 U
Bis(2-chloroethyl)ether	--	0.354 U	0.397 U
bis(2-Chloroisopropyl)ether	--	0.354 U	0.397 U
bis(2-Ethylhexyl)phthalate	--	0.354 U	0.397 U
Butylbenzylphthalate	--	0.354 U	0.397 U
Caprolactam*	--	0.354 U	0.397 U
Carbazole	--	0.354 U	0.397 U
Chrysene	56	0.354 U	0.397 U
Di-n-butylphthalate	--	0.354 U	0.397 U
Di-n-octylphthalate	--	0.354 U	0.397 U
Dibenz(a,h)anthracene	0.56	0.354 U	0.397 U
Dibenzofuran	350	0.354 U	0.397 U
Diethylphthalate	--	0.354 U	0.397 U
Dimethylphthalate	--	0.354 U	0.397 U
Fluoranthene	500	0.354 U	0.720
Fluorene	500	0.354 U	0.397 U
Hexachlorobenzene	6	0.354 U	0.397 U
Hexachlorobutadiene	--	0.354 U	0.397 U
Hexachlorocyclopentadiene	--	0.354 U	0.397 U
Hexachloroethane	--	0.354 U	0.397 U
Indeno(1,2,3-cd)pyrene	5.6	0.354 U	0.397 U
Isophorone	--	0.354 U	0.397 U
N-Nitroso-di-n-propylamine	--	0.354 U	0.397 U
N-Nitrosodiphenylamine	--	0.354 U	0.397 U
Naphthalene	500	0.354 U	0.397 U
Nitrobenzene	--	0.354 U	0.397 U
Pentachlorophenol	6.7	0.354 U	0.397 U
Phenanthrene	500	0.354 U	0.569
Phenol	500	0.354 U	0.397 U
Pyrene	500	0.354 U	0.550

Notes:

1. All results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All SVOC samples were analyzed by US EPA Method 8270 for TCL SVOCs.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).

* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8270 analysis protocols are not explicitly employed for reporting these analytes.

Soil Stockpile No. 13
DER-10 Analytical Results for TAL Metals
Glen Cove Ferry Terminal Project

TAL Metals	NY-Restricted Use Commercial Criteria	Composite Samples SSP-13-C-1 8/13/2010	 SSP-13-C-2 8/25/2010
Aluminum	--	3,660	8,080
Antimony	--	5.21 U	5.89 U
Arsenic	16	4.23	8.37
Barium	400	20.4	63.5
Beryllium	590	0.214	0.589 U
Cadmium	9.3	0.223	0.336
Calcium	--	1,320	6,630
Chromium	1,500	7.60	16.9
Cobalt	--	3.68	11.9
Copper	270	27.1	35.5
Iron	--	11,000	21,500
Lead	1,000	53.6	67.2
Magnesium	--	609	4,190
Manganese	10,000	124	596
Nickel	310	8.12	16.3
Potassium	--	273	1,270
Selenium	1,500	4.17 U	4.71 U
Silver	1,500	1.15 U	1.76
Sodium	--	29.3	713
Thallium	--	2.09 U	2.36 U
Vanadium	--	9.41	19.9
Zinc	10,000	53.6 B	63.8 B
Mercury	2.8	0.0613	0.113

Notes:

1. All results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All Inorganic samples were analyzed by SW 846 6010B for TCL Inorganic.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).
4. B = Parameter detected in the Method Blank above the MDL.
5. -- = Regulatory Guidance Value is not available.
6. The total chromium data are compared to the trivalent chomium SCO.

Soil Stockpile No. 13
DER-10 Analytical Results for TCL PCBs and TCL Pesticides
Glen Cove Ferry Terminal Project

PCB's	NY-Restricted Use Commercial Criteria	Composite Samples	
		SSP-13-C-1 8/13/2010	SSP-13-C-2 8/25/2010
Aroclor 1016	1	0.0522 U	0.0582 U
Aroclor 1221	1	0.0522 U	0.0582 U
Aroclor 1232	1	0.0522 U	0.0582 U
Aroclor 1242	1	0.0522 U	0.0582 U
Aroclor 1248	1	0.0522 U	0.0582 U
Aroclor 1254	1	0.137 AF	0.0582 U
Aroclor 1260	1	0.0522 U	0.0582 U
Aroclor 1262	1	0.0522 U	0.0582 U
Aroclor 1268	1	0.0522 U	0.0582 U
Total PCB Amount > RL	1	0.137	0.0582 U
Pesticides			
Aldrin	0.68	0.00264 U	0.00291 U
alpha Chlordane	24	0.00417	0.00874
alpha-BHC	3.4	0.00264 U	0.00291 U
beta-BHC	3.0	0.00264 U	0.00291 U
delta-BHC	500	0.00264 U	0.00291 U
Dieldrin	1.4	0.00264 U	0.00291 U
Endosulfan I	200	0.00264 U	0.00291 U
Endosulfan II	200	0.00264 U	0.00291 U
Endosulfan sulfate	200	0.00264 U	0.00291 U
Endrin	89	0.00264 U	0.00291 U
Endrin aldehyde	--	0.00264 U	0.00291 U
Endrin ketone	--	0.00264 U	0.00291 U
gamma Chlordane	--	0.00491 Z	0.0115
gamma-BHC (Lindane)	9.2	0.00264 U	0.00291 U
Heptachlor	15	0.00264 U	0.00291 U
Heptachlor epoxide	--	0.00264 U	0.00291 U
Methoxychlor	--	0.00264 U	0.00291 U
p,p'-DDD	92	0.00390	0.00291 U
p,p'-DDE	62	0.00294 Z	0.00291 U
p,p'-DDT	47	0.00524 Z	0.00291 U
Toxaphene	--	0.264 U	0.291 U

Notes:

1. All results in milligrams per kilogram (mg/kg) unless otherwise noted.
2. All samples were analyzed by SW-846 8081 for Pesticides.
3. U = Parameter not detected at or above the Method Detection Limit (MDL).
4. B = Parameter detected in the Method Blank above the MDL.
5. -- = Regulatory Guidance Value is not available.
6. AF = Aroclor 1254 is being reported at the best Aroclor match. The sample exhibits an altered PCB pattern.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NORTHEAST ANALYTICAL, INC.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.nealab.com information @nealab.com

LRF # <10080144P1>
100801441

DISPOSAL REQUIREMENTS: (To be filled in by Client)
○ RETURN TO CLIENT
☒ DISPOSAL BY NORTHEAST ANALYTICAL
○ ARCHIVAL BY NORTHEAST ANALYTICAL
Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): Apex Co.
PROJECT#/PROJECT NAME: 85185.004
PROJECT MANAGER: Rich Baldwin
PROJECT LOCATION (CITY/STATE) ADDRESS: 73 Garvies Point RD Glen Cove NY
PHONE: 631 567 1777
SAMPLED BY: (Please Print) Evan Renwick
REQUIRED TURN AROUND TIME: Standard
SAMPLING FIRM: Apex Co.
NAME OF COURIER (IF USED):
Data Report: ☒ CLP* ☐ Certificates Only
ELECTRONIC RESULTS FORMAT: .PDF ☐ ~~EXCEL~~ (CSV) ☒
E-MAIL ADDRESS:
FAXED RESULTS ☐ FAX #:

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

						PRESERVATIVE CODE:	0	1						PRESERVATIVE KEY
						BOTTLE TYPE:	glass	glass						0 - NONE
						BOTTLE SIZE:	2oz	40mL						1 - HCL
														2 - HNO3 3 - H2SO4 4 - NaOH 5 - Zn. Acetate 6 - MeOH 7 - NaHSO4 8 - Other
SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (NEA USE ONLY)	NUMBER OF CONTAINERS	TCL VOCs	TCL VOCs	KGB	10-20-10				REMARKS:
~~SSP-12-VOC-1~~	~~8/13/10~~	~~0800~~	~~soil~~	~~G~~	~~AN11114~~	~~1~~	~~✓~~							
TBV-12-1	↓	0900	water	G	AN11115	2		✓						Trip blank
SSP-12-voc-2	↓	0840	soil	↓	AN11116	1	✓							
SSP-12-voc-3	↓	1040	↓	↓	AN11117	1	✓			KGB				
SSP-~~12-voc-4~~	↓	1130	↓	↓	AN11118	1	✓			10-20-10				
SSP-12-voc-5	↓	1200	↓	↓	AN11119	1	✓							
SSP-13-voc-1	↓	1350	↓	↓	AN11120	1	✓							
SSP-13-voc-2	↓	1430	↓	↓	AN11121	1	✓							
SSP-13-voc-3	↓	1515	↓	↓	AN11122.	1	✓							

AMBIENT OR [✓ CHILLED] (ice) TEMP: 2.6°C COC TAPE: Y [✓ N] PROPERLY PRESERVED: [✓ Y] N OTHER NOTES:
RECEIVED BROKEN OR LEAKING: Y [✓ N] COC DISCREPANCIES: Y [✓ N] RECVD W/I HOLDING TIMES: [✓ Y] N

	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE		Martin Rowan	Martin Rowan			
PRINTED NAME	Evan Renwick	Martin Rowan	Martin Rowan	J. Conyea		
COMPANY	Apex Co.	NEA	NEA	NEA		
DATE/TIME	8/13/10 1830	8-13-10 18:30	8-16-10 09:35	8/16/10 9:35		

* CLP LIKE DATA PACKAGE ADDITIONAL COST NYDEC CAT B

S:\ADMIN\COC FORM 01.XLS (Revised July 1, 2005)

CERTIFICATE OF ANALYSIS
08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: TBV-12-1
MATRIX: WATER
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11115 **NEA LRF:** 10080144-02
DATE SAMPLED: 08/13/2010 **TIME:** 09:00
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	1.00	ug/L	08/17/2010	U
1,1,2,2-Tetrachloroethane	ND	1.00	ug/L	08/17/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane*	ND	1.00	ug/L	08/17/2010	U
1,1,2-Trichloroethane	ND	1.00	ug/L	08/17/2010	U
1,1-Dichloroethane	ND	1.00	ug/L	08/17/2010	U
1,1-Dichloroethene	ND	1.00	ug/L	08/17/2010	U
1,2,4-Trichlorobenzene	ND	1.00	ug/L	08/17/2010	U
1,2-Dibromo-3-chloropropane*	ND	1.00	ug/L	08/17/2010	U
1,2-Dibromoethane*	ND	1.00	ug/L	08/17/2010	U
1,2-Dichlorobenzene	ND	1.00	ug/L	08/17/2010	U
1,2-Dichloroethane	ND	1.00	ug/L	08/17/2010	U
1,2-Dichloropropane	ND	1.00	ug/L	08/17/2010	U
1,3-Dichlorobenzene	ND	1.00	ug/L	08/17/2010	U
1,4-Dichlorobenzene	ND	1.00	ug/L	08/17/2010	U
2-Butanone	ND	1.00	ug/L	08/17/2010	U
2-Hexanone	ND	1.00	ug/L	08/17/2010	U
4-Methyl-2-pentanone	ND	1.00	ug/L	08/17/2010	U
Acetone	ND	5.00	ug/L	08/17/2010	U
Benzene	ND	1.00	ug/L	08/17/2010	U
Bromodichloromethane	ND	1.00	ug/L	08/17/2010	U
Bromoform	ND	1.00	ug/L	08/17/2010	U
Bromomethane	ND	1.00	ug/L	08/17/2010	U
Carbon disulfide	ND	1.00	ug/L	08/17/2010	U
Carbon tetrachloride	ND	1.00	ug/L	08/17/2010	U
Chlorobenzene	ND	1.00	ug/L	08/17/2010	U
Chloroethane	ND	1.00	ug/L	08/17/2010	U
Chloroform	ND	1.00	ug/L	08/17/2010	U
Chloromethane	ND	1.00	ug/L	08/17/2010	U
cis-1,2-Dichloroethene	ND	1.00	ug/L	08/17/2010	U

CERTIFICATE OF ANALYSIS
08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: TBV-12-1
MATRIX: WATER
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11115 **NEA LRF:** 10080144-02
DATE SAMPLED: 08/13/2010 **TIME:** 09:00
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	1.00	ug/L	08/17/2010	U
Cyclohexane	ND	1.00	ug/L	08/17/2010	U
Dibromochloromethane	ND	1.00	ug/L	08/17/2010	U
Dichlorodifluoromethane	ND	1.00	ug/L	08/17/2010	U
Ethylbenzene	ND	1.00	ug/L	08/17/2010	U
Isopropylbenzene	ND	1.00	ug/L	08/17/2010	U
m&p-Xylene	ND	1.00	ug/L	08/17/2010	U
Methyl acetate*	ND	1.00	ug/L	08/17/2010	U
Methyl tert-butyl ether	ND	1.00	ug/L	08/17/2010	U
Methylcyclohexane	ND	1.00	ug/L	08/17/2010	U
Methylene chloride	ND	1.00	ug/L	08/17/2010	U
o-Xylene	ND	1.00	ug/L	08/17/2010	U
Styrene*	ND	1.00	ug/L	08/17/2010	U
Tetrachloroethene	ND	1.00	ug/L	08/17/2010	U
Toluene	ND	1.00	ug/L	08/17/2010	U
trans-1,2-Dichloroethene	ND	1.00	ug/L	08/17/2010	U
trans-1,3-Dichloropropene	ND	1.00	ug/L	08/17/2010	U
Trichloroethene	ND	1.00	ug/L	08/17/2010	U
Trichlorofluoromethane	ND	1.00	ug/L	08/17/2010	U
Vinyl chloride	ND	1.00	ug/L	08/17/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CERTIFICATE OF ANALYSIS
08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-1
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11120 **NEA LRF:** 10080144-07
DATE SAMPLED: 08/13/2010 **TIME:** 13:50
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.14	ug/kg	08/18/2010	U
1,1,2,2-Tetrachloroethane	ND	2.14	ug/kg	08/18/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane*	ND	2.14	ug/kg	08/18/2010	U
1,1,2-Trichloroethane	ND	2.14	ug/kg	08/18/2010	U
1,1-Dichloroethane	ND	2.14	ug/kg	08/18/2010	U
1,1-Dichloroethene	ND	2.14	ug/kg	08/18/2010	U
1,2,4-Trichlorobenzene	ND	2.14	ug/kg	08/18/2010	U
1,2-Dibromo-3-chloropropane*	ND	2.14	ug/kg	08/18/2010	U
1,2-Dibromoethane*	ND	2.14	ug/kg	08/18/2010	U
1,2-Dichlorobenzene	ND	2.14	ug/kg	08/18/2010	U
1,2-Dichloroethane	ND	2.14	ug/kg	08/18/2010	U
1,2-Dichloropropane	ND	2.14	ug/kg	08/18/2010	U
1,3-Dichlorobenzene	ND	2.14	ug/kg	08/18/2010	U
1,4-Dichlorobenzene	ND	2.14	ug/kg	08/18/2010	U
2-Butanone	ND	2.14	ug/kg	08/18/2010	U
2-Hexanone	ND	2.14	ug/kg	08/18/2010	U
4-Methyl-2-pentanone	ND	2.14	ug/kg	08/18/2010	U
Acetone	ND	10.7	ug/kg	08/18/2010	U
Benzene	ND	2.14	ug/kg	08/18/2010	U
Bromodichloromethane	ND	2.14	ug/kg	08/18/2010	U
Bromoform	ND	2.14	ug/kg	08/18/2010	U
Bromomethane	ND	2.14	ug/kg	08/18/2010	U
Carbon disulfide	ND	2.14	ug/kg	08/18/2010	U
Carbon tetrachloride	ND	2.14	ug/kg	08/18/2010	U
Chlorobenzene	ND	2.14	ug/kg	08/18/2010	U
Chloroethane	ND	2.14	ug/kg	08/18/2010	U
Chloroform	ND	2.14	ug/kg	08/18/2010	U
Chloromethane	ND	2.14	ug/kg	08/18/2010	U
cis-1,2-Dichloroethene	ND	2.14	ug/kg	08/18/2010	U

CERTIFICATE OF ANALYSIS
08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-1
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11120 **NEA LRF:** 10080144-07
DATE SAMPLED: 08/13/2010 **TIME:** 13:50
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.14	ug/kg	08/18/2010	U
Cyclohexane	ND	2.14	ug/kg	08/18/2010	U
Dibromochloromethane	ND	2.14	ug/kg	08/18/2010	U
Dichlorodifluoromethane	ND	2.14	ug/kg	08/18/2010	U
Ethylbenzene	ND	2.14	ug/kg	08/18/2010	U
Isopropylbenzene	ND	2.14	ug/kg	08/18/2010	U
m&p-Xylene	ND	2.14	ug/kg	08/18/2010	U
Methyl acetate*	ND	2.14	ug/kg	08/18/2010	U
Methyl tert-butyl ether	ND	2.14	ug/kg	08/18/2010	U
Methylcyclohexane	ND	2.14	ug/kg	08/18/2010	U
Methylene chloride	ND	10.7	ug/kg	08/18/2010	U
o-Xylene	ND	2.14	ug/kg	08/18/2010	U
Styrene*	ND	2.14	ug/kg	08/18/2010	U
Tetrachloroethene	ND	2.14	ug/kg	08/18/2010	U
Toluene	ND	2.14	ug/kg	08/18/2010	U
trans-1,2-Dichloroethene	ND	2.14	ug/kg	08/18/2010	U
trans-1,3-Dichloropropene	ND	2.14	ug/kg	08/18/2010	U
Trichloroethene	ND	2.14	ug/kg	08/18/2010	U
Trichlorofluoromethane	ND	2.14	ug/kg	08/18/2010	U
Vinyl chloride	ND	2.14	ug/kg	08/18/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CERTIFICATE OF ANALYSIS
08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-2
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11121 **NEA LRF:** 10080144-08
DATE SAMPLED: 08/13/2010 **TIME:** 14:30
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.37	ug/kg	08/19/2010	U
1,1,2,2-Tetrachloroethane	ND	2.37	ug/kg	08/19/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane*	ND	2.37	ug/kg	08/19/2010	U
1,1,2-Trichloroethane	ND	2.37	ug/kg	08/19/2010	U
1,1-Dichloroethane	ND	2.37	ug/kg	08/19/2010	U
1,1-Dichloroethene	ND	2.37	ug/kg	08/19/2010	U
1,2,4-Trichlorobenzene	ND	2.37	ug/kg	08/19/2010	U
1,2-Dibromo-3-chloropropane*	ND	2.37	ug/kg	08/19/2010	U
1,2-Dibromoethane*	ND	2.37	ug/kg	08/19/2010	U
1,2-Dichlorobenzene	ND	2.37	ug/kg	08/19/2010	U
1,2-Dichloroethane	ND	2.37	ug/kg	08/19/2010	U
1,2-Dichloropropane	ND	2.37	ug/kg	08/19/2010	U
1,3-Dichlorobenzene	ND	2.37	ug/kg	08/19/2010	U
1,4-Dichlorobenzene	ND	2.37	ug/kg	08/19/2010	U
2-Butanone	ND	2.37	ug/kg	08/19/2010	U
2-Hexanone	ND	2.37	ug/kg	08/19/2010	U
4-Methyl-2-pentanone	ND	2.37	ug/kg	08/19/2010	U
Acetone	ND	11.8	ug/kg	08/19/2010	U
Benzene	ND	2.37	ug/kg	08/19/2010	U
Bromodichloromethane	ND	2.37	ug/kg	08/19/2010	U
Bromoform	ND	2.37	ug/kg	08/19/2010	U
Bromomethane	ND	2.37	ug/kg	08/19/2010	U
Carbon disulfide	ND	2.37	ug/kg	08/19/2010	U
Carbon tetrachloride	ND	2.37	ug/kg	08/19/2010	U
Chlorobenzene	ND	2.37	ug/kg	08/19/2010	U
Chloroethane	ND	2.37	ug/kg	08/19/2010	U
Chloroform	ND	2.37	ug/kg	08/19/2010	U
Chloromethane	ND	2.37	ug/kg	08/19/2010	U
cis-1,2-Dichloroethene	ND	2.37	ug/kg	08/19/2010	U

CERTIFICATE OF ANALYSIS
08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-2
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11121 **NEA LRF:** 10080144-08
DATE SAMPLED: 08/13/2010 **TIME:** 14:30
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.37	ug/kg	08/19/2010	U
Cyclohexane	ND	2.37	ug/kg	08/19/2010	U
Dibromochloromethane	ND	2.37	ug/kg	08/19/2010	U
Dichlorodifluoromethane	ND	2.37	ug/kg	08/19/2010	U
Ethylbenzene	ND	2.37	ug/kg	08/19/2010	U
Isopropylbenzene	ND	2.37	ug/kg	08/19/2010	U
m&p-Xylene	ND	2.37	ug/kg	08/19/2010	U
Methyl acetate*	ND	2.37	ug/kg	08/19/2010	U
Methyl tert-butyl ether	ND	2.37	ug/kg	08/19/2010	U
Methylcyclohexane	ND	2.37	ug/kg	08/19/2010	U
Methylene chloride	ND	11.8	ug/kg	08/19/2010	U
o-Xylene	ND	2.37	ug/kg	08/19/2010	U
Styrene*	ND	2.37	ug/kg	08/19/2010	U
Tetrachloroethene	ND	2.37	ug/kg	08/19/2010	U
Toluene	ND	2.37	ug/kg	08/19/2010	U
trans-1,2-Dichloroethene	ND	2.37	ug/kg	08/19/2010	U
trans-1,3-Dichloropropene	ND	2.37	ug/kg	08/19/2010	U
Trichloroethene	ND	2.37	ug/kg	08/19/2010	U
Trichlorofluoromethane	ND	2.37	ug/kg	08/19/2010	U
Vinyl chloride	ND	2.37	ug/kg	08/19/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CERTIFICATE OF ANALYSIS

08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-3
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11122 **NEA LRF:** 10080144-09
DATE SAMPLED: 08/13/2010 **TIME:** 15:15
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.22	ug/kg	08/18/2010	U
1,1,2,2-Tetrachloroethane	ND	2.22	ug/kg	08/18/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane*	ND	2.22	ug/kg	08/18/2010	U
1,1,2-Trichloroethane	ND	2.22	ug/kg	08/18/2010	U
1,1-Dichloroethane	ND	2.22	ug/kg	08/18/2010	U
1,1-Dichloroethene	ND	2.22	ug/kg	08/18/2010	U
1,2,4-Trichlorobenzene	ND	2.22	ug/kg	08/18/2010	U
1,2-Dibromo-3-chloropropane*	ND	2.22	ug/kg	08/18/2010	U
1,2-Dibromoethane*	ND	2.22	ug/kg	08/18/2010	U
1,2-Dichlorobenzene	ND	2.22	ug/kg	08/18/2010	U
1,2-Dichloroethane	ND	2.22	ug/kg	08/18/2010	U
1,2-Dichloropropane	ND	2.22	ug/kg	08/18/2010	U
1,3-Dichlorobenzene	ND	2.22	ug/kg	08/18/2010	U
1,4-Dichlorobenzene	ND	2.22	ug/kg	08/18/2010	U
2-Butanone	ND	2.22	ug/kg	08/18/2010	U
2-Hexanone	ND	2.22	ug/kg	08/18/2010	U
4-Methyl-2-pentanone	ND	2.22	ug/kg	08/18/2010	U
Acetone	ND	11.1	ug/kg	08/18/2010	U
Benzene	ND	2.22	ug/kg	08/18/2010	U
Bromodichloromethane	ND	2.22	ug/kg	08/18/2010	U
Bromoform	ND	2.22	ug/kg	08/18/2010	U
Bromomethane	ND	2.22	ug/kg	08/18/2010	U
Carbon disulfide	ND	2.22	ug/kg	08/18/2010	U
Carbon tetrachloride	ND	2.22	ug/kg	08/18/2010	U
Chlorobenzene	ND	2.22	ug/kg	08/18/2010	U
Chloroethane	ND	2.22	ug/kg	08/18/2010	U
Chloroform	ND	2.22	ug/kg	08/18/2010	U
Chloromethane	ND	2.22	ug/kg	08/18/2010	U
cis-1,2-Dichloroethene	ND	2.22	ug/kg	08/18/2010	U

CERTIFICATE OF ANALYSIS
08/23/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-3
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11122 **NEA LRF:** 10080144-09
DATE SAMPLED: 08/13/2010 **TIME:** 15:15
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.22	ug/kg	08/18/2010	U
Cyclohexane	ND	2.22	ug/kg	08/18/2010	U
Dibromochloromethane	ND	2.22	ug/kg	08/18/2010	U
Dichlorodifluoromethane	ND	2.22	ug/kg	08/18/2010	U
Ethylbenzene	ND	2.22	ug/kg	08/18/2010	U
Isopropylbenzene	ND	2.22	ug/kg	08/18/2010	U
m&p-Xylene	ND	2.22	ug/kg	08/18/2010	U
Methyl acetate*	ND	2.22	ug/kg	08/18/2010	U
Methyl tert-butyl ether	ND	2.22	ug/kg	08/18/2010	U
Methylcyclohexane	ND	2.22	ug/kg	08/18/2010	U
Methylene chloride	ND	11.1	ug/kg	08/18/2010	U
o-Xylene	ND	2.22	ug/kg	08/18/2010	U
Styrene*	ND	2.22	ug/kg	08/18/2010	U
Tetrachloroethene	ND	2.22	ug/kg	08/18/2010	U
Toluene	ND	2.22	ug/kg	08/18/2010	U
trans-1,2-Dichloroethene	ND	2.22	ug/kg	08/18/2010	U
trans-1,3-Dichloropropene	ND	2.22	ug/kg	08/18/2010	U
Trichloroethene	ND	2.22	ug/kg	08/18/2010	U
Trichlorofluoromethane	ND	2.22	ug/kg	08/18/2010	U
Vinyl chloride	ND	2.22	ug/kg	08/18/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

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CHAIN OF CUSTODY RECORD

NORTHEAST ANALYTICAL, INC.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.nealab.com information @nealab.com

PAGE 1 OF 1

<10080247P1>

LRF # 100802471

DISPOSAL REQUIREMENTS: (To be filled in by Client)

- ○ RETURN TO CLIENT
- ● DISPOSAL BY NORTHEAST ANALYTICAL
- ○ ARCHIVAL BY NORTHEAST ANALYTICAL

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): Apex Co.

PROJECT#/PROJECT NAME: 85185.004

PROJECT MANAGER: Rich Baldwin

PROJECT LOCATION (CITY/STATE) ADDRESS: 73 Garvies Point RD Glen Cove NY

PHONE: 631 567 1777

SAMPLED BY: (Please Print) Evan Renwick

REQUIRED TURN AROUND TIME: Standard

SAMPLING FIRM: Apex Co.

NAME OF COURIER (IF USED):

Data Report: ☒ CLP* ☐ Certificates Only

ELECTRONIC RESULTS FORMAT: .PDF ☐ EXCEL(.CSV) ☒

E-MAIL ADDRESS:

FAXED RESULTS ☐ FAX #:

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

PRESERVATIVE CODE:	0	1					
BOTTLE TYPE:	glass	glass					
BOTTLE SIZE:	2oz	40mL					

SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (NEA USE ONLY)	NUMBER OF CONTAINERS	(TCL)-VOCs	(TCL)-VOCs						REMARKS:
SSP-13-voc-4	8/24/10	1330	Soil	G	AN11647	1	✓							
SSP-13-voc-5	8/25/10	0900	Soil	G	AN11648	1	✓							
TBU-13-2	↓	↓	water	G	AN11649	1		✓						Trip blank

PRESERVATIVE KEY

- 0 - NONE
- 1 - HCL
- 2 - HNO3
- 3 - H2SO4
- 4 - NaOH
- 5 - Zn. Acetate
- 6 - MeOH
- 7 - NaHSO4
- 8 - Other

AMBIENT OR CHILLED: Ice TEMP: 0.6

COC TAPE: Y [✓ N]

PROPERLY PRESERVED: [✓ Y] N

RECEIVED BROKEN OR LEAKING: Y [✓ N]

COC DISCREPANCIES: Y [✓ N]

RECVD W/I HOLDING TIMES: [✓ Y] N

OTHER NOTES:

	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE		Martin Rowan	Martin Rowan	AMoore		
PRINTED NAME	Evan Renwick	Martin Rowan	Martin Rowan	A. MOORE		
COMPANY	Apex Co.	NEA	NEA	NEA		
DATE/TIME	8/25/10 1830	8-25-10 18:30	8-26-10 10:05	8/26/10 1005		

* CLP LIKE DATA PACKAGE-ADDITIONAL COST NYDEC CATB

S:\ADMIN\COC FORM 01.XLS (Revised July 1, 2005)

CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-4
MATRIX: SOIL
DATE RECEIVED: 8/26/2010 **TIME:** 10:05
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11647 **NEA LRF:** 10080247-01
DATE SAMPLED: 08/24/2010 **TIME:** 13:30
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.18	ug/kg	08/27/2010	U
1,1,2,2-Tetrachloroethane	ND	2.18	ug/kg	08/27/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane*	ND	2.18	ug/kg	08/27/2010	U
1,1,2-Trichloroethane	ND	2.18	ug/kg	08/27/2010	U
1,1-Dichloroethane	ND	2.18	ug/kg	08/27/2010	U
1,1-Dichloroethene	ND	2.18	ug/kg	08/27/2010	U
1,2,4-Trichlorobenzene	ND	2.18	ug/kg	08/27/2010	U
1,2-Dibromo-3-chloropropane*	ND	2.18	ug/kg	08/27/2010	U
1,2-Dibromoethane*	ND	2.18	ug/kg	08/27/2010	U
1,2-Dichlorobenzene	ND	2.18	ug/kg	08/27/2010	U
1,2-Dichloroethane	ND	2.18	ug/kg	08/27/2010	U
1,2-Dichloropropane	ND	2.18	ug/kg	08/27/2010	U
1,3-Dichlorobenzene	ND	2.18	ug/kg	08/27/2010	U
1,4-Dichlorobenzene	ND	2.18	ug/kg	08/27/2010	U
2-Butanone	ND	2.18	ug/kg	08/27/2010	U
2-Hexanone	ND	2.18	ug/kg	08/27/2010	U
4-Methyl-2-pentanone	ND	2.18	ug/kg	08/27/2010	U
Acetone	ND	10.9	ug/kg	08/27/2010	U
Benzene	ND	2.18	ug/kg	08/27/2010	U
Bromodichloromethane	ND	2.18	ug/kg	08/27/2010	U
Bromoform	ND	2.18	ug/kg	08/27/2010	U
Bromomethane	ND	2.18	ug/kg	08/27/2010	U
Carbon disulfide	ND	2.18	ug/kg	08/27/2010	U
Carbon tetrachloride	ND	2.18	ug/kg	08/27/2010	U
Chlorobenzene	ND	2.18	ug/kg	08/27/2010	U
Chloroethane	ND	2.18	ug/kg	08/27/2010	U
Chloroform	ND	2.18	ug/kg	08/27/2010	U
Chloromethane	ND	2.18	ug/kg	08/27/2010	U
cis-1,2-Dichloroethene	ND	2.18	ug/kg	08/27/2010	U

CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-4
MATRIX: SOIL
DATE RECEIVED: 8/26/2010 **TIME:** 10:05
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11647 **NEA LRF:** 10080247-01
DATE SAMPLED: 08/24/2010 **TIME:** 13:30
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.18	ug/kg	08/27/2010	U
Cyclohexane	ND	2.18	ug/kg	08/27/2010	U
Dibromochloromethane	ND	2.18	ug/kg	08/27/2010	U
Dichlorodifluoromethane	ND	2.18	ug/kg	08/27/2010	U
Ethylbenzene	ND	2.18	ug/kg	08/27/2010	U
Isopropylbenzene	ND	2.18	ug/kg	08/27/2010	U
m&p-Xylene	ND	2.18	ug/kg	08/27/2010	U
Methyl acetate*	ND	2.18	ug/kg	08/27/2010	U
Methyl tert-butyl ether	ND	2.18	ug/kg	08/27/2010	U
Methylcyclohexane	ND	2.18	ug/kg	08/27/2010	U
Methylene chloride	ND	10.9	ug/kg	08/27/2010	U
o-Xylene	ND	2.18	ug/kg	08/27/2010	U
Styrene*	ND	2.18	ug/kg	08/27/2010	U
Tetrachloroethene	ND	2.18	ug/kg	08/27/2010	U
Toluene	ND	2.18	ug/kg	08/27/2010	U
trans-1,2-Dichloroethene	ND	2.18	ug/kg	08/27/2010	U
trans-1,3-Dichloropropene	ND	2.18	ug/kg	08/27/2010	U
Trichloroethene	ND	2.18	ug/kg	08/27/2010	U
Trichlorofluoromethane	ND	2.18	ug/kg	08/27/2010	U
Vinyl chloride	ND	2.18	ug/kg	08/27/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

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Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

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CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-5
MATRIX: SOIL
DATE RECEIVED: 8/26/2010 **TIME:** 10:05
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11648 **NEA LRF:** 10080247-02
DATE SAMPLED: 08/25/2010 **TIME:** 09:00
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	2.32	ug/kg	08/27/2010	U
1,1,2,2-Tetrachloroethane	ND	2.32	ug/kg	08/27/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane*	ND	2.32	ug/kg	08/27/2010	U
1,1,2-Trichloroethane	ND	2.32	ug/kg	08/27/2010	U
1,1-Dichloroethane	ND	2.32	ug/kg	08/27/2010	U
1,1-Dichloroethene	ND	2.32	ug/kg	08/27/2010	U
1,2,4-Trichlorobenzene	ND	2.32	ug/kg	08/27/2010	U
1,2-Dibromo-3-chloropropane*	ND	2.32	ug/kg	08/27/2010	U
1,2-Dibromoethane*	ND	2.32	ug/kg	08/27/2010	U
1,2-Dichlorobenzene	ND	2.32	ug/kg	08/27/2010	U
1,2-Dichloroethane	ND	2.32	ug/kg	08/27/2010	U
1,2-Dichloropropane	ND	2.32	ug/kg	08/27/2010	U
1,3-Dichlorobenzene	ND	2.32	ug/kg	08/27/2010	U
1,4-Dichlorobenzene	ND	2.32	ug/kg	08/27/2010	U
2-Butanone	3.19	2.32	ug/kg	08/27/2010	
2-Hexanone	ND	2.32	ug/kg	08/27/2010	U
4-Methyl-2-pentanone	ND	2.32	ug/kg	08/27/2010	U
Acetone	22.2	11.6	ug/kg	08/27/2010	
Benzene	ND	2.32	ug/kg	08/27/2010	U
Bromodichloromethane	ND	2.32	ug/kg	08/27/2010	U
Bromoform	ND	2.32	ug/kg	08/27/2010	U
Bromomethane	ND	2.32	ug/kg	08/27/2010	U
Carbon disulfide	ND	2.32	ug/kg	08/27/2010	U
Carbon tetrachloride	ND	2.32	ug/kg	08/27/2010	U
Chlorobenzene	ND	2.32	ug/kg	08/27/2010	U
Chloroethane	ND	2.32	ug/kg	08/27/2010	U
Chloroform	ND	2.32	ug/kg	08/27/2010	U
Chloromethane	ND	2.32	ug/kg	08/27/2010	U
cis-1,2-Dichloroethene	ND	2.32	ug/kg	08/27/2010	U

CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-VOC-5
MATRIX: SOIL
DATE RECEIVED: 8/26/2010 **TIME:** 10:05
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11648 **NEA LRF:** 10080247-02
DATE SAMPLED: 08/25/2010 **TIME:** 09:00
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	2.32	ug/kg	08/27/2010	U
Cyclohexane	ND	2.32	ug/kg	08/27/2010	U
Dibromochloromethane	ND	2.32	ug/kg	08/27/2010	U
Dichlorodifluoromethane	ND	2.32	ug/kg	08/27/2010	U
Ethylbenzene	ND	2.32	ug/kg	08/27/2010	U
Isopropylbenzene	ND	2.32	ug/kg	08/27/2010	U
m&p-Xylene	ND	2.32	ug/kg	08/27/2010	U
Methyl acetate*	ND	2.32	ug/kg	08/27/2010	U
Methyl tert-butyl ether	ND	2.32	ug/kg	08/27/2010	U
Methylcyclohexane	ND	2.32	ug/kg	08/27/2010	U
Methylene chloride	ND	11.6	ug/kg	08/27/2010	U
o-Xylene	ND	2.32	ug/kg	08/27/2010	U
Styrene*	ND	2.32	ug/kg	08/27/2010	U
Tetrachloroethene	ND	2.32	ug/kg	08/27/2010	U
Toluene	ND	2.32	ug/kg	08/27/2010	U
trans-1,2-Dichloroethene	ND	2.32	ug/kg	08/27/2010	U
trans-1,3-Dichloropropene	ND	2.32	ug/kg	08/27/2010	U
Trichloroethene	ND	2.32	ug/kg	08/27/2010	U
Trichlorofluoromethane	ND	2.32	ug/kg	08/27/2010	U
Vinyl chloride	ND	2.32	ug/kg	08/27/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID:	TBV-13-2			**NEA ID:**	AN11649	**NEA LRF:**	10080247-03
MATRIX:	WATER			**DATE SAMPLED:**	08/25/2010	**TIME:**	09:00
DATE RECEIVED:	8/26/2010	**TIME:**	10:05	**PROJECT:**	NYSDEC DER-10 TESTING		
SAMPLED BY:	E. RENWICK			**LOCATION:**	GLEN COVE, NY		
CUSTOMER PO:	N/A			**LAB ELAP#:**	11078		

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
1,1,1-Trichloroethane	ND	1.00	ug/L	08/27/2010	U
1,1,2,2-Tetrachloroethane	ND	1.00	ug/L	08/27/2010	U
1,1,2-Trichloro-1,2,2-trifluoroethane*	ND	1.00	ug/L	08/27/2010	U
1,1,2-Trichloroethane	ND	1.00	ug/L	08/27/2010	U
1,1-Dichloroethane	ND	1.00	ug/L	08/27/2010	U
1,1-Dichloroethene	ND	1.00	ug/L	08/27/2010	U
1,2,4-Trichlorobenzene	ND	1.00	ug/L	08/27/2010	U
1,2-Dibromo-3-chloropropane*	ND	1.00	ug/L	08/27/2010	U
1,2-Dibromoethane*	ND	1.00	ug/L	08/27/2010	U
1,2-Dichlorobenzene	ND	1.00	ug/L	08/27/2010	U
1,2-Dichloroethane	ND	1.00	ug/L	08/27/2010	U
1,2-Dichloropropane	ND	1.00	ug/L	08/27/2010	U
1,3-Dichlorobenzene	ND	1.00	ug/L	08/27/2010	U
1,4-Dichlorobenzene	ND	1.00	ug/L	08/27/2010	U
2-Butanone	ND	1.00	ug/L	08/27/2010	U
2-Hexanone	ND	1.00	ug/L	08/27/2010	U
4-Methyl-2-pentanone	ND	1.00	ug/L	08/27/2010	U
Acetone	ND	5.00	ug/L	08/27/2010	U
Benzene	ND	1.00	ug/L	08/27/2010	U
Bromodichloromethane	ND	1.00	ug/L	08/27/2010	U
Bromoform	ND	1.00	ug/L	08/27/2010	U
Bromomethane	ND	1.00	ug/L	08/27/2010	U
Carbon disulfide	ND	1.00	ug/L	08/27/2010	U
Carbon tetrachloride	ND	1.00	ug/L	08/27/2010	U
Chlorobenzene	ND	1.00	ug/L	08/27/2010	U
Chloroethane	ND	1.00	ug/L	08/27/2010	U
Chloroform	ND	1.00	ug/L	08/27/2010	U
Chloromethane	ND	1.00	ug/L	08/27/2010	U
cis-1,2-Dichloroethene	ND	1.00	ug/L	08/27/2010	U

CERTIFICATE OF ANALYSIS

9/2/2010

APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID:	TBV-13-2			**NEA ID:**	AN11649	**NEA LRF:**	10080247-03
MATRIX:	WATER			**DATE SAMPLED:**	08/25/2010	**TIME:**	09:00
DATE RECEIVED:	8/26/2010	**TIME:**	10:05	**PROJECT:**	NYSDEC DER-10 TESTING		
SAMPLED BY:	E. RENWICK			**LOCATION:**	GLEN COVE, NY		
CUSTOMER PO:	N/A			**LAB ELAP#:**	11078		

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8260B CLP OLM 4.3 List					
cis-1,3-Dichloropropene	ND	1.00	ug/L	08/27/2010	U
Cyclohexane	ND	1.00	ug/L	08/27/2010	U
Dibromochloromethane	ND	1.00	ug/L	08/27/2010	U
Dichlorodifluoromethane	ND	1.00	ug/L	08/27/2010	U
Ethylbenzene	ND	1.00	ug/L	08/27/2010	U
Isopropylbenzene	ND	1.00	ug/L	08/27/2010	U
m&p-Xylene	ND	1.00	ug/L	08/27/2010	U
Methyl acetate*	ND	1.00	ug/L	08/27/2010	U
Methyl tert-butyl ether	ND	1.00	ug/L	08/27/2010	U
Methylcyclohexane	ND	1.00	ug/L	08/27/2010	U
Methylene chloride	ND	1.00	ug/L	08/27/2010	U
o-Xylene	ND	1.00	ug/L	08/27/2010	U
Styrene*	ND	1.00	ug/L	08/27/2010	U
Tetrachloroethene	ND	1.00	ug/L	08/27/2010	U
Toluene	ND	1.00	ug/L	08/27/2010	U
trans-1,2-Dichloroethene	ND	1.00	ug/L	08/27/2010	U
trans-1,3-Dichloropropene	ND	1.00	ug/L	08/27/2010	U
Trichloroethene	ND	1.00	ug/L	08/27/2010	U
Trichlorofluoromethane	ND	1.00	ug/L	08/27/2010	U
Vinyl chloride	ND	1.00	ug/L	08/27/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8260 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NORTHEAST ANALYTICAL, INC.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.nealab.com information @nealab.com

<10080143P1>

LRF # 100801431

DISPOSAL REQUIREMENTS: (To be filled in by Client)

- ○ RETURN TO CLIENT
- [✓ DISPOSAL BY NORTHEAST ANALYTICAL]
- ○ ARCHIVAL BY NORTHEAST ANALYTICAL

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): Apex Co.
PROJECT#/PROJECT NAME: 85155.004
PROJECT MANAGER: Rick Baldwin
PROJECT LOCATION (CITY/STATE) ADDRESS: 73 Garvies Point RD Glen Cove NY
PHONE: 631 567 1777
SAMPLED BY: (Please Print) Evan Renwick
REQUIRED TURN AROUND TIME: Standard
SAMPLING FIRM: Apex Co.
NAME OF COURIER (IF USED):
Data Report: ☑ CLP* ☐ Certificates Only
ELECTRONIC RESULTS FORMAT: .PDF ☐ [✓ EXCEL] (.CSV) ☒
E-MAIL ADDRESS:
FAXED RESULTS ☐
FAX #:

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

							PRESERVATIVE CODE:	0	→	→	→			
							BOTTLE TYPE:	glass	→	→	→			
							BOTTLE SIZE:	8oz	→	→	→			
SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (NEA USE ONLY)		NUMBER OF CONTAINERS	(TAL) - metals	(TCL) - SVOCs	(TCL) - PCBs	(TCL) - Pesticides			REMARKS:
SSP-12-C-1	8/13/10	0840	Soil	C	AN11106		3	✓	✓	✓	✓			(MS/MSD)
SSP-12-C-2	|	1200	|	|	AN11107		1	✓	✓	✓	✓			
SSP-12-C-3	|	1200	↓	↓	AN11108		1	✓	✓	✓	✓			
RBSV-12	|	0900	water	G	AN11109		1		✓					Rinsate blank; 1L amber
RBPCB-12	|	|	|	|	AN11110		1			✓				Rinsate blank; 1L amber
RBPest-12	|	|	|	|	AN11111		1				✓			Rinsate blank; 1L amber
RBM-12	|	↓	↓	↓	AN11112		1	✓					HNO3	Rinsate blank; 500mL Plastic
SSP-13-C-1	↓	1515	Soil	C	AN11113		1	✓	✓	✓	✓			

PRESERVATIVE KEY
- 0 - NONE
- 1 - HCL
- 2 - HNO3
- 3 - H2SO4
- 4 - NaOH
- 5 - Zn. Acetate
- 6 - MeOH
- 7 - NaHSO4
- 8 - Other ______

AMBIENT OR [✓ CHILLED] Ice TEMP: 2.6°C
RECEIVED BROKEN OR LEAKING: Y [✓ N]
COC TAPE: Y [✓ N]
COC DISCREPANCIES: Y [✓ N]
PROPERLY PRESERVED: [✓ Y] N
RECVD W/I HOLDING TIMES: [✓ Y] N
OTHER NOTES:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE	SIGNATURE Martin Rowan	SIGNATURE Martin Rowan	SIGNATURE	SIGNATURE	SIGNATURE
PRINTED NAME Evan Renwick	PRINTED NAME Martin Rowan	PRINTED NAME Martin Rowan	PRINTED NAME J. Aguirre	PRINTED NAME	PRINTED NAME
COMPANY Apex Co.	COMPANY NEA	COMPANY NEA	COMPANY NEA	COMPANY	COMPANY
DATE/TIME 8/13/10 1830	DATE/TIME 8-13-10 18:30	DATE/TIME 8-16-10 09:35	DATE/TIME 8/16/10 9:35	DATE/TIME	DATE/TIME

* CLP LIKE DATA PACKAGE ADDITIONAL COST NYDEC CAT B

S:\ADMIN\COC FORM 01.XLS (Revised July 1, 2005)

CERTIFICATE OF ANALYSIS
08/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-C-1
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11113 **NEA LRF:** 10080143-08
DATE SAMPLED: 08/13/2010 **TIME:** 15:15
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
1,1'-Biphenyl*	ND	354	ug/kg	08/19/2010	U
2,4,5-Trichlorophenol	ND	354	ug/kg	08/19/2010	U
2,4,6-Trichlorophenol	ND	354	ug/kg	08/19/2010	U
2,4-Dichlorophenol	ND	354	ug/kg	08/19/2010	U
2,4-Dimethylphenol	ND	354	ug/kg	08/19/2010	U
2,4-Dinitrophenol	ND	354	ug/kg	08/19/2010	U
2,4-Dinitrotoluene	ND	354	ug/kg	08/19/2010	U
2,6-Dinitrotoluene	ND	354	ug/kg	08/19/2010	U
2-Chloronaphthalene	ND	354	ug/kg	08/19/2010	U
2-Chlorophenol	ND	354	ug/kg	08/19/2010	U
2-Methylnaphthalene	ND	354	ug/kg	08/19/2010	U
2-Methylphenol	ND	354	ug/kg	08/19/2010	U
2-Nitroaniline	ND	354	ug/kg	08/19/2010	U
2-Nitrophenol	ND	354	ug/kg	08/19/2010	U
3,3'-Dichlorobenzidine	ND	354	ug/kg	08/19/2010	U
3-Nitroaniline	ND	354	ug/kg	08/19/2010	U
4,6-Dinitro-2-methylphenol	ND	354	ug/kg	08/19/2010	U
4-Bromophenyl-phenylether	ND	354	ug/kg	08/19/2010	U
4-Chloro-3-methylphenol	ND	354	ug/kg	08/19/2010	U
4-Chloroaniline	ND	354	ug/kg	08/19/2010	U
4-Chlorophenyl-phenylether	ND	354	ug/kg	08/19/2010	U
4-Methylphenol	ND	354	ug/kg	08/19/2010	U
4-Nitroaniline	ND	354	ug/kg	08/19/2010	U
4-Nitrophenol	ND	354	ug/kg	08/19/2010	U
Acenaphthene	ND	354	ug/kg	08/19/2010	U
Acenaphthylene	ND	354	ug/kg	08/19/2010	U
Acetophenone*	ND	354	ug/kg	08/19/2010	U
Anthracene	ND	354	ug/kg	08/19/2010	U
Atrazine*	ND	354	ug/kg	08/19/2010	U

CERTIFICATE OF ANALYSIS
08/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-C-1
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11113 **NEA LRF:** 10080143-08
DATE SAMPLED: 08/13/2010 **TIME:** 15:15
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
Benzaldehyde*	ND	354	ug/kg	08/19/2010	U
Benzo(a)anthracene	ND	354	ug/kg	08/19/2010	U
Benzo(a)pyrene	ND	354	ug/kg	08/19/2010	U
Benzo(b)fluoranthene	ND	354	ug/kg	08/19/2010	U
Benzo(g,h,i)perylene	ND	354	ug/kg	08/19/2010	U
Benzo(k)fluoranthene	ND	354	ug/kg	08/19/2010	U
bis(2-chloroethoxy)methane	ND	354	ug/kg	08/19/2010	U
Bis(2-chloroethyl)ether	ND	354	ug/kg	08/19/2010	U
bis(2-Chloroisopropyl)ether	ND	354	ug/kg	08/19/2010	U
bis(2-Ethylhexyl)phthalate	ND	354	ug/kg	08/19/2010	U
Butylbenzylphthalate	ND	354	ug/kg	08/19/2010	U
Caprolactam*	ND	354	ug/kg	08/19/2010	U
Carbazole	ND	354	ug/kg	08/19/2010	U
Chrysene	ND	354	ug/kg	08/19/2010	U
Di-n-butylphthalate	ND	354	ug/kg	08/19/2010	U
Di-n-octylphthalate	ND	354	ug/kg	08/19/2010	U
Dibenz(a,h)anthracene	ND	354	ug/kg	08/19/2010	U
Dibenzofuran	ND	354	ug/kg	08/19/2010	U
Diethylphthalate	ND	354	ug/kg	08/19/2010	U
Dimethylphthalate	ND	354	ug/kg	08/19/2010	U
Fluoranthene	ND	354	ug/kg	08/19/2010	U
Fluorene	ND	354	ug/kg	08/19/2010	U
Hexachlorobenzene	ND	354	ug/kg	08/19/2010	U
Hexachlorobutadiene	ND	354	ug/kg	08/19/2010	U
Hexachlorocyclopentadiene	ND	354	ug/kg	08/19/2010	U
Hexachloroethane	ND	354	ug/kg	08/19/2010	U
Indeno(1,2,3-cd)pyrene	ND	354	ug/kg	08/19/2010	U
Isophorone	ND	354	ug/kg	08/19/2010	U
N-Nitroso-di-n-propylamine	ND	354	ug/kg	08/19/2010	U

CERTIFICATE OF ANALYSIS
08/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-C-1
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11113 **NEA LRF:** 10080143-08
DATE SAMPLED: 08/13/2010 **TIME:** 15:15
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
N-Nitrosodiphenylamine	ND	354	ug/kg	08/19/2010	U
Naphthalene	ND	354	ug/kg	08/19/2010	U
Nitrobenzene	ND	354	ug/kg	08/19/2010	U
Pentachlorophenol	ND	354	ug/kg	08/19/2010	U
Phenanthrene	ND	354	ug/kg	08/19/2010	U
Phenol	ND	354	ug/kg	08/19/2010	U
Pyrene	ND	354	ug/kg	08/19/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8270 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

NEA
NORTHEAST ANALYTICAL LABS

CERTIFICATE OF ANALYSIS
08/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID:	SSP-13-C-1	**NEA ID:** AN11113	**NEA LRF:** 10080143-08
MATRIX:	SOIL	**DATE SAMPLED:** 08/13/2010	**TIME:** 15:15
DATE RECEIVED:	08/16/2010 **TIME:** 09:35	**PROJECT:**	NYSDEC DER-10 TESTING
SAMPLED BY:	E. RENWICK	**LOCATION:**	GLEN COVE, NY
CUSTOMER PO:	N/A	**LAB ELAP#:**	11078

PARAMETER PERFORMED	METHOD	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
Mercury	SW-846 7471A	0.0613	0.0199	mg/kg	08/20/2010	
Aluminum	SW-846 6010B	3660	5.41	mg/kg	08/18/2010	
Antimony	SW-846 6010B	ND	5.21	mg/kg	08/18/2010	U
Arsenic	SW-846 6010B	4.23	3.41	mg/kg	08/18/2010	
Barium	SW-846 6010B	20.4	0.203	mg/kg	08/18/2010	
Beryllium	SW-846 6010B	0.214	0.0688	mg/kg	08/18/2010	
Cadmium	SW-846 6010B	0.223	0.206	mg/kg	08/18/2010	
Calcium	SW-846 6010B	1320	41.0	mg/kg	08/18/2010	
Chromium	SW-846 6010B	7.60	1.04	mg/kg	08/18/2010	
Cobalt	SW-846 6010B	3.68	0.419	mg/kg	08/18/2010	
Copper	SW-846 6010B	27.1	0.970	mg/kg	08/18/2010	
Iron	SW-846 6010B	11000	4.19	mg/kg	08/18/2010	
Lead	SW-846 6010B	53.6	4.17	mg/kg	08/18/2010	
Magnesium	SW-846 6010B	609	5.82	mg/kg	08/18/2010	
Manganese	SW-846 6010B	124	0.325	mg/kg	08/18/2010	
Nickel	SW-846 6010B	8.12	0.926	mg/kg	08/18/2010	
Potassium	SW-846 6010B	273	3.22	mg/kg	08/18/2010	
Selenium	SW-846 6010B	ND	4.17	mg/kg	08/18/2010	U
Silver	SW-846 6010B	ND	1.15	mg/kg	08/18/2010	U
Sodium	SW-846 6010B	29.3	11.9	mg/kg	08/18/2010	
Thallium	SW-846 6010B	ND	2.09	mg/kg	08/18/2010	U
Vanadium	SW-846 6010B	9.41	0.848	mg/kg	08/18/2010	
Zinc	SW-846 6010B	53.6	0.438	mg/kg	08/18/2010	B

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director

CERTIFICATE OF ANALYSIS
08/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-C-1
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11113 **NEA LRF:** 10080143-08
DATE SAMPLED: 08/13/2010 **TIME:** 15:15
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 8082 (PCB)					
Aroclor 1016	ND	0.0522	ug/g	08/23/2010	U
Aroclor 1221	ND	0.0522	ug/g	08/23/2010	U
Aroclor 1232	ND	0.0522	ug/g	08/23/2010	U
Aroclor 1242	ND	0.0522	ug/g	08/23/2010	U
Aroclor 1248	ND	0.0522	ug/g	08/23/2010	U
Aroclor 1254	0.137	0.0522	ug/g	08/23/2010	AF
Aroclor 1260	ND	0.0522	ug/g	08/23/2010	U
Aroclor 1262	ND	0.0522	ug/g	08/23/2010	U
Aroclor 1268	ND	0.0522	ug/g	08/23/2010	U
Total PCB Amount > RL	0.137				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
AF-Aroclor 1254 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

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NORTHEAST ANALYTICAL LABS

CERTIFICATE OF ANALYSIS

08/24/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CELEBRATING 20 YEARS 1989 NEA 2009

CUSTOMER ID: SSP-13-C-1
MATRIX: SOIL
DATE RECEIVED: 08/16/2010 **TIME:** 09:35
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11113 **NEA LRF:** 10080143-08
DATE SAMPLED: 08/13/2010 **TIME:** 15:15
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 Method 8081, Pesticides					
Aldrin	ND	0.00264	ug/g	08/24/2010	U
alpha Chlordane	0.00417	0.00264	ug/g	08/24/2010	
alpha-BHC	ND	0.00264	ug/g	08/24/2010	U
beta-BHC	ND	0.00264	ug/g	08/24/2010	U
delta-BHC	ND	0.00264	ug/g	08/24/2010	U
Dieldrin	ND	0.00264	ug/g	08/24/2010	U
Endosulfan I	ND	0.00264	ug/g	08/24/2010	U
Endosulfan II	ND	0.00264	ug/g	08/24/2010	U
Endosulfan sulfate	ND	0.00264	ug/g	08/24/2010	U
Endrin	ND	0.00264	ug/g	08/24/2010	U
Endrin aldehyde	ND	0.00264	ug/g	08/24/2010	U
Endrin ketone	ND	0.00264	ug/g	08/24/2010	U
gamma Chlordane	0.00491	0.00264	ug/g	08/24/2010	Z
gamma-BHC	ND	0.00264	ug/g	08/24/2010	U
Heptachlor	ND	0.00264	ug/g	08/24/2010	U
Heptachlor epoxide	ND	0.00264	ug/g	08/24/2010	U
Methoxychlor	ND	0.00264	ug/g	08/24/2010	U
p,p'-DDD	0.00390	0.00264	ug/g	08/24/2010	
p,p'-DDE	0.00294	0.00264	ug/g	08/24/2010	Z
p,p'-DDT	0.00524	0.00264	ug/g	08/24/2010	Z
Toxaphene	ND	0.264	ug/g	08/24/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
Z - Laboratory Reserved Qualifier (explained in associated Case Narrative)
Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CHAIN OF CUSTODY RECORD

NORTHEAST ANALYTICAL, INC.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.nealab.com information @nealab.com

PAGE 1 OF 1

<10080246P1>

LRF # 100802461

DISPOSAL REQUIREMENTS: (To be filled in by Client)

- ○ RETURN TO CLIENT
- ● DISPOSAL BY NORTHEAST ANALYTICAL
- ○ ARCHIVAL BY NORTHEAST ANALYTICAL

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): Apex Co.

PROJECT MANAGER: Rich Baldwin

PHONE: 631 567 1777

SAMPLED BY: (Please Print) Evan Renwick

SAMPLING FIRM: Apex Co.

PROJECT#/PROJECT NAME: 85185.004

PROJECT LOCATION (CITY/STATE) ADDRESS: 73 Gervizs Point RD Glen Cove NY

REQUIRED TURN AROUND TIME: Standard

NAME OF COURIER (IF USED):

Data Report: ☒ CLP* ☐ Certificates Only

ELECTRONIC RESULTS FORMAT: .PDF ☐ EXCEL(.CSV) ☒

E-MAIL ADDRESS:

FAXED RESULTS ☐

FAX #:

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

	(TCL)-svocs	(TCL)-PCBs	(TCL)-Pesticides	(TAL)-metals			
PRESERVATIVE CODE:	0	→	→	→			
BOTTLE TYPE:	glass	→	→	→			
BOTTLE SIZE:	8oz	→	→	→			

SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (NEA USE ONLY)	NUMBER OF CONTAINERS	(TCL)-svocs	(TCL)-PCBs	(TCL)-Pesticides	(TAL)-metals				REMARKS:
SSP-13-C-2	8/25/10	0900	soil	C	AN116646	1	✓	✓	✓	✓				

PRESERVATIVE KEY
0 - NONE
1 - HCL
2 - HNO3
3 - H2SO4
4 - NaOH
5 - Zn. Acetate
6 - MeOH
7 - NaHSO4
8 - Other

AMBIENT OR CHILLED: Ice TEMP: 0.6

RECEIVED BROKEN OR LEAKING: Y [✓ N]

COC TAPE: Y [✓ N]

COC DISCREPANCIES: Y [✓ N]

PROPERLY PRESERVED: [✓ Y] N

RECVD W/I HOLDING TIMES: [✓ Y] N

OTHER NOTES:

	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE		Martin Rowan	Martin Rowan			
PRINTED NAME	Evan Renwick	Martin Rowan	Martin Rowan	A. MOORE		
COMPANY	Apex Co.	NEA	NEA	NEA		
DATE/TIME	8/25/10 1830	8-25-10 18:30	8-26-10 10:05	8/26/10 1005		

CLP LIKE DATA PACKAGE ADDITIONAL COST NYDEC CATB

S:\ADMIN\COC FORM 01.XLS (Revised July 1, 2006)

CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID:	SSP-13-C-2	**NEA ID:** AN11646	**NEA LRF:** 10080246-01
MATRIX:	SOIL	**DATE SAMPLED:** 08/25/2010	**TIME:** 09:00
DATE RECEIVED:	8/26/2010 **TIME:** 10:05	**PROJECT:**	NYSDEC DER-10 TESTING
SAMPLED BY:	E. RENWICK	**LOCATION:**	GLEN COVE, NY
CUSTOMER PO:	N/A	**LAB ELAP#:**	11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
1,1'-Biphenyl*	ND	397	ug/kg	08/27/2010	U
2,4,5-Trichlorophenol	ND	397	ug/kg	08/27/2010	U
2,4,6-Trichlorophenol	ND	397	ug/kg	08/27/2010	U
2,4-Dichlorophenol	ND	397	ug/kg	08/27/2010	U
2,4-Dimethylphenol	ND	397	ug/kg	08/27/2010	U
2,4-Dinitrophenol	ND	397	ug/kg	08/27/2010	U
2,4-Dinitrotoluene	ND	397	ug/kg	08/27/2010	U
2,6-Dinitrotoluene	ND	397	ug/kg	08/27/2010	U
2-Chloronaphthalene	ND	397	ug/kg	08/27/2010	U
2-Chlorophenol	ND	397	ug/kg	08/27/2010	U
2-Methylnaphthalene	ND	397	ug/kg	08/27/2010	U
2-Methylphenol	ND	397	ug/kg	08/27/2010	U
2-Nitroaniline	ND	397	ug/kg	08/27/2010	U
2-Nitrophenol	ND	397	ug/kg	08/27/2010	U
3,3'-Dichlorobenzidine	ND	397	ug/kg	08/27/2010	U
3-Nitroaniline	ND	397	ug/kg	08/27/2010	U
4,6-Dinitro-2-methylphenol	ND	397	ug/kg	08/27/2010	U
4-Bromophenyl-phenylether	ND	397	ug/kg	08/27/2010	U
4-Chloro-3-methylphenol	ND	397	ug/kg	08/27/2010	U
4-Chloroaniline	ND	397	ug/kg	08/27/2010	U
4-Chlorophenyl-phenylether	ND	397	ug/kg	08/27/2010	U
4-Methylphenol	ND	397	ug/kg	08/27/2010	U
4-Nitroaniline	ND	397	ug/kg	08/27/2010	U
4-Nitrophenol	ND	397	ug/kg	08/27/2010	U
Acenaphthene	ND	397	ug/kg	08/27/2010	U
Acenaphthylene	ND	397	ug/kg	08/27/2010	U
Acetophenone*	ND	397	ug/kg	08/27/2010	U
Anthracene	ND	397	ug/kg	08/27/2010	U
Atrazine*	ND	397	ug/kg	08/27/2010	U

CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CUSTOMER ID: SSP-13-C-2
MATRIX: SOIL
DATE RECEIVED: 8/26/2010 **TIME:** 10:05
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11646 **NEA LRF:** 10080246-01
DATE SAMPLED: 08/25/2010 **TIME:** 09:00
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
Benzaldehyde*	ND	397	ug/kg	08/27/2010	U
Benzo(a)anthracene	398	397	ug/kg	08/27/2010	
Benzo(a)pyrene	ND	397	ug/kg	08/27/2010	U
Benzo(b)fluoranthene	426	397	ug/kg	08/27/2010	
Benzo(g,h,i)perylene	ND	397	ug/kg	08/27/2010	U
Benzo(k)fluoranthene	ND	397	ug/kg	08/27/2010	U
bis(2-chloroethoxy)methane	ND	397	ug/kg	08/27/2010	U
Bis(2-chloroethyl)ether	ND	397	ug/kg	08/27/2010	U
bis(2-Chloroisopropyl)ether	ND	397	ug/kg	08/27/2010	U
bis(2-Ethylhexyl)phthalate	ND	397	ug/kg	08/27/2010	U
Butylbenzylphthalate	ND	397	ug/kg	08/27/2010	U
Caprolactam*	ND	397	ug/kg	08/27/2010	U
Carbazole	ND	397	ug/kg	08/27/2010	U
Chrysene	ND	397	ug/kg	08/27/2010	U
Di-n-butylphthalate	ND	397	ug/kg	08/27/2010	U
Di-n-octylphthalate	ND	397	ug/kg	08/27/2010	U
Dibenz(a,h)anthracene	ND	397	ug/kg	08/27/2010	U
Dibenzofuran	ND	397	ug/kg	08/27/2010	U
Diethylphthalate	ND	397	ug/kg	08/27/2010	U
Dimethylphthalate	ND	397	ug/kg	08/27/2010	U
Fluoranthene	720	397	ug/kg	08/27/2010	
Fluorene	ND	397	ug/kg	08/27/2010	U
Hexachlorobenzene	ND	397	ug/kg	08/27/2010	U
Hexachlorobutadiene	ND	397	ug/kg	08/27/2010	U
Hexachlorocyclopentadiene	ND	397	ug/kg	08/27/2010	U
Hexachloroethane	ND	397	ug/kg	08/27/2010	U
Indeno(1,2,3-cd)pyrene	ND	397	ug/kg	08/27/2010	U
Isophorone	ND	397	ug/kg	08/27/2010	U
N-Nitroso-di-n-propylamine	ND	397	ug/kg	08/27/2010	U

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CUSTOMER ID:	SSP-13-C-2		**NEA ID:** AN11646	**NEA LRF:** 10080246-01	
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SAMPLED BY:	E. RENWICK		**LOCATION:**	GLEN COVE, NY	
CUSTOMER PO:	N/A		**LAB ELAP#:**	11078	

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
EPA Method 8270C CLP OLM 4.3 List					
N-Nitrosodiphenylamine	ND	397	ug/kg	08/27/2010	U
Naphthalene	ND	397	ug/kg	08/27/2010	U
Nitrobenzene	ND	397	ug/kg	08/27/2010	U
Pentachlorophenol	ND	397	ug/kg	08/27/2010	U
Phenanthrene	569	397	ug/kg	08/27/2010	
Phenol	ND	397	ug/kg	08/27/2010	U
Pyrene	550	397	ug/kg	08/27/2010	

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
* Northeast Analytical Inc. is not currently certified by NYSDOH analytes marked with an asterik('*'). All reported concentration values for these analytes should be considered as estimated. These analytes are reported qualitatively; the presence or absence of these analytes should also be considered as estimated. EPA Method 8270 analysis protocols are not explicitly employed for reporting these analytes.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

NEA
NORTHEAST ANALYTICAL LABS

CERTIFICATE OF ANALYSIS

9/2/2010
APEX COMPANIES LLC
120-D WILBUR PLACE
BOHEMIA, NY 11716
CONTACT: RICHARD BALDWIN

CELEBRATING 20 YEARS 1989 NEA 2009

CUSTOMER ID: SSP-13-C-2
MATRIX: SOIL
DATE RECEIVED: 8/26/2010 **TIME:** 10:05
SAMPLED BY: E. RENWICK
CUSTOMER PO: N/A

NEA ID: AN11646 **NEA LRF:** 10080246-01
DATE SAMPLED: 08/25/2010 **TIME:** 09:00
PROJECT: NYSDEC DER-10 TESTING
LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	METHOD	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
Mercury	SW-846 7471A	0.113	0.0233	mg/kg	08/31/2010	
Aluminum	SW-846 6010B	8080	6.11	mg/kg	08/30/2010	
Antimony	SW-846 6010B	ND	5.89	mg/kg	08/30/2010	U
Arsenic	SW-846 6010B	8.37	3.85	mg/kg	08/30/2010	
Barium	SW-846 6010B	63.5	0.230	mg/kg	08/30/2010	
Beryllium	SW-846 6010B	ND	0.589	mg/kg	08/30/2010	U
Cadmium	SW-846 6010B	0.336	0.233	mg/kg	08/30/2010	
Calcium	SW-846 6010B	6630	46.3	mg/kg	08/30/2010	
Chromium	SW-846 6010B	16.9	1.18	mg/kg	08/30/2010	
Cobalt	SW-846 6010B	11.9	0.473	mg/kg	08/30/2010	
Copper	SW-846 6010B	35.5	1.10	mg/kg	08/30/2010	
Iron	SW-846 6010B	21500	4.73	mg/kg	08/30/2010	
Lead	SW-846 6010B	67.2	4.71	mg/kg	08/30/2010	
Magnesium	SW-846 6010B	4190	6.57	mg/kg	08/30/2010	
Manganese	SW-846 6010B	596	1.18	mg/kg	08/30/2010	
Nickel	SW-846 6010B	16.3	1.05	mg/kg	08/30/2010	
Potassium	SW-846 6010B	1270	3.64	mg/kg	08/30/2010	
Selenium	SW-846 6010B	ND	4.71	mg/kg	08/30/2010	U
Silver	SW-846 6010B	1.76	1.30	mg/kg	08/30/2010	
Sodium	SW-846 6010B	713	13.4	mg/kg	08/30/2010	
Thallium	SW-846 6010B	ND	2.36	mg/kg	08/30/2010	U
Vanadium	SW-846 6010B	19.9	0.957	mg/kg	08/30/2010	
Zinc	SW-846 6010B	63.8	0.495	mg/kg	08/30/2010	B

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director

NEA
NORTHEAST ANALYTICAL LABS

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9/2/2010
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LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 8082 (PCB)					
Aroclor 1016	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1221	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1232	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1242	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1248	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1254	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1260	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1262	ND	0.0582	ug/g	08/27/2010	U
Aroclor 1268	ND	0.0582	ug/g	08/27/2010	U
Total PCB Amount > RL	ND				U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

CERTIFICATE OF ANALYSIS
9/2/2010
APEX COMPANIES LLC
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LOCATION: GLEN COVE, NY
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
SW-846 Method 8081, Pesticides					
Aldrin	ND	0.00291	ug/g	08/27/2010	U
alpha Chlordane	0.00874	0.00291	ug/g	08/27/2010	
alpha-BHC	ND	0.00291	ug/g	08/27/2010	U
beta-BHC	ND	0.00291	ug/g	08/27/2010	U
delta-BHC	ND	0.00291	ug/g	08/27/2010	U
Dieldrin	ND	0.00291	ug/g	08/27/2010	U
Endosulfan I	ND	0.00291	ug/g	08/27/2010	U
Endosulfan II	ND	0.00291	ug/g	08/27/2010	U
Endosulfan sulfate	ND	0.00291	ug/g	08/27/2010	U
Endrin	ND	0.00291	ug/g	08/27/2010	U
Endrin aldehyde	ND	0.00291	ug/g	08/27/2010	U
Endrin ketone	ND	0.00291	ug/g	08/27/2010	U
gamma Chlordane	0.0115	0.00291	ug/g	08/27/2010	
gamma-BHC	ND	0.00291	ug/g	08/27/2010	U
Heptachlor	ND	0.00291	ug/g	08/27/2010	U
Heptachlor epoxide	ND	0.00291	ug/g	08/27/2010	U
Methoxychlor	ND	0.00291	ug/g	08/27/2010	U
p,p'-DDD	ND	0.00291	ug/g	08/27/2010	U
p,p'-DDE	ND	0.00291	ug/g	08/27/2010	U
p,p'-DDT	ND	0.00291	ug/g	08/27/2010	U
Toxaphene	ND	0.291	ug/g	08/27/2010	U

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.
Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative
Robert E. Wagner
Laboratory Director

Appendix D

Environmental Easement Template

EPA Institutional Control Guidance Document

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this _______day of _____________, 20__, between Owner(s) Enter property owner(s) name, having an office at Enter property owner's address, County of Enter owner's county, State of Enter owner's state (the AGrantor@, and The People of the State of New York (the AGrantee.@, acting through their Commissioner of the Department of Environmental Conservation (the ACommissioner@ or ANYSDEC@or ADepartment@as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties (Asites@ that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law (AECL@ which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of Enter street address of property in the Choose municipality type of Enter property municipality, County of Enter property county and State of New York, known and designated on the tax map of the County Clerk of Enter clerk county as tax map parcel numbers: Section Enter Tax ID Section #. Block Enter Tax ID Block # Lot Enter Tax ID Lot #, being the same as that property conveyed to Grantor by deed dated Enter Deed Date and recorded in the Enter county name County Clerk=s Office in Instrument No. Enter Instrument #, comprising of approximately Enter Acreage ∀ acres, and hereinafter more fully described in the Land Title Survey dated Enter original survey date and, if applicable, "and revised on" and revised survey date prepared by Enter revised surveyor's name or original surveyor's name if not revised, which will be attached to the Site Management Plan. The property description (the AControlled Property@ is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of human health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Choose an Oversight Document TypeNumber: Enter SAC# or BCA/Consent Order Index #, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein (AEnvironmental Easement@

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor=s successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Choose the allowable land use

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP.

(4) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(5) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(6) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(7) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.

(8) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP.

(9) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Choose the correct list of inapplicable uses. Where the allowable use is residential, choose "raising livestock...", and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor=s assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department=s determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Regional Remediation Engineer
NYSDEC – Region Choose the DEC region #
Division of Environmental Remediation
Enter the DEC regional address
Enter DEC regional locality,
Phone: Enter regional phone #

or

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen point bold faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the

Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved b the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5 the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor=s Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by

Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: Enter DEC Site #
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Enter Grantor's Name:

By: ______________________________________

Title:____________________ Date:_____________

Grantor=s Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the _______ day of _________, in the year 20 __, before me, the undersigned, personally appeared __________________, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

____

Notary Public - State of New York

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: ____
Dale A. Desnoyers, Director
Division of Remediation

Grantee=s Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the _______ day of _________, in the year 20__, before me, the undersigned, personally appeared _________________, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

____
Notary Public - State of New York

SCHEDULE AA@PROPERTY DESCRIPTION

Enter Property Description

OSWER 9355.0-89
United States Environmental Protection Agency
Office of Solid Waste and Emergency Response
EPA-540-R-09-001
November 2010
Interim Final

Institutional Controls:
A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites

1. PURPOSE

The purpose of this guidance is to[1] provide site managers of contaminated sites, site attorneys, and other interested parties with information and recommendations that[2] should be useful for planning, implementing, maintaining, and enforcing institutional controls (ICs) for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund); Brownfields; federal facility; underground storage tank (UST); and Resource Conservation and Recovery Act (RCRA) site cleanups. It addresses some of the common issues that may be encountered and provides an overview of EPA's policy regarding the roles and responsibilities of the parties involved in various aspects of planning, implementing, maintaining, and enforcing ICs. A thorough understanding of the concepts and sources in this and related documents referenced here should help ensure that ICs are properly implemented and operate effectively during their lifespan.

This is the second in a series of guidance documents on the use of ICs. The first document, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, September 2000 (OSWER 9355.0-74FS-P, EPA 540-F-00-005) (*A Site Manager's Guide to ICs*), provides guidance for identifying, evaluating, and selecting ICs.

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This document addresses crosscutting multi-program IC issues, while recognizing that[3] there are some differences among the cleanup programs. It defines ICs as used in this document, describes their role in contaminated site cleanups, and discusses four general life cycle stages — planning, implementing, maintaining, and enforcing ICs. References to additional guidance documents including those mentioned in the text of this document are included in Appendix A. This

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[1] The terms "site manager" and "site attorney," as used in this document, refer to personnel from the lead agency involved in a CERCLA (remedial and removal), Brownfields, federal facility, UST, or RCRA cleanup project. Where the lead agency is a Federal agency other than the EPA, EPA and the Federal agency may share some site manager/site attorney responsibilities or EPA may retain them independently depending on the responsibility under any of the five cleanup programs. The term "site" is used generically in this guidance to also represent areas of contamination managed under all five of these cleanup programs. The terms "CERCLA," and "Superfund," generally include both remedial and removal sites. In addition, the term "responsible party" as used in this document is intended to mean a person or entity with cleanup or IC responsibilities under the various cleanup programs listed above. Similarly, because CERCLA removal actions are generally discrete, short-term actions, EPA generally relies on state agencies to plan, implement, maintain, and enforce ICs following a removal action.

[2] The term "maintenance" refers to those activities, such as monitoring and reporting, that ensures ICs are implemented properly and functioning as intended.

[3] This document provides guidance to the Regions on how EPA generally intends to plan, implement, maintain, and enforce institutional controls as part of a cleanup project. The guidance is designed to help promote consistent national policy on these issues. It does not, however, substitute for CERCLA, RCRA, or EPA's regulations, nor is it a regulation itself. Thus, it does not impose legally binding requirements on EPA, States, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA, State, tribal, and local decision-makers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate. Any decisions regarding a particular facility will be made based on the applicable statutes and regulations.

document is designed to provide general guidance and does not include an exhaustive list of considerations.

Regions and authorized states are encouraged to coordinate among different tribal and government agencies and consult with the local community. Legal requirements for maintaining ICs and community acceptance of the need for ICs to provide for protection from residual waste and the land use limitations that can go along with ICs, are often important to the long-term effectiveness of ICs.

Assistance with ICs is available from EPA Headquarters staff in the Office of Superfund Remediation and Technology Innovation (OSRTI), the Office of Emergency Management (OEM), the Office of Brownfields and Land Revitalization (OBLR), the Office of Site Remediation Enforcement (OSRE), the Office of Resource Conservation and Recovery (ORCR), the Office of Underground Storage Tanks (OUST), the Federal Facilities Restoration and Reuse Office (FFRRO), the Federal Facilities Enforcement Office (FFEO), the Office of General Counsel (OGC), and IC Coordinators in the EPA Regional offices.

Typical Key Activities in the IC Life Cycle

- ***Planning*** may include activities leading up to the establishment of an IC. It can include an evaluation of the type of IC contemplated, potential instruments that might be used to implement the selected IC, potential parties who will be responsible for the various activities, criteria for termination of the ICs, issues that might impact the effectiveness of the ICs, and estimated costs and funding sources.
- ***Implementing*** may include activities undertaken to put the ICs in place including drafting and signing the specific documents necessary to establish the IC, and arranging for any technical and legal support that may be needed for monitoring and reporting. ICs may be implemented at any stage in the cleanup process.
- ***Maintaining*** includes both monitoring and reporting which are generally conducted to routinely and critically evaluate ICs to determine whether the IC instrument remains in place and whether it meets the stated objectives and performance goals.
- ***Enforcing*** can include actions taken to address ICs that have been breached or improperly implemented, monitored, or reported. IC enforcement can involve a range of activities, including informal communications to seek voluntary compliance to more formal steps, when appropriate.

2. DEFINITION AND ROLE OF INSTITUTIONAL CONTROLS

For purposes of this document, EPA defines ICs as non-engineered instruments, such as administrative and legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a response action.[4] ICs are typically designed to work by limiting land or resource use or by providing information that helps modify or guide human behavior at a site. Some common examples of ICs include zoning restrictions, building or excavation permits, well drilling prohibitions, easements, and covenants. ICs are a subset of Land Use Controls (LUCs). LUCs include engineering and physical barriers, such as fences and security guards, as well as ICs. The federal facility program may use either term in its decision documents.

As response components, ICs are designed to achieve the precise substantive restrictions articulated in the decision documents[5] that are needed at a site to achieve cleanup objectives. The evaluation of whether an IC is needed at a site is a site-specific determination. Regions and authorized states should consider whether the site meets unlimited use and unrestricted exposure (UU/UE) as one of the factors in deciding when an IC is appropriate at a site. UU/UE is generally the level of cleanup at which all exposure pathways present an acceptable level of risk for all land uses.

Regions or authorized states should provide adequate opportunities for public participation (including potentially affected landowners and communities) when considering appropriate use of ICs. Those opportunities should include providing appropriate notice, and opportunities for comment, particularly in the Proposed Plan and other steps in the CERCLA cleanup process. Regions or authorized states should consider the impacts of the IC on current and reasonably anticipated future land uses, and should maintain a solid administrative record. ICs should be carefully evaluated, selected, and narrowly tailored to meet the cleanup objectives. As an example, a response selecting a capped landfill may require an IC. To ensure protection of both the engineering component and human health and the environment, it may be necessary to prohibit activities that compromise the response

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[4] The words "response action" or "response" are used to include remedial and removal actions under CERCLA and similar actions under other programs. The NCP provisions for CERCLA removal actions address ICs through a particular process (i.e., post-removal site controls, such as ICs, are typically implemented following removal actions, not as part of removal actions). Generally, this guidance attempts to distinguish removals from other response actions, including CERCLA remedial actions or responses under other programs covered by this guidance, through use of the term "remedy" or "remedial action."

[5] In cases where EPA or authorized state determines that "no action" is needed under CERCLA, the decision document should document the assumptions upon which the remedy is based. If conditions at the site change, then EPA can assert its authority to later require a response, including ICs.

action and/or result in exposure to humans. Thus it may be appropriate to prohibit heavy machinery usage on or near the capped area, while allowing light recreational uses (e.g., soccer fields). The relevant decision document should clearly articulate the substantive restrictions (e.g., groundwater shall not be used for human consumption) needed to address the exposure pathways and the risks necessitating ICs.

Definition and Role of Institutional Controls

- Role of ICs (Section 2.1)
- Types of ICs (Section 2.2)
- Program-specific Role of ICs in Cleanups (Section 2.3)

2.1 Role of ICs

ICs may be necessary to ensure protectiveness and/or to protect a remedy. If any cleanup options being evaluated leave waste in place, ICs should be considered to ensure that unacceptable risk from residual contamination does not occur. Cleanup actions such as capping waste in place, construction of containment facilities, monitored natural attenuation, and long-term pumping and treating of groundwater, may leave residual contamination on site where restrictions provided by ICs to supplement the engineering controls can help ensure protection of human health and the environment. ICs, where appropriate, can be used in the context of either short-term temporary site solutions (e.g., restoration responses that will not leave waste in place above unacceptable levels upon completion) or long-term permanent solutions (e.g., containment responses that will leave waste in place in perpetuity).

As a site moves through the response selection process, site managers and site attorneys should collect information and develop assumptions about the reasonably anticipated future land use (for CERCLA-specific guidance, see *Land Use in the CERCLA Remedy Selection Process*, OSWER 9355.7-04, May 1995). Site managers and site attorneys should consider the reasonably anticipated future land use during response selection and take it into account when selecting ICs and drafting IC language in decision documents. Furthermore, site managers and site attorneys should clearly and explicitly document reasonably anticipated future land use assumptions upon which the response action rests.

The site manager and site attorney should discuss reasonably anticipated future uses of the site with local land use planning authorities, local and state officials, the public, tribes and other federal agencies as appropriate, as early as possible during the scoping phase of the Remedial Investigation/ Feasibility Study (RI/FS) for CERCLA or RCRA Facility Investigation/ Corrective Measures Study (RFI/CMS) for RCRA. At sites where any media will not be cleaned up to a level that supports UU/UE, the site manager and site attorney should discuss any IC instruments (in addition to active response measures) that may be appropriate, taking into account legal implementation issues, jurisdictional questions, the impact of layering ICs, and reliability and enforcement concerns. It is also important for the site manager to recognize that, in addition to restricting certain land uses, ICs can also be used to restrict or modify specific activities at sites (e.g., fishing prohibitions).

2.2 Types of ICs

For purposes of this guidance, ICs are divided into four categories: proprietary controls, governmental controls, enforcement and permit tools with IC components, and informational devices. Within each category, there are a number of instruments that may be employed. The following paragraphs summarize each category of ICs and each are discussed in Sections 3 through 9 as they relate to four stages of the IC life cycle (planning, implementing, maintaining, and enforcing ICs).

Proprietary controls are generally created pursuant to state and tribal law to prohibit activities that may compromise the effectiveness of the response action or restrict activities or future resource use that may result in unacceptable risk to human health or the environment. The most common examples of proprietary controls are easements and covenants. Many states have enacted statutes addressing the implementation and long-term effectiveness of proprietary controls. One model that has been developed is the Uniform Environmental Covenants Act (UECA)[6], which can be adopted as is or in modified form by states to provide advantages over traditional common law proprietary controls.

Governmental controls impose restrictions on land use or resource use, using the authority of a government entity. Typical examples of governmental controls include zoning; building codes; state, tribal, or local ground water use regulations; and commercial fishing bans and sports/recreational fishing limits posed by federal, state and/or local resources and/or public health agencies. In many cases, federal landholding agencies, such as the Department of Defense, possess the authority to enforce ICs on their property. At active federal facilities, land use restrictions may be addressed in Base Master Plans, facility construction review processes, facility digging permit systems, and/or the facility well permitting systems.

Enforcement and permit tools with IC components are legal tools, such as administrative orders, permits, Federal Facility Agreements (FFAs) and Consent Decrees (CDs), that limit certain site activities or require the performance of specific activities (e.g., to monitor and report on an IC's effectiveness). They may be issued unilaterally or negotiated.

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[6] UECA was developed by the National Conference of Commissioners on Uniform State Laws. http://www.environmentalcovenants.org/ueca

Informational devices provide information or notification to local communities that residual or contained contamination remains on site. As such, the site manager and site attorney should make sure to provide language that clearly conveys the purpose of the informational device. Typical informational devices include state registries of contaminated sites, notices deeds, tracking systems, and fish advisories.

The four categories of ICs described above are typically available for CERCLA, RCRA, Brownfields, federal facilities, and UST cleanups. However, some of the individual instruments may not be available for all site types. For example, county zoning is typically not available at an active federal facility, and base master plans are typically no longer relevant at transferring federal facilities. In addition, more than one category of IC can be used to ensure a given objective is fully addressed (see Section 3.3).

2.3 Program-specific Role of ICs in Cleanups

Most cleanup programs use ICs, and the challenges of planning, implementing, maintaining and enforcing ICs may be similar across the programs, with some differences at active federal facilities. Generally, under each program, site managers and attorneys should fully evaluate ICs during the development of cleanup alternatives and plan for the implementation, maintenance and enforcement challenges early in the cleanup process. However, it may be important to recognize the program-specific differences in the processes, authorities and responsibilities for planning, implementing, maintaining, and enforcing ICs.

This guidance illustrates some of the program-specific factors that should be considered. It is not intended to be an exhaustive list of the requirements and practices in each cleanup program. It highlights key crosscutting principles rather than enumerating the program-specific variations. Although the cleanup programs do have important differences, the cleanup objectives are similar in that they use ICs in implementing cleanup decisions that are protective of human health and the environment.

CERCLA. Under the National Contingency Plan (NCP), the remedy selection process under CERCLA is guided by several expectations. These include: 1) treatment should be used wherever practicable to address principal threat wastes[7]; 2) ground water should be returned to its[8]beneficial use wherever practicable in a reasonable time frame ; and 3) ICs should supplement engineering controls to prevent or limit exposure, but ICs normally "shall not substitute for active response measures."[9] Thus, ICs are expected to play an important role by minimizing the potential for human exposure and protecting engineered remedies,[10] but they are not intended to be a way "around" treatment or ground water restoration. in Under the NCP, ICs are not to be used as the sole remedy unless active response measures are determined to be impracticable.[11] An IC-only remedy is considered a "limited action" and as such is not the same as a "no action" remedy decision. In cases where EPA determines that "no action" is needed under CERCLA, the decision document should state that the "no action" decision does not preclude EPA from reasserting its authority to later require a response, including ICs.

The use of ICs following Fund-financed removal actions is discussed in previous EPA guidance that addresses post-removal site controls (PRSCs) (*Policy on Management of Post-Removal Site Control*, OSWER 9360.2-02, December 1990). Generally, Regions should treat ICs like PRSCs.[12] The NCP states that *to the extent practicable* (emphasis added) provision for PRSCs following a Fund-financed removal action at both NPL (National Priorities List) and non-NPL sites is encouraged to be made prior to the initiation of the removal action. Such control includes actions necessary to ensure the effectiveness and integrity of the removal action after the completion of the on-site removal action (40 CFR § 300.415(l)). Such controls may be conducted by state, tribal, or local governments; potentially responsible parties (PRPs); or EPA's remedial program for some federal-lead Fund-financed responses at NPL sites upon completion of the removal action.[13] EPA encourages the Regions to coordinate with the state, local governments, and/or community groups prior to the initiation of the removal action, to seek commitments for conducting PRSC, and to notify the state of any recommendation or decision regarding the need for ICs.

Further information to assist states and EPA with the transition of responsibilities from the EPA removal program to the state following an EPA removal action is provided in *Coordination*

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[7] Principal threat wastes generally are source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. For more information, please see *A Guide to Principal Threat and Low Level Threat Wastes*, November 1991. Office of Emergency and Remedial Response (OERR) 9380.3-06FS.

[8] For more information on remedy selection see *Rules of Thumb for Superfund Remedy Selection,* August 1997. EPA 540-R-97-013 OSWER 9355.0-69

[9] These expectations appear in 40 CFR § 300.430(a)(1)(iii).

[10] Regulations that define protectiveness may include requirements for restricting land use in certain situations. These may be determined on a site-specific basis to be an applicable, or relevant and appropriate requirement under CERCLA.

[11] See 40 CFR § 300.430(a)(1)(iii)(A), (B), (C), and (D).

[12] Unlike ICs, PRSC can include a broader array of items such as site maintenance activities, repairs, O&M, and environmental monitoring.

[13] It is important to note that EPA does not use the Fund to pay for IC monitoring or enforcement at removal sites. CERCLA § 104(c)(3) requires states to pay for or ensure the payment of all future routine O&M following Fund-financed remedial actions.

of Federal Removal Actions and State Remedial Activities, Association of State and Territorial Solid Waste Management Officials (ASTSWMO), 2007.

RCRA. The use of ICs for RCRA cleanups is discussed in a 1996 Advance Notice of Proposed Rulemaking (ANPR) for corrective action for releases from solid waste management units (EPA 1996), pages 19,448-19,464; *Final Guidance on Completion of Corrective Action Activities at RCRA Facilities ("Corrective Action Completion Guidance"),* 68 FR 8,457-8,764 (February 25, 2003) and an EPA memorandum titled *Ensuring Effective and Reliable Institutional Controls at RCRA Facilities*, June 2007.

Generally, under RCRA, ICs are included as components of the corrective action and/or post-closure care requirements at a facility, and as such may be incorporated into a permit or an order. The Corrective Action Completion Guidance discusses issues associated with completing corrective actions at RCRA facilities, and provides for two types of completion determinations: (1) Complete with Controls; and (2) Complete without Controls. The Corrective Action Complete with Controls determination may be appropriate at facilities where, among other requirements, all that remains is performance of required Operations and Maintenance (O&M) and monitoring actions, and/or compliance with and maintenance of any ICs. Facilities, or portions of facilities, that are not conducting cleanup as part of corrective action may still have cleanup and IC requirements as part of their facility post-closure care permit requirements. RCRA permits and orders can be used to restrict the use of a property by the current facility owner/operator and/or require that the owner operator implement, maintain and enforce proprietary controls, as needed. For example, EPA-issued orders under RCRA § 3008(h) or § 7003 may require, or prohibit, certain activities at the facility by the current facility owner/operator, and also require as part of corrective action that proprietary and/or governmental controls are used to ensure long-term protectiveness. States may be authorized to implement either or both of the corrective action or base regulatory programs under RCRA and as such may develop their own approaches for cleanup and ICs. For more information on remedial action selection under RCRA see the ANPR, page 19432.

Federal Facilities. EPA's FFRRO and FFEO have issued guidance on describing and documenting ICs in federal facility response actions in Records of Decision (RODs), remedial designs (RD), and remedial action work plans (RAWP) in the *Sample Federal Facility Land Use Control ROD Checklist with Suggested Language (2006),* which provides language for creating enforceable LUC requirements. The LUC Checklist includes sample language for ICs to include in a ROD, RD, RAWP, or other post-ROD document.

Because some federal agencies may have somewhat different procedures, it is important when dealing with federal facility issues to coordinate with FFRRO and FFEO and the specific federal agency in question.

Brownfields and UST Sites. State and local governments often define the cleanup levels at Brownfields and UST sites. The site manager and site attorney are encouraged to work together to make sure that the types of ICs used are consistent with the level of cleanup, and the proposed re-use of the sites.

3. PLANNING FOR INSTITUTIONAL CONTROLS

Full life-cycle planning (i.e., planning, implementing, maintaining, enforcing, modifying if necessary, and terminating) is recommended to ensure the long-term durability, reliability, and effectiveness of ICs. Many problems experienced by practitioners using ICs can be avoided by critically evaluating and thoroughly planning for the entire IC lifespan early in the response selection and design process.[14]

Site managers and site attorneys should seek input from state, tribal, and local governments, responsible parties, affected communities, and other stakeholders during the response selection process in order to ensure that the most appropriate response, including IC(s), is selected. Early cooperation and coordination among these parties with IC planning activities can be critical to the long-term stewardship at a site. Long- term protectiveness at the site often depends on compliance with the ICs to assure the remedy continues to function as intended.

It may be beneficial for state, tribal, and local governments to work with, and reach a common understanding[15] with, the responsible parties and other stakeholders about various IC roles and responsibilities. This common understanding will likely vary depending upon whether federal, state, and/or local authority is used. Whenever possible, Regions should document in writing any arrangements made between parties with responsibilities for IC implementation, maintenance, and enforcement. Existing state and local programs may provide a good framework or foundation for ICs. The following are additional considerations that may be important in evaluating and planning for the IC life cycle.

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[14] In addition to the remedy selection process, ICs may also be chosen as part of a non-time critical removal action and should be evaluated as part of the Engineering Evaluation/Cost Analysis Study (EE/CA) under CERCLA.

[15] Parties may be able to reach a common understanding regarding their respective IC roles and responsibilities through various mechanisms that may be available under State law (e.g., a Memorandum of Understanding, Administrative Order on Consent, contract, or enforceable agreement).

Planning for Institutional Controls

- Selection of ICs (Section 3.1)
- Determining Which Legal Tools to Apply (Section 3.2)
- Layering (Section 3.3)
- IC Implementation and Assurance Plans (Section 3.4)
- Cost Estimation (Section 3.5)
- Funding (Section 3.6)
- Community Involvement (Section 3.7)
- Capacity for Implementing and Managing ICs (Section 3.8)

3.1 Selection of ICs

As part of a remedial action, evaluation and selection of ICs should generally follow a process similar to other remedy components. This typically includes an evaluation of the substantive restrictions on the use of property that may be needed to protect engineering controls and human health and the environment. Site managers and site attorneys should also evaluate the capability and capacity of the local governmental (or other) entities that will be responsible for implementing, maintaining, and enforcing the potential ICs (see Section 3.8). In parallel, they should engage with communities to ensure the community is fully aware of ICs under consideration and seek community input (see Section 3.7).

A preliminary IC evaluation should typically be included as part of site investigation efforts. These may include, for example, a RI/FS developed during CERCLA remedial actions; an Engineering Evaluation/Cost Analysis study (EE/CA) in CERCLA non-time critical removal actions; and in similar Brownfields and UST investigations and decision documents.

Under CERCLA, the proposed restriction should normally be identified in the Proposed Plan, for notice and opportunity to comment by potentially affected landowners and the public. ICs are typically then selected and memorialized in the ROD; generally they are implemented through various types of legal instruments (e.g., an easement). When evaluating different types of IC instrument(s), Regions should normally consider: (1) what are the basic use restrictions needed to ensure that the response actions remain protective and effective, and what types of IC instrument(s) could achieve those restrictions (i.e., what are the potential routes of exposures and how would the IC instrument(s) help minimize those risks)? (2) what tools and strategies are potentially available and what are their legal and practical limits (e.g., are IC lifecycle costs prohibitive)? and, (3) who will ultimately be responsible for activities through each phase of the lifespan of the IC?

For emergency and time-critical removals, EPA, states, or responsible parties should conduct a preliminary IC evaluation as early in the response process as possible. Before commencing a CERCLA removal action, EPA should discuss with the State and/or PRPs the need for ICs following a removal action, and seek a written commitment that the State and/or PRP will assume responsibility for ICs at the site (*Policy on Management of Post-Removal Site Control*, OSWER 9360.2-02, December 1990). EPA may consider requiring an IC in the removal decision document (i.e., action memorandum) when the removal action does not result in UU/UE, especially when EPA will not likely initiate a remedial action upon the completion of the removal action.

In RCRA Corrective Action cleanups, ICs should be evaluated as early as possible, such as when contamination is first discovered at the facility or during the RFI. ICs should be more fully evaluated as part of the CMS or equivalent, or during the design of any interim measures for the facility. In cases where EPA or the State uses performance standards or a similar approach, or in less complex sites, the submission or approval of a formal CMS might not be required. However, ICs should still be evaluated as early as possible under these alternative approaches. Typically, at Corrective Action facilities, the facility owner/operator recommends a response action based on the CMS or equivalent, the lead agency evaluates the response action recommendation and decides what response to propose for public comment and, with owner/operator and public input, makes the final response selection, typically through a permit or order. Each step in this remedy evaluation and selection process provides an opportunity to evaluate and plan for the full life cycle of any ICs.

3.2 Determining Which Legal Tools to Apply

The site attorney should carefully examine[16] state and local laws relevant to the ICs being considered. To help ensure a thorough evaluation, this examination should normally be done as a standard practice during the identification and analysis of the response action. The examination typically occurs during the Superfund FS for remedial actions, the EE/CA process for Superfund non-time critical removal actions, the RFI/CMS process during the RCRA corrective action and permitting processes or the equivalent closure process under Brownfields and UST. Some of the key considerations for this examination are:

- Based on an early evaluation of land title records, are proprietary controls durable?
- Who has the legal authority for implementing and enforcing proprietary controls?
- Who can hold a property interest (i.e., be the grantee) for a proprietary control?

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[16] Some State and local laws and regulations relating to land use may not be enforceable on federal facilities.

- Which state, tribal, or other agency has the legal authority and willingness to accept the transfer of an interest in real property?
- Can real property law in the jurisdiction be used to implement the selected IC in a way that will make it binding on future land owners (i.e., "run with the land") and function in perpetuity, if necessary?
- Are there any restrictions on the use of appurtenant easements (i.e., an easement, or interest, created to benefit an adjoining property) versus in gross easements (interest created was not for the benefit of a particular adjoining property)?
- Are there state laws that authorize ICs (e.g., whether the state has adopted UECA, and what role is allowed under that statute for EPA)?
- What are the limits of the local government zoning and permitting authority?
- Which state and/or local agencies have the legal authorities to control the potential exposure points (e.g., commercial fishing, market place, restaurant, sport/recreational/subsistence fishing)?
- Do these regulatory agencies actively enforce existing regulations?

The specific provisions of ICs usually depend on the specific site conditions as well as the type of legal instruments available.

3.3 Layering

Often ICs are more effective if they are layered or implemented in series. Layering can involve using different types of ICs at the same time to enhance the protectiveness of the response action. For example, layering governmental controls and informational devices is a common approach used at sediment sites to control human health exposures[17] through eating contaminated fish and/or shell fish. Although layering can have its advantages as an IC strategy, site managers and site attorneys should evaluate whether layering may lead to misunderstandings over accountability or to an unnecessarily restrictive response (e.g., preventing reuse) if ICs are not narrowly tailored to meet the response objectives. The layering of ICs and extent of ICs should be commensurate with the amount, concentrations, toxicity and other characteristics of the residual waste. Site managers and site attorneys should also consider informing the entity responsible for maintaining a particular IC that layering does not diminish the importance of its responsibilities. For an additional explanation of layering, see *A Site Manager's Guide to ICs.*

3.4 IC Implementation and Assurance Plans

To ensure effective implementation of ICs, we recommend using an IC Implementation and Assurance Plan (ICIAP).[18]

Regions generally should include an ICIAP, or a reference to[19] it, in the final action decision document and site O&M plan. An ICIAP is designed to systematically (a) establish and document the activities necessary to implement and ensure the long-term stewardship of ICs, and (b) specify the persons and/or organizations that will be responsible for conducting these activities. EPA recommends that the Regions prepare a detailed ICIAP which can help ensure ICs are properly implemented and operate effectively during their entire lifespan, and that can function as a single-source of concise site-specific IC information. At PRP-lead Superfund sites, the revised model Remedial Design/ Remedial Action (RD/RA) Consent Decree (CD) incorporates the concept of ICIAPs and provides some optional model language regarding their use. *See Model RD/RA Consent Decree*, Office of Site Remediation Enforcement, Office of Enforcement and Compliance Assistance. October 2009, sections IV & IX).

The ICIAP should identify the existing or anticipated enforcement documents and approaches that may be used to enforce the ICs, where applicable. It should also describe how the combination of ICs for the site relate to the reasonably anticipated future land use assumption used in the response selection process, especially for special siting circumstances (e.g., schools), as well as resource use restrictions called for in the decision document and how they will be effective and durable over their lifetime. Finally, the ICIAP should address effective steps for information disclosure to affected communities, and full cost accounting of ICs throughout the life of the cleanup project.

The ICIAP may be developed at different times during the cleanup process, depending upon the size and complexity of the cleanup and the cleanup authority or program under which it is being developed. Although information related to the development of the ICIAP may be generated throughout the cleanup process (site investigation, response selection, response implementation, and long-term stewardship), it is generally recommended to initiate the ICIAP prior to, or at the same time as, the design (i.e. RD phase under CERCLA) of the physical response action and finalize it with the completion of the response action. This approach should allow

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[17] For guidance on institutional controls at contaminated sediment sites, please see *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites*, December 2005. EPA-540-R-05-012, OSWER 9355.0-85 or *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites,* February 2002. OSWER Directive 9285.6-08

[18] An ICIAP may not be appropriate for emergency removals and time-critical removals since information needed for IC planning and implementation may not be available prior to a removal action.

[19] ICIAPs do not replace the need to consider ICs in the Feasibility Study analysis or including ICs in decision documents.

time for the site managers, site attorneys, and other interested parties to complete detailed post-response discussions with potential IC implementers, inspectors and other stakeholders. If the ICIAP is not developed in time for inclusion in decision documents, those documents may note the usefulness and potential scope for an ICIAP. The criteria and responsible authority for terminating each selected IC should be identified as part of the full life-cycle planning process in the ICIAP.

As an example, the need for early development of an ICIAP may occur at contaminated sediment sites where CERCLA remedial investigations are in progress and human health exposures from eating contaminated fish are well documented. In such circumstances, developing and implementing an ICIAP in collaboration with appropriate federal, state and/or local jurisdictions, in advance of and/or in conjunction with the engineered response should help ensure protectiveness for populations at risk; by receiving timely outreach and education, those populations can modify their fishing and fish eating behaviors.

EPA is developing a separate guidance on preparing IC implementation and assurance plans.

3.5 Cost Estimation

There are several reasons why a complete and realistic estimate of the full life-cycle cost of ICs is often an important part of the IC planning process. For example, an accurate estimate of the full costs to all parties (e.g., EPA, the State, local government, property owners, federal agencies, and responsible parties) can help evaluate the cost-effectiveness of alternative remedies during response selection, where ICs are an important component of total remediation and/or removal costs. Early in the cleanup process, such as during the RI/FS, EE/CA, or CMS, cost information would typically be compiled to assist in response decision-making, using the best information available at the time. During the response action design phase, more precise information usually is developed and can be used for designing and planning the ICs and for preparing the ICIAP.

In addition, IC maintenance, and enforcement costs may extend beyond the 30-year[20]eriod traditionally used in many p response cost calculations. These continuing costs should be acknowledged when developing response cost estimates and can be important in evaluating long-term effectiveness.

Finally, accurate response cost estimates are typically important so that agencies, governments, responsible parties, and other organizations with the long-term responsibility for the ICs can know their financial obligations prior to entering into settlements. Their involvement can help ensure that adequate resources will be available in the long-term for maintaining and enforcing ICs outside of an agency's direct control, and can significantly increase the reliability of the ICs and overall protectiveness of the response. For more information on cost estimation, please see a *Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, July 2000, EPA 540-R-00-002 OSWER 9355.0-75.

3.6 Funding

Reliable cost estimates can also be important to parties, such as states and PRPs, who will be responsible for site cleanups and ICs. Parties responsible for the cleanups are often required to provide assurances to regulatory[21] thorities that they will au complete the O&M, including ICs. Regions should ensure that whatever entity will be responsible for maintaining the IC, including local governments, has the capacity to do so. Cost estimates may also help the planning process for removal actions when appropriate. Under RCRA, the owner/operator of a facility is responsible for conducting corrective action which includes ICs.

An important part of this assurance can be the availability of State or PRP funds throughout the life of the O&M. Further information regarding assurance requirements and costs is provided in Sections 4.4, 6.5, and 8.7 herein.

3.7 Community Involvement

Another important aspect of IC planning normally is community involvement. Site managers and site attorneys should work with the community early in the process to understand the future land uses being considered at a site, and understand how ICs may impact future land uses. Land use planning decisions are generally intended to serve the interests of the community, and communities typically play a central role in shaping policies at the local government level regarding land use planning. As mentioned in the *Land Use in the CERCLA Remedy Selection Process* directive (OSWER 9355.7-04, May 25, 1995), where there are concerns that "the local residents near the Superfund site may feel disenfranchised from the local land use planning and development process…EPA should make an extra effort to reach out to the local community to establish appropriate future land use assumptions…"[22] Thus, community input is

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[20] "Past USEPA guidance recommended the general use of a 30-year period of analysis for estimating present value costs of remedial alternatives during the FS (USEPA 1988). While this may be appropriate in some circumstances, and is a commonly made simplifying assumption, the blanket use of a 30-year period of analysis is not recommended. Site-specific justification should be provided for the period of analysis selected, especially when the project duration (i.e., time required for design, construction, O&M, and closeout) exceeds the selected period of analysis." (*Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, July 2000, EPA 540-R-00-002 OSWER 9355.0-75)

[21] See, for example, 40 CFR § 264.101 for financial assurance requirements for corrective action at RCRA-permitted facilities.

[22] *Land Use in the CERCLA Remedy Selection Process* (OSWER Directive 9355.7-04; May 1995) available at http://www.epa.gov/swerosps/bf/html-doc/landuse.htm.

often critical in helping site managers and site attorneys develop assumptions regarding the reasonably anticipated future land use for a site, and in selecting ICs.

Site managers and site attorneys are encouraged to work with the Community Involvement Coordinators (CICs) to develop strategies to ensure that the community understands why ICs are needed (e.g., why it may not be feasible to clean up the site to levels that allow for unrestricted use), how the ICs will work as part of the cleanup to protect human health and the environment, and any potential implementation issues associated with an IC. Community understanding and support can significantly improve the likelihood that ICs will be appropriately selected, implemented and maintained effectively.

Regions should ensure communities have meaningful opportunity to review proposals for site remedies and provide adequate information to allow informed public comment regarding the choices between cleanup alternatives that either achieves levels that allow for unrestricted use, or leave levels that lead to restricted uses and rely on ICs. When waste is left in place and ICs are needed, Regions should provide the affected community an opportunity to review the analysis (e.g., a proposed plan) that supports the choice of leaving waste in place as opposed to a more aggressive cleanup.

Once cleanup actions have been completed, the local community may be impacted by ICs and associated land use limitations if there is residual waste on site that requires continued management. As such, one of the critical roles a community can play is to identify potential issues regarding state or local government capacity or ability to manage and oversee the ICs effectively. In the event that there is a question about the ability to manage and oversee ICs effectively, Regions should consider whether it may be appropriate to consider removal of additional waste to eliminate the need for ICs, or rely on other ICs that can be effective in ensuring that reuse would not pose a threat to human health or the environment.

Finally, it should be recognized that public input can help identify combinations of ICs that can more effectively facilitate the return of environmentally distressed properties to beneficial use. For example, CERCLA Fund-financed response actions may require certain state assurances for implementing, maintaining, and enforcing ICs at remedial action sites following completion of the remedial action, and for implementing post-removal site controls at removal sites. Involving community members in the evaluation of the options may provide valuable information and foster the understanding, acceptance, and support for ICs that can be critical to support the long-term reliability of the cleanup.

3.8 Capacity for Implementing and Managing ICs

When ICs are to be employed as a component of a site response, Regions should carry out an analysis to determine if the state and local agencies responsible for oversight and management of the controls have the ability and capacity to implement, maintain and enforce the controls. ICs can only be a reliable component of site cleanup if the responsible agencies have the ability, willingness and capability to oversee and manage these controls. The Regions should consider a number of factors when evaluating ability, willingness and capability for the management of ICs, including:

- Can the ICs be accurately mapped?
- Is it possible to use the States' one-call system(s) to prevent breaches?
- Is it possible to establish a mandatory monitoring and reporting program to routinely review ICs to ensure their continued effectiveness?
- What enforcement authorities are available to ensure ICs are maintained?
- Is it possible to establish informational ICs that effectively disseminate information on the location of controls, compliance status, and monitoring reports to interested stakeholders, state and local environmental officials?
- Is there a source of funding, or is it possible to establish a mechanism to provide funds, for the operation and maintenance of ICs?
- How are IC expenditures to be tracked? Is there a history of expenditures that can be used to refine future planning estimates for the long-term costs of maintaining ICs?

4. GENERAL IMPLEMENTATION ISSUES

A number of factors should be considered to evaluate whether ICs can be effectively implemented as part of a response action. These factors, and the roles of the various interested parties, may differ depending on the type of IC instrument, the specific circumstances at each site, and which authorities are being applied. At many sites, responsible parties may have the primary responsibility for implementing and ensuring the long-term effectiveness of ICs. This section addresses some general issues and concepts typically encountered in implementing ICs.

4.1 Documentation of Use Restrictions and IC Instruments in Decision Documents

For most cleanup programs, use restrictions and IC instruments relied upon to help achieve protectiveness should be incorporated in site decision documents; often such an IC can be based upon a preexisting state or local law or program. The decision document(s) should describe the rationale for using the ICs in helping to achieve protectiveness (e.g., their role in maintaining the effectiveness of the response action) and should include as much detail about the ICs as possible. Specifically, the decision documents should describe how the recommended ICs accomplish the specific land and resource use restrictions that are the objectives of the IC.

General Implementation Issues

- Documentation of Use Restrictions and IC Instruments in Decision Documents (Section 4.1)
- Drafting IC Language in the Selected Instruments (Section 4.2)
- Role of Local Governments and Communities (Section 4.3)
- State Assurance for Stewardship at CERCLA Fund-lead Sites (Section 4.4)
- ICs and Landowners (Section 4.5)

Different cleanup programs utilize different authorities, processes, and documentation of response actions. The main remedy decision documents used for Superfund remedial actions generally are RODs, Explanation of Significant Differences (ESDs), and ROD Amendments. For CERCLA removal actions, the Action Memorandum is the decision document to select and authorize removal actions (*Superfund Removal Guidance for Preparing Action Memoranda*, September 2009 which updates and replaces *Superfund Removal Procedures: Action Memoranda Guidance*, OSWER 9360.3-01). Because ICs are generally not selected as part of the removal action, the Action Memorandum should generally indicate that the State will be the lead agency for planning, implementing, maintaining and enforcing ICs in those cases where ICs would be appropriate after the removal action and where the site is non-federal. Examples of RCRA documents that may contain IC language include permits and orders, corrective action decision documents known as Statements of Basis, Final Decision/Response to Comments, and equivalent documents issued by authorized states. Brownfields, UST, and federal facility sites often have equivalent decision documents, cooperative agreements, or work plans.

In addition to decision documents, other documents that may include information related to the remedy and/or ICs for the site are Superfund orders, CDs, and related documents. The RD, ICIAP, IC requirements in an O&M plan, five-year review (FYR) or other periodic remedy reviews, or equivalent documents also may provide IC details. For federal facilities under CERCLA, LUC implementation details are generally placed in a post-ROD enforceable document usually called a LUC Remedial Design or Remedial Action Work Plan or a LUC Implementation Plan.

Specificity of Language in Decision Documents - Selecting Restrictions and ICs. Because many ICs involve complex legal analysis and issues, site attorneys should play a leading role in developing the appropriate language. Developing the appropriate language may require a combination of expertise in the federal and state environmental laws, regulations, and programs involved, as well as local and state real estate law and practice. One of the challenges that site attorneys and site managers may face is translating the substantive land and resource use restrictions selected in the decision document into IC instruments. Vague or missing language about the restrictions in the decision document may have unintended consequences including either under or overly-prescriptive IC instruments. As a general principle, site managers and site attorneys are encouraged to present information in decision documents that, for any ICs selected in the decision document:

- Clearly describes the objectives to be attained in terms of specific land and resource use restrictions;
- Includes a map and describes the geographic location of the restricted areas;
- Identifies the entities responsible for implementing, maintaining, and enforcing the ICs;
- Discusses plans for maintaining and, as appropriate, the enforceability of the anticipated IC instrument(s);
- Evaluates the likelihood that the ICs can be effectively implemented, and
- Identifies the necessary lifespan of the IC (e.g., either as interim or permanent measures).

An analysis of this type of information will generally help the site manager and site attorney appropriately select the IC instrument(s) that can meet the response action objectives. Providing this information to the public should also aid the public's understanding of the need for the specific ICs and their relationship to the overall response. This analysis should be appropriately documented in the decision document(s).

It is recognized that at the time of decision document signature there may be some uncertainty as to the specific IC instrument to be implemented at the site. Every effort should be made to provide as much specificity at the time of the decision including, where appropriate, the types of uses of the site that should be protective based on the proposed response actions, the ICs that can help ensure protectiveness, and which entity will assume responsibility for implementing, maintaining and enforcing the restriction, where possible.

For additional information on federal facilities, see EPA's *Sample Federal Facility Land Use Control ROD Checklist with Suggested Language*, October 2006.

Modifying Existing Response Action Decision Documents. In some circumstances, it may be appropriate for site managers and site attorneys to work together to clarify or specify IC requirements in existing decision documents (e.g., where IC language is vague or incomplete). At Superfund sites, if the change to a Superfund remedial action is deemed minor or not significant, it may be appropriate to clarify the ROD through a memo to be added to the site file. If the change is determined to be significant, but not fundamental, an ESD may be appropriate. In some instances, a site manager and site attorney may determine that an opportunity for public comment is appropriate for sites with significant stakeholder interest. In some cases, a fundamental change to a Superfund remedy may be necessary; in such cases, a ROD amendment should be prepared. This may occur in situations where, for example, an implemented remedy that relies in part on an IC fails to attain the remedial action objectives (RAOs). In addition, if an appropriate IC cannot be developed to attain the RAOs described in the ROD; a revision to the overall remedy may be warranted.

Regions should continue to review and strengthen ICs with periodic reviews that take changes in land use into account. For a site-wide ready for anticipated use (SWRAU) determination,[23] the Regions consider whether all ICs called for in the decision documents are in place and continue to be effective. IC instruments, such as notices, can be effective controls and should be considered when evaluating a SWRAU determination. In some cases, it may be appropriate to strengthen, layer, or include supplemental ICs at the site to ensure protectiveness of human health. In the event that a review (e.g., a CERCLA FYR) identifies the need to modify the existing IC(s), it may be appropriate to modify the original decision document (e.g., the ROD). If a decision document is amended to require additional ICs, then the Region may want to wait to evaluate whether the site achieves SWRAU.

If the RAOs can be met using new or additional ICs, Regions should evaluate what type of modifications, if any, to existing remedy decision documents and associated enforcement documents (if any) may be appropriate. Where the Region makes changes to the engineering component of the remedy, the site manager and site attorney also should ensure that any existing ICs are consistent with the revised remedy. For information on changing Superfund remedies, see *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and other Remedy Selection Decision Documents*," EPA 540-R-98-031, OSWER 9200.1-23, July 1999. When documenting significant changes made to a remedy in the Superfund program, the lead agency must comply with the public participation requirements of CERCLA § 117(c); the NCP also has provisions that address public participation (see e.g., 40 CFR §§ 300.435(c)(2)(i) and 300.825(a)(2)).

To document IC changes to the removal action, the Region should either supplement or amend the action memorandum as appropriate depending upon the nature of the IC and the change.

Under RCRA, a permit modification or change to a corrective ~~action order may be necessary if the pre~~viously understood conditions, selected remedies, or overall operations change. The requirements for modifying an existing permit may vary from state to state. If the selected response, including any ICs, differs from the proposed response as discussed in the Statement of Basis, the final permit modification should reflect such changes.

As stated previously, Brownfields and UST cleanup requirements vary by state authority, so the state site manager and site attorney should research the existing administrative procedures for modifying response decisions.

4.2 Drafting IC Language in the Selected Instruments

This section provides recommendations for identifying and addressing several potential issues regarding IC language in a variety of contexts. Vague or inappropriate IC language can lead to confusion and conflict in establishing effective ICs and, in some cases, may result in the creation of unintended rights and/or obligations. Regions generally should ensure that the IC language in the instrument clearly states the IC objectives (e.g., restrict well drilling) and their relationship to the response action (e.g., prevent human consumption of contaminated ground water).

Using Subject-Matter Experts and Stakeholder Input It may be useful to consult subject-matter experts and stakeholders in developing appropriate IC provisions. For example, special expertise may be needed to develop language for proprietary controls, governmental controls, or informational devices.

When developing the specific IC language, the site attorney may consider consulting, where appropriate, with officials from national professional organizations; the state attorney general's office; state environmental protection agency; local government planning agencies; several EPA offices including OSRTI, Office of Enforcement and Compliance Assurance (OECA), FFRRO, FFEO and OGC; responsible parties; site owner (if different from the responsible party); other federal agencies; and community stakeholders. Such consultations can help to ensure that IC instruments that are identified and implemented (such as covenants, easements and notices) are recorded in local land records, and comply with the real property law and recording statutes of the appropriate jurisdictions. Such consultations can be especially useful because state laws can vary significantly.

For enforcement-lead sites, attorneys may consider drafting enforcement documents that would require the responsible parties to provide supporting information (e.g., a certification from a real estate attorney) demonstrating that the covenant, easement, or notice meets the appropriate requirements for the jurisdiction. In the case of local governmental controls such as zoning, the site attorney and site manager should work closely with local government staff to ensure that the IC can be implemented, maintained, and enforced.

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[23] As further discussed in Section 9, this determination is made for purposes of the Government Performance and Results Act.

Through active interagency and intergovernmental coordination, the site attorney and site manager usually can better ensure that the language used leads to effective ICs that meet the IC objectives stated in the decision document and that can be appropriately implemented, maintained, and enforced within the jurisdiction. Community involvement in the development process to promote the acceptance and understanding of ICs can help in developing ICs that are reliable, durable, and effective over time.

Useful IC Provisions. The following provisions should be considered for inclusion in the IC documents:

- *Notification to lessees.* Enforcement documents such as Administrative Orders on Consent (AOCs) and CDs may reference existing lease agreements and require lessors to notify existing lessees and sub-lessees of the residual contamination and the restrictions on the use of the property. Also, a notice of the residual contamination and use restrictions should be included in any future leases or subleases of the property and such leases and subleases should be made subject to any proprietary controls.

- *Notification to EPA, states, tribes, and local governments.* The site attorney and site manager should determine whether proprietary controls and enforceable documents should require the signator or owner of a proprietary interest to give prior notice to EPA (or other lead agency), as well as the state, tribal, and local governments, of any changes in land use, property transfers, or any other activity that may affect the protectiveness of the IC and/or the engineered response action. In addition, the IC should have clear provisions for notification in the event of a breach of the IC. Such notifications should indicate, or provide enough information to determine, if the IC process and environmental performance objectives are being met.

- *Site description.* IC documents should include a comprehensive site description to help focus the ICs needed on specific areas of the site or on specific environmental issues. Regions should avoid applying ICs to the entire site rather than the specific area requiring the restriction, where this would result in the needless restriction of areas that should not have been subject to ICs. Thus, it is important to accurately describe the parcel boundaries and the location of any residual contaminants as well as provide a map to reflect these boundaries and locations. Appropriate mapping can show both the location of site-related contamination and where ICs have been implemented. It is also helpful to note the location of any structures (including temporary structures associated with response activities), zoning, ownership, and other information deemed relevant for the intended use of the site. It should be noted that the location and dimensions of the residual contamination may change over time (e.g., due to contaminant migration or attenuation). A number of descriptors can be used to characterize the location and other factors about the site.

4.3 Role of Local Governments and Communities

While EPA, the state, or tribe may take the lead on many response actions, local governments and community members typically plan and regulate land use at the site. Local governments and community members can offer valuable information on the land use controls available in their area, and may help develop creative solutions that can help ensure protection of human health and the environment while also considering the interests of other local stakeholders. Local governments are often the only entities that have legal authority to implement certain types of ICs (e.g., zoning restrictions). Therefore, local governments and community members generally are important partners for implementing, maintaining, and enforcing certain ICs.

Some Potential Key Roles for Local Governments and Community Members

- Provide input on the reasonably anticipated future use at the site.
- Provide information and input on the available land use controls within the jurisdiction of the local government.
- Implement, maintain, and enforce zoning and permitting regulations.
- Evaluate building permit requests, site plans, and zoning applications.
- Provide notice to EPA and the state regarding land use changes at the site.
- Provide information relevant to the planning, design, and execution of periodic reviews, such as the CERCLA Five-Year Review (FYR) process.

Site managers and site attorneys are encouraged to involve both community members and local governments early in the response process, and to discuss reasonably anticipated future land use, public health protection goals, and the IC instruments being considered to achieve these goals. In addition, it can be important to clearly discern the regulatory jurisdictions of different state and local resource agencies and public health agencies regarding their authorities and programs. This process often encourages multiple face-to-face meetings with local officials and community members by both site managers and CICs. The involvement of local governments and community members in IC planning and implementation can lead to more effective and appropriate ICs, and avoid delays in developing them or completing the cleanup.

4.4 State Assurance for Stewardship at CERCLA Fund-lead Sites

In general, CERCLA § 104(c)(3)(A) requires the State to provide assurance that it will assume responsibility for O&M of a Fund-financed remedial action. The NCP (40 CFR § 300.510(c)(1)) provides that "the State must assure that any institutional controls implemented as part of the remedial action at a site are in place, reliable, and will remain in place after the initiation of O&M. The State and EPA shall consult on a plan for operation and maintenance prior to the initiation of a remedial action." These assurances are normally documented in a cooperative agreement for State-lead sites, or in a Superfund State Contract (SSC) for Fund-lead sites.

Detailed cooperative agreements and contracts with State agencies may contain much more detailed information about IC implementation than an ICIAP. These cooperative agreements, contracts, or commitment letters can be used to clarify the State's role in implementing ICs that are part of the remedy selected in the ROD. For example, they may include detailed activities, deliverables, schedules, and tracking mechanisms. However, they cannot be used to provide Federal funds to the state or local agencies for maintaining and enforcing ICs that fall under the umbrella of O&M at Fund- lead sites. See Section 8.7 for further details on the limits of the use of Fund money.

An agreement to fund the initial implementation of ICs and formalize O&M responsibilities may enable the State to provide the necessary assurance. However, if the State is unwilling or unable to provide this assurance, the site manager and site attorney may need to consider other ICs or, if necessary, choose an alternate remedy that does not need ICs to ensure protectiveness. Therefore, it is important that a site manager and site attorney fully understand the capability and willingness of the State to provide assurances for ICs before Superfund remedy decisions are made.

Prior to initiating a time-critical or non-time-critical removal action, Regions are encouraged to seek a written commitment from the State, local government, or PRP that they will assume responsibility for ICs. Where the State will be responsible for the ICs following a non-time critical removal action, the request for commitment could be included in the applicable or relevant and appropriate requirements (ARARs) request letter (which may already be happening prior to signature of the decision document). For PRSCs, the Region is encouraged to obtain the commitment prior to initiating the removal action. For an emergency removal, the Region may seek a written commitment after initiating the removal action**.** See *Superfund Removal Procedures - Removal Enforcement Guidance for On-Scene Coordinators*, OSWER 9360.3-06, April 1992.

4.5 ICs and Landowners

Generally, owners of contaminated property are responsible for addressing the contamination on their property, including implementing and/or maintaining ICs. Under CERCLA, for instance, landowners specifically may be liable for costs associated with or performance of the cleanup.

There may be instances under any of the cleanup programs where a restriction needs to be placed on the property of a landowner who did not cause or contribute to the contamination. Under CERCLA, EPA has authority to obtain property access under § 104(e), to order parties to perform site cleanup under § 106, and to acquire real property interests under § 104(j). Similar authorities may not be available to states or EPA under other cleanup programs (e.g., different liability provisions apply to UST and RCRA cleanups). EPA strives to ensure that the parties responsible for the contamination implement and maintain ICs, including those restrictions on properties not owned by them.[24] In such cases, a responsible party may need to negotiate with landowners in order to obtain cooperation or agreements to maintain an IC on their property. If responsible parties are unable to negotiate an IC with landowners, the Region may need to reassess the response action or pursue other strategies to implement the selected IC. Where responsible parties are unwilling to work with landowners to implement ICs, the Region should ensure that IC commitments or requirements made in enforcement documents (e.g. commitments in settlements, requirements in administrative orders) are met. Where landowners of contaminated property are unwilling to have an IC implemented on their property, the Region may require them to take an appropriate action through enforcement tools such as a Unilateral Administrative Order (UAO). These scenarios are addressed in more detail in Section 9.4 herein.

Where a response action involves ICs that are to be implemented on properties owned by parties who did not cause or contribute to the contamination, the community (including all property owners involved) and local government should be involved early during the response process. Moreover, any affected landowners should be given adequate notice of the proposed response action and the opportunity to comment. This can occur, for example, in the Proposed Plan

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[24] "*Enforcement First" to Ensure Effective Institutional Controls at Superfund Site, OSWER Directive 9208.2, March 17, 2006.*

and comment period process used for CERCLA remedial actions.

The sections below discuss some specific considerations when contemplating a remedy that calls for landowners who either qualify for conditional limitations on, or exclusions from, liability or who are otherwise not liable to take steps to implement or maintain ICs.

Conditional Limitations on or Exclusions from, Liability for Landowners of Contaminated Property. Some selected response actions may call for ICs to be implemented on properties owned by parties who did not cause or contribute to the contamination but nonetheless may have responsibilities for implementing and maintaining ICs on their properties. For example, the Small Business Liability Relief and Brownfields Revitalization Act, Pub. Law 107-118 (the Brownfields Amendments), enacted in January 2002, amended CERCLA to provide and clarify certain qualified liability limitations for landowners, including: (1) bona fide prospective purchasers; (2) contiguous property owners; and (3) innocent landowners. These qualified liability limitations are conditioned on meeting certain threshold criteria and continuing obligations. Particularly relevant to ICs is the continuing obligation to comply with any land use restrictions and to not impede the effectiveness or integrity of any ICs established, relied on, or connected with a response action. For more information on these statutory liability protections available to landowners, see *Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability ("Common Elements" Guidance),* March 6, 2003.

Some responses may also call for ICs on properties owned by parties subject to a liability protection (e.g., landowners of uncontaminated properties that have liability protection and the properties are otherwise integral to a response action). For example, an IC can be used to protect the integrity of a ground water sampling well that is in place to monitor the migration of a contaminated ground water plume. It may be challenging to implement ICs in these scenarios because the landowners have a liability protection that shields them from liability for the response action. Early and meaningful outreach to these landowners, including describing the purpose and objectives of the response and the need for the IC, is particularly important in these cases.

For landowners that may not qualify for the qualified liability limitations contained in the 2002 Brownfields amendments, EPA has enforcement tools that may alleviate some concerns about their CERCLA liability as owners of contaminated property. EPA issued its *Policy Towards Owners of Residential Properties at Superfund Sites, OSWER Directive 9834.6*, July 3, 1991, an enforcement discretion policy, the goal of which was to relieve residential owners of the fear that they may be subject to an enforcement action even though they had not caused the contamination on the property. Similarly, EPA has issued an *Interim Enforcement Discretion Guidance Regarding Contiguous Property Owners,* January 13, 2004, and a *Final Policy Toward Owners of Property Containing Contaminated Aquifers,* November 1995, which discuss EPA's enforcement position with respect to contiguous property owners and owners of property that contains an aquifer that has become contaminated as a result of subsurface migration.

Additional Considerations. The challenges presented by implementing ICs on properties owned by landowners who did not cause or contribute to the contamination are heightened when the desired IC is a proprietary control. These challenges are significant but so are the benefits of proprietary controls, such as their enforceability and long-term effectiveness. These considerations should be balanced when determining when to pursue other types of ICs.

5. IMPLEMENTING PROPRIETARY CONTROLS

Proprietary controls generally use real property and contract law to place restrictions on, or otherwise affect the use of property or related resources. Common examples of proprietary controls include covenants and easements, which give their holders "property interests," or the right to restrict use of the land, but generally not possession of the land.

Implementing Proprietary Controls

- Principles of Proprietary Controls (Section 5.1)
- Proprietary Control Strategies (Section 5.2)
- Documenting the Proprietary Control (Section 5.3)
- Selecting the Grantee (Section 5.4)
- Implementing Proprietary Controls at CERCLA Fund-lead Sites (Section 5.5)
- State Assurance Requirements for Acquiring Real Estate Interests under CERCLA (Section 5.6)
- Establishing ICs through RCRA Orders and Permits (Section 5.7)

5.1 Principles of Proprietary Controls

For a proprietary control to be put in place, a transaction typically occurs in which a property interest is conveyed from the owner of the land, known as the "grantor," to some other party who will be the "holder," also known as the "grantee." The term "grantee" refers to the party holding the reserved uses (e.g., property interests). This transfer of interest generally is memorialized in a written agreement, which is then recorded in the local land records.

For example, a property owner (grantor) may agree to restrict the drilling of ground water wells on his/her property and grant the right to prohibit the drilling of wells to another party.

Through the recording of a proprietary control, the restricted uses normally are considered to be "running with land" so that all future owners or interest holders would be bound by them. Selecting an appropriate grantee can be one of the most critical issues in the effective implementation of a proprietary control, and is discussed in Section 5.4 herein.

The implementation of a proprietary control may or may not be part of a larger transaction involving the sale or transfer of the underlying property. Some states do not consider certain proprietary controls (e.g., covenants) to constitute interests in real estate. However, the process for implementing such a control will typically be similar to that needed when the control does constitute an interest in real estate.

Since proprietary controls rely heavily on state law and practice, it is important to be aware of all relevant state legislation and regulations. States can address some of the legal impediments to the long-term durability of proprietary controls through legislation (e.g., statutorily allowing the environmental covenant to "run with the land"). Several states have adopted some or all of UECA, model legislation that may reduce the legal and management complications associated with using environmental covenants as ICs. The site manager and site attorney should determine whether there are any such state statutes, and whether they can help ensure the protectiveness of the remedy before the response action is chosen and thereafter as part of any periodic review, maintenance and/or optimization of the remedy.

5.2 Proprietary Control Strategies

At many sites, the responsibility for implementing proprietary controls typically rests with the responsible party or landowner. At many CERCLA Fund-lead cleanups, EPA or the State (depending on which is the lead agency) will typically have implementation responsibility as part of the response action. Required activities are usually documented in a CD or an administrative cleanup order (either unilateral or on consent). At a minimum, the document should state the objective of the IC, the location of the property and specific areas to be covered by the IC, the specific type of proprietary control anticipated, the party who will be the grantee, and a requirement that the responsible party provide notice to EPA and/or the state if the control is violated.

Generally, when the responsible party owns the land that is being restricted, the proprietary control should be memorialized in an enforceable easement or restrictive covenant. If the response action includes the use of a restriction on the use of land not owned by the responsible[25] party, that responsible party should use its "best efforts" to obtain a proprietary interest. This can include responsible party compensation to the affected landowners for the proprietary control. To secure an agreement with the owner of the affected property as to the valuation of the property interests, one or more independent appraisals may be necessary.

If the responsible party cannot obtain the necessary interests despite its best efforts, EPA and/or the state may acquire the interests, and the responsible party may be required to reimburse EPA and/or the state for all costs incurred in acquiring the interests. EPA has authority to acquire property interests for purposes of conducting remedial action at CERCLA sites provided that the State agrees to accept transfer of the real estate interest when O&M is initiated.[26] For additional information on other enforcement strategies that may be appropriate, see Section 9.4.

For purposes of allowing EPA to directly enforce certain proprietary controls, EPA may pursue the role of a "third party beneficiary." That is, another party such as a responsible party or a state would serve as the grantee of the easement or covenant that specifically provides third-party rights of enforcement to EPA. Other viable parties with legitimate interests in ensuring ICs remain in place, such as neighbors, local governments, and environmental and civic organizations, may also act as third-party beneficiaries. This approach can strengthen the effectiveness of the IC by providing an additional means of ensuring compliance. Site managers and site attorneys should consider the third-party beneficiary approach whenever a proprietary control is used. For further information on third-party beneficiary rights, see *Institutional Controls: Third-Party Beneficiary Rights in Proprietary Controls*, Office of Enforcement and Compliance Assistance memorandum, April 19, 2004.

5.3 Documenting the Proprietary Control

As previously discussed, the form of a proprietary control needs to comply with the laws of the jurisdiction in which the property is located, and should be implementable, legally effective, and enforceable. The language of each document should be tailored to the site characteristics, IC objectives (land and/or resource use restrictions), and performance standards (if any) designated in the decision document.[27]

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[25] "Best Efforts" is defined for the purposes of the EPA CERCLA Model RD/RA Consent Decree to include the payment of reasonable sums of money in consideration of access, access easements, land/water use restrictions, restrictive easements, and/or an agreement to release or subordinate a prior partly to lien or encumbrance (*Model RD/RA Consent Decree*, Office of Site some

Remediation Enforcement, Office of Enforcement and Compliance Assistance. October 2009, paragraph 28).

[26] Although EPA may acquire property interests at remedial sites, and receive

reimbursement for costs incurred in acquiring the interests, there is no explicit equivalent authority for CERCLA removal, RCRA, Brownfield, or UST cleanups. See discussion in Section 5.6, State Assurance Requirements for Acquiring Real Estate Interests Under CERCLA.

[27] Where appropriate, use of sample language or model proprietary control documents may be useful. For example, some states have developed templates for proprietary controls consistent with their legislation, ensure that the controls are enforceable and run with the land. Using

Responsibilities and Approvals. A draft proprietary control is typically developed by the responsible party, EPA, and/or a state (depending on site lead). The site attorney and site manager typically would review and approve the controls. The responsible party may find it necessary to obtain the services of an experienced real estate attorney in the design and implementation of proprietary controls. This can be important because the exact requirements often vary by the type of proprietary control, the jurisdiction, and cleanup authority or program (e.g., RCRA, CERCLA).

Depending upon the complexity of the control or jurisdiction, the proprietary control also may need to be reviewed and approved by EPA's OGC and/or the state attorney general. If it is determined that the United States is to be the grantee of a property interest at a private site, the U.S. Department of Justice (DOJ) will review and approve the title to the property interest to be acquired unless the assistance of another federal agency with delegated approval authority is obtained. Once the document has been approved by the regulatory agency, the responsible party should ensure that it is executed and recorded in the land records. The site manager should place a copy of the recorded instrument in the site file.

Contents of a Proprietary Control Document. Proprietary controls, such as easements, should generally contain language of conveyance to effectuate a transfer of an interest in real property. As a general rule, such language is drafted in[28] terms of a grantor conveying a property interest to a grantee. It is often important for the language to clearly show the relationship of the specific IC instruments to the land and resource use restrictions called for in the decision document. Typically, the document should contain all substantive parts of the actual restriction, and at a minimum, normally should provide:

- A detailed legal description of the site;
- A list of uses that will be restricted;
- A clear description of who will execute the document;
- A clear description of the area to be restricted, particularly where less than an entire parcel is affected;
- A complete description of the types and location of residual contaminants and response action components;
- The precise names of the parties involved (including the grantee and grantor as they appear on title documents, and any third party beneficiaries);
- Provisions for third-party or other enforcement, as necessary;
- The parties' rights, including resource and use restrictions;
- Language to clearly express whether the IC is binding on subsequent purchasers (i.e., that the proprietary control "runs with the land");
- Specific notice and approval requirements for modifying or terminating the IC;
- A requirement for notification to EPA and/or the state prior to transfer or lease, or if there is an IC violation;
- Information regarding indemnification of the state or other grantee;
- Provision for notification to lessees of the IC, and
- Discussion of any common law impediments, where appropriate.

When developing the legal instrument, it may be important to have the site surveyed, have permanent monuments erected to properly document the location of the affected area, and conduct a review of title to the property to identify all parties who have a lien on or interest in the property. Clearly defining property and IC boundaries may prevent unnecessary confusion and may facilitate beneficial reuse. Accurate maps should be prepared (in both paper and GIS versions) to depict the physical areas subject to restrictions. These maps should be made available to the public, which can help provide notice and important information about the ICs.

Finally, the site manager and site attorney should attempt to resolve any "subordination" issues early in the IC evaluation and selection process before implementing a proprietary control. As a general rule, in most states, real property interests are generally prioritized according to the order in which they are recorded in the land records. A property may be subject to several recorded interests, such as mortgages, tax liens, utility easements, and judgments. In addition, a property may have surface land rights that may be separate from mineral or water rights and the separate rights may need to be considered in drafting effective proprietary controls. To avoid a situation where a proprietary control is subordinate to a prior or "senior" interest, a subordination agreement may be used to switch the priority around. A subordination agreement is a legally binding agreement by which a party holding an otherwise senior lien or other property interest consents to a change in the order of priority relative to another party holding an interest in the same real property. Obtaining a subordination agreement can help ensure that the IC is enforceable against all parties with an interest in the property and not extinguished if a senior lien holder forecloses on the property.

In order to understand whether a subordination agreement is necessary, it normally is important to conduct a thorough title search to identify all parties holding prior interests in the

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sample language can reduce the amount of time spent drafting and negotiating with state agencies, responsible parties, and other entities with a role in the proprietary control.

[28] Depending upon state law, a covenant may not represent an interest in real property. For example, state law may specify that an environmental covenant does not constitute an interest in real property if a state agency is the grantee nor has "agency" status under UECA.

property. Unrecorded interests, such as leases, may also need to be subordinated to ensure that lessees abide by the easement/covenant. If subordination of senior interests is not possible, the lead agency should frequently notify the holder(s) of the senior interest(s), and identify the risk of harm that could occur, and the potential liability that may arise, if the recorded environmental restrictions are not respected.

5.4 Selecting the Grantee

Another critical issue in the effective implementation of a proprietary control can be the selection of the holder of the property interest or covenant (i.e., the "grantee"). Generally, the grantee, sometimes referred to the "holder," holds the covenant or title to the real property interest and has the primary responsibility for maintaining and enforcing the proprietary control. Examples of possible grantees of a property interest or covenant include states, responsible parties, local governments, civic or other associations (if authorized under federal, state, or local law to hold title to real property and take legal action to maintain an IC), conservation organizations, trusts, and other appropriate third parties. EPA may be the grantee at remedial action sites under CERCLA. Finally, if proprietary controls are implemented under state legislation that is tailored to the requirements of ICs (e.g., a state's adoption of UECA), it may be possible for a grantor of a property interest or covenant to also be the grantee.

Because of the important role a grantee plays in establishing and maintaining a proprietary control, a thorough evaluation of the viability of potential grantees and covenant holders should be performed prior to, or during, the response selection process. In evaluating potential grantees, consideration should be given to: (1) whether the potential grantee is likely to exist for the duration of the control; (2) whether the grantee is willing and able to maintain the IC (e.g., by expending necessary funds to maintain the control or taking legal action against any party that violates the proprietary control); and (3) whether it is appropriate to assign this responsibility to an entity that is not accountable through a CD, order, permit, or other enforceable instrument (unless EPA or the State is a third-party beneficiary). If a suitable grantee cannot be identified, then alternative ICs or a change in the engineered response may be necessary.

Selecting a Grantee Under CERCLA. EPA may choose to be the grantee of a proprietary control at remedial action sites under CERCLA to ensure that site use is consistent with the remedy. EPA also may perform this role where the land subject to restrictions belongs to a responsible party under CERCLA but the owner of the property cannot create a proprietary control through a conveyance to himself/herself under the laws of the state. However, CERCLA requires that the state must agree to accept transfer of certain real estate interests following completion of the remedial action.

If it is ultimately determined that the United States will be acquiring a real estate interest, 40 USC § 3111 requires, as a precondition of acquisition, that the Attorney General review and approve the sufficiency of the title. This means that title evidence must be obtained, the land must be physically inspected, and the conveyance instrument must be prepared. Authority to review and approve the title rests with the Land Acquisition Section, Environment and Natural Resources Division of DOJ and with certain other federal agencies with delegated authority, such as the U.S. Army Corps of Engineers. More detailed procedural guidance is available in DOJ's *A Procedural Guide for the Acquisition of Real Property by Government Agencies* (1972). Although this guide may be out of date with regard to appraisal matters, it is still current with regard to direct acquisition (negotiated purchase) and condemnation procedures. Also, DOJ's *Title Standards 2001* contains detailed information on acceptable forms of title evidence and requirements for the form of conveyance to the United States.

Selecting a Grantee Under RCRA. In contrast to CERCLA, RCRA does not expressly grant EPA authority to acquire property interests in order to conduct cleanups. Therefore, if a proprietary control creates an interest in real property, EPA may not be the grantee in a RCRA cleanup. However, where the cleanup is being done under an authorized state hazardous waste program, the state may have the authority to serve as the grantee.

If the state cannot be the grantee, the owner/operator or third party should be designated as the holder of the property interest. If the property in question is being sold, the owner/operator can retain a limited interest while conveying the title to the buyer. If part of the response relies on the seller or other third party to retain a limited interest, consideration should be given as to whether the seller will be able and willing to enforce the control for the duration of the IC. If the site is cleaned up under an order, the order can require the selling owner/operator to effectively enforce the control. If it is being done under a permit, steps should be taken to ensure that long-term enforcement is not lost through expiration of the permit. Otherwise, consideration should be given to requiring the owner/operator to transfer the retained interest to a third party (e.g., a land trust or local government), or identifying a third-party beneficiary that is willing to assume enforcement responsibilities.

Other Considerations in Selecting Grantees. A responsible party may become the grantee by acquiring a real property interest from other landowners as part of its obligation to ensure that the response action is properly implemented. By taking title to an easement or similar property interest, the party or facility owner/operator typically ensures that it will be in a position to maintain the IC. Furthermore, it will often have an incentive to maintain the IC because a failure could make further response actions necessary. If enabled under state law, the lead agency should be designated as a third-party beneficiary. Third-party beneficiary status should allow the lead agency (the beneficiary) to enforce the restrictions of the covenant or easement. If the lead agency cannot enforce the

IC as a third party, the lead agency may be able to compel the responsible party (e.g., the facility owner/operator) to carry out its obligations under a CD, order, or permit. If the responsible party is unresponsive or bankrupt, this approach may be ineffective and, at a minimum, the enforcement of the control may be substantially delayed.

If a responsible party owns the property that is subject to an IC, it may also reserve the property interest or covenant when selling the property. A potential disadvantage of this approach can be that the proprietary control may not be implemented until the sale. In this situation, the enforcement document normally should provide assurances (e.g., specify that the owner will reserve the property interest or covenant upon sale of the property, will comply immediately with the ICs, and will place a notice of the ICs with the appropriate recorder of deeds shortly after the effective date of the enforcement document). Regardless of who holds the property interest or covenant, it is usually appropriate to state in the covenant or easement that EPA is a third-party beneficiary. To facilitate enforcement of the IC, the enforcement document and/or permit should also require notice to EPA and/or the state, as appropriate, upon any breach of the IC.

5.5 Implementing Proprietary Controls at CERCLA Fund-lead Sites

If the cleanup is a CERCLA Fund-lead action, EPA or the State (depending upon which is the lead agency) will typically be responsible for ensuring that the control is implemented and that appropriate property interests are conveyed. For removal actions, EPA encourages the Regions to coordinate with the State, local governments and/or community groups prior to the initiation of the removal action, to seek commitments for conducting any prescribed PRSCs and ICs, and to notify the state of any recommendation or decision regarding the need for ICs. Most PRSCs and ICs following removal actions are conducted by the state or PRP. If a commitment to implement an IC cannot be obtained prior to the removal action, then EPA should continue searching for PRPs to implement the IC and negotiating with the State to do the same.

Administratively, the process is similar to that taken by a responsible party at an enforcement-lead site. Because these controls are largely legal in nature, site attorneys typically are responsible for drafting IC language. However, the site manager and site attorney will typically work together to complete the necessary steps for actual implementation. One of the key responsibilities for the site manager is to provide the site attorney(s) with a clear scope of the land/resource area to be restricted. Another key activity is conducting a title analysis that includes an accurate legal description and identifies encumbrances and prior recorded interests. State attorneys general offices and local attorneys can be excellent resources for identifying the specific jurisdictional requirements for the control to be implemented.

In the process of implementing a proprietary control and ensuring that appropriate property interests are conveyed, site managers and site attorneys may face issues associated with just compensation and the power of condemnation through the exercise of eminent domain.

Property Acquisition. EPA may seek donations of property interests (e.g., ground water extraction rights) from landowners in accordance with 49 CFR § 24.108.[29] If a donation cannot be obtained, EPA may choose to acquire interests in real property through negotiated purchase for fair market value. The costs of acquiring property interests typically would be recoverable, a factor to consider when a property owner is a responsible party. If valuation issues arise, the site manager should work with the appropriate state and EPA Regional and Headquarters attorneys to resolve the issue. Prior to initiating negotiations to acquire real property or interests in real property, EPA should establish an amount that it believes reflects fair market value. As a practical matter, the fair market value of real property interests to be acquired for use as proprietary controls may be nominal due to offsetting benefits of the cleanup project. See section B-12 of the *Uniform Appraisal Standards for Federal Land Acquisitions* (DOJ 2000), prepared by the Interagency Land Acquisition Conference, for a discussion of offsetting benefit.

Obtaining a voluntary conveyance through donation or negotiation is preferred over initiating a condemnation action. Federal real property acquisition regulations require agencies to make every reasonable effort to acquire real property expeditiously by negotiation (see 49 CFR § 24.102(a)). However, if a property owner is unwilling to sell, is willing to sell but agreement cannot be reached on price, or if the owner is unable to correct title defects, the lead agency may, under certain circumstances, initiate condemnation proceedings under federal or state law.[30] If condemnation is being considered under CERCLA § 104(j), the site manager and site attorney should contact OGC for assistance and should ensure that EPA has obtained the requisite assurance from the state to accept the transfer of the interest once O&M has begun for that portion of the remedial action. If condemnation is sought under other authorities, coordination with experts under those authorities should be initiated early in the process.

5.6 State Assurance Requirements for Acquiring Real Estate Interests under CERCLA

EPA can acquire real property or any interest in real property at Fund-lead and enforcement-lead sites under CERCLA § 104(j) to conduct a remedial action provided that the state

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[29] This regulation, promulgated under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended, addresses requirements for donations of real property for federal and federally-assisted projects.

[30] Some state agencies may not have powers of eminent domain.

agrees to accept transfer of the real estate interests when O&M is initiated. In accepting the transfer of real property interests from EPA, the state's CERCLA liability as an owner is limited by CERCLA § 104(j)(3). There is no authority equivalent to that of CERCLA § 104(j) for Superfund removal, RCRA, Brownfield, or UST cleanups. For this reason, if EPA provides oversight or is otherwise involved in a cleanup other than a Superfund remedial action, EPA is not expressly authorized by statute to acquire real property. However, the state may have such authority as a matter of state law. In most UECA states, as long as EPA is not the holder, EPA's enforcement status as "agency" is not considered a real property interest and therefore not subject to § 104(j) assurance requirements (for more discussion, see Section 9.3).

Whether a specific proprietary control constitutes a real estate interest under CERCLA § 104(j), thereby requiring state assurance, is a complicated issue that requires site-specific determinations. If there is a question regarding whether specific proprietary controls would require state assurances under § 104(j)(2), the site attorney should consult with OGC to determine whether a specific proprietary control would require state assurances under § 104(j)(2).

The procedures for acquiring interests in real property are subject to the provisions of EPA's CERCLA Delegation 14- 30, "Acquisition of Real Property." Among other things, this delegation describes the approvals needed for the acquisition of real property. Acquisition by EPA of interests in real property should be coordinated with OSRTI, OSRE, and OGC.[31]

In the event that it is necessary for EPA to acquire a real property interest, and the state assurance requirement under § 104(j) applies, the state must provide written assurance prior to such transfer that it will accept the transfer of the interest following completion of the remedial action. This assurance should then be documented through a SSC, cooperative agreement, or other authorized signed document. There are a few challenges common to transfers of real estate interests from EPA to a state. For example, some state agencies lack the authority to accept a real estate interest transfer. In other states, real property transfers can be accepted, but they are managed by a property management agency and not by an environmental agency, potentially leading to unreliable maintenance and enforcement of the IC. A few state agencies have authority to transfer real estate interests to third parties such as conservation trusts. This situation may present challenges for some states because the state is still required to provide assurances under § 104(j)(2). Therefore, it is important that the site manager and site attorney understand the state-specific requirements prior to the selection of ICs that require a property acquisition.

A number of options can be considered if a state is unable to provide assurance that it will accept transfer of real estate interests. One option is to use other types of ICs, e.g., governmental controls. Another option is to have the real property interest conveyed to a party other than the state. For example, if a third party acquires a real estate interest and holds it in its own name, the exercise of CERCLA § 104(j) authority may not apply because EPA has not acquired a real property interest. To minimize disruptions to the implementation of the remedy, the best practice is to raise the issue of real property acquisition early, such as during the RI/FS or development of the proposed plan, and certainly before the State concurs on the ROD.

As a general matter, EPA in practice transfers or releases all real property interests before a Superfund site enters the O&M phase[32], regardless of who will ultimately accept the real estate interest (e.g., the state or some other entity). Prior to selection of the remedy, the site manager and site attorney should thoroughly evaluate the transferee's willingness and capability to fulfill its IC responsibilities for the expected life of the IC.

5.7 Establishing ICs through RCRA Orders and Permits

Many of the considerations in establishing ICs at CERCLA sites also apply to Brownfields, UST, and RCRA corrective action sites. However, the requirements under these cleanup programs are often imposed through legal instruments that differ from one program to another. In the RCRA program, states play a key role by imposing ICs under their own authorities as part of their cleanup activities.

For RCRA cleanups and post-closure care, enforceable requirements will generally be established through a permit (e.g., the corrective action portion of an operating permit, or a post-closure permit), or by EPA through an order under RCRA § 3008(h) or § 7003. RCRA § 7003 allows EPA to require cleanup where there is potential imminent and substantial endangerment related to either solid or hazardous waste. In addition, RCRA § 7003 does not distinguish between on-site and off-site contamination. If there is solid waste as defined by RCRA § 1004(27), and the other elements have been met, there is no need to show the existence of a hazardous waste to require cleanup.

Permits and orders alone can impose enforceable restrictions on the use of property by the facility owner/operator. Orders and permits can be crafted to require that the owner/operator refrain from selling the land unless the purchaser agrees to (1) abide by the restrictions contained in the order or permit; and (2) require any future purchasers to do the same. RCRA permits for treatment, storage, and disposal have a statutory duration of ten years and should be renewed as needed to

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[31] For more information, see CERCLA Delegation 14-30

[32] "Completion of the remedial action" is the point at which O&M measures would be initiated pursuant to 40 CFR § 300.435(f)

ensure maintenance of corrective measures and ICs. Although orders don't expire, care should be taken when drafting orders to ensure that enforceable IC provisions continue to remain in effect.

In cases where it is necessary for the restrictions to extend beyond the period of performance of a permit or order, proprietary controls should be crafted that run with the land and bind future landowners, as well as the current owner/operator, where feasible given state law requirements. For example, a permit or order may direct the owner/operator to convey such an interest to someone who will then maintain the IC (i.e., a proprietary control). RCRA facility owners may also be required to reserve a property interest when they sell the property and to make the lead agency a third-party beneficiary. Model permit and order language does not yet exist under RCRA for this purpose, although several states are developing such models. If subordination of senior interests is not possible, the lead agency should frequently notify the holder(s) of the senior interest(s), and identify the risk of harm that could occur if the recorded environmental restrictions are not respected.

6. IMPLEMENTING GOVERNMENTAL CONTROLS

State, tribal, and local governments generally have a broad range of regulatory authority to implement a variety of ICs. The authority of government to exercise controls to protect the public's health, safety, and general welfare is referred to as "police power." This authority may include the ability to impose certain land-use controls and ground water restrictions, require informational devices (e.g., notices), and establish building codes and state registries of contaminated sites, among other things. These regulatory and informational devices may serve as highly effective ICs if they are appropriately implemented, maintained, and enforced. In some cases, existing state or local government regulations may serve as ICs. In other cases, new state or local laws or regulations may be most appropriate. Site attorneys should review state or local laws and regulations as they pertain to ICs at a specific site if the site manager is considering relying on or utilizing a state or local land use law or other type of local law to put ICs in place at a site.

State and local governments may impose land use and other government controls at their discretion. EPA has no authority to compel state or local governments to amend or adopt new regulations to impose an IC, or to keep regulations that impose an IC. Any controls established in this way generally operate independently of RCRA and CERCLA, and are enforced through local governmental processes or state law, where applicable. Because each state and local government has different laws and regulations on land use, the site attorney should review those laws and regulations as they pertain to the ICs at a specific site. Where appropriate, the site manager or site attorney may consider providing information on the role of ICs in EPA cleanup programs to local governments.

In addition, when a local government is responsible for, or participates in, planning, implementing, maintaining, or enforcing governmental controls, site managers and site attorneys are encouraged to reach a common understanding with the state, tribal and local governments before the ICs are implemented to document and clarify the roles, responsibilities, and legal authorities. Details of such arrangements should be included in the ICIAP or equivalent plan.

Implementing Governmental Controls

- Ground Water Use Restrictions (Section 6.1)
- Zoning Ordinances (Section 6.2)
- Fishing Bans and Waterway Use Restrictions (Section 6.3)
- Other Uses of State And Local Police Power (Section 6.4)
- Cooperative Agreements to Support Initial Implementation of ICs at CERCLA Fund-lead Sites (Section 6.5)

6.1 Ground Water Use Restrictions

Ground water use restrictions are frequently used to limit or prohibit certain uses of ground water. Implementation of such restrictions normally depends upon state laws governing ground water ownership and use. Numerous states have adopted laws that could be used to restrict ground water use at contaminated sites. Ground water laws commonly involve water-use restrictions and well construction and abandonment requirements. This is a broad category and such restrictions can take a variety of forms, including: the establishment of ground water management zones or protection areas; prohibitions or limitations on certain uses of ground water in particular areas; capping or closing of wells; and limitations on the drilling of new wells. The State of Florida, for example, has five water management districts which protect, maintain and improve water quality including ground water. A consumptive use program and a program to close old, and/or abandoned wells and the proper construction of new wells, are among the regulatory programs each water management district may implement.

State and tribal agencies with the authority to establish ground water use restrictions typically have a well-defined administrative process. For example, the California's State Water Resources Control Board, which has joint authority over water allocation and water quality protection, guides nine Regional Water Quality Control Boards located in the major watersheds of the state. The regional boards serve as the frontline for state and federal water pollution control efforts.

In many cases, the implementation of state or local ground water use restrictions takes a significant amount of time. For this reason, the site manager is encouraged to ensure coordination can begin early and to actively monitor the progress in implementing this type of IC.

Well construction permit processes can also be used to implement restrictions on ground water use. A number of state and local governments have adopted statutes controlling new well installations and requiring permits for existing wells. These permitting programs may include requirements for well installation, licensing of well drillers, prohibitions or restrictions on the drilling of new wells in areas of contamination, and requirements and controls on the operation of wells (withdrawal rates/pumping rates). These types of governmental controls also often have specific administrative processes. The site manager should ensure that early coordination occurs with the appropriate permitting agency and should proactively monitor and verify that the permit restrictions continue for as long as they are needed.

6.2 Zoning Ordinances

Generally, zoning is also an exercise of state and local government "police power." Zoning ordinances typically consist of a map indicating the various land-use zones in the community, and text that sets forth the regulations for the development of land. An ordinance may regulate land use, building height, area of structures, density of population, and the overall intensity of use. Zoning can serve as an effective mechanism when a large number of parcels are affected by a response action. For example, an overlay zone could be used to restrict development along a contaminated stream.

The authority to regulate land use, with the exception of federal lands, generally falls within the domain of state and tribal governments. However, states generally delegate much of this regulatory authority to municipal and county governments. Therefore, the site manager and site attorney will often work with municipal and county officials regarding zoning ICs.

Implementing Zoning Controls. To evaluate the effectiveness of zoning controls, the site manager and site attorney should first determine which local government, if any, has zoning jurisdiction over a site. The site manager and site attorney should then meet with the planning staff of the jurisdiction to discuss the objectives of the cleanup, the potential role of ICs in that cleanup, and specific land-use regulations that may be considered to meet those objectives. Administrative controls vary by jurisdiction within each state. However, there are conventional practices that are common among most jurisdictions.

Unless a re-zoning (i.e., a zoning ordinance amendment to change the zoning designation of one or more parcels) is done as part of a jurisdiction-wide comprehensive plan and zoning ordinance amendment, it will typically require a formal application by the owner of the parcel to be re-zoned.[33] In most cases, a series of public hearings before a planning commission and/or governing body (e.g., city council, county board of supervisors) will then follow. It may be important for the site manager, site attorney, and/or other agency representatives to participate in these hearings to explain the cleanup process, the potential need for a proposed IC and to answer questions posed by members of the public, planning commissioners, and members of the jurisdiction's governing body.

Final approval or denial of the zoning application will generally come from the governing body of the jurisdiction. If the application is denied, the applicant may explore options for modifying the application and/or appealing the decision either within the jurisdiction (e.g., with a zoning board of appeals), or in a state or federal court, depending upon the nature of the challenge.

Limitations of Zoning Controls. Although zoning ordinances can be useful tools, they can have significant limitations. For example, the zoning designation in a particular area may be of limited duration. An area can be re-zoned and/or zoning variances may be granted. Therefore, it may be important to regularly evaluate whether the local zoning ordinance is still in place and is operating in a way that continues to ensure the effectiveness and integrity of the cleanup and its objectives. Thus, zoning may not be a fully effective mechanism unless it is routinely maintained and enforced over the long-term.

Local governments may not have the resources necessary for such oversight. The site manager and site attorney may consider using CERCLA §104(d) cooperative agreements at Fund-lead sites to fund the initial (but not O&M) implementation of ICs. Funding agreements between responsible parties and local governments also may provide resources to the local government for activities that are not considered normal functions of government, including costs for implementing, maintaining, and/or providing notice of any changes in zoning or site use.

Site managers and site attorneys should also be aware that some zoning ordinances can use cumulative zoning, meaning that less intensive uses, such as single family homes, may be permitted in zones designated for intensive, industrial uses. Therefore, even where the site is located in an industrial zone, an amendment may be needed to prohibit less intensive land uses, such as new residential buildings. Finally, some jurisdictions explicitly state the activities allowed in each district while others identify only activities that are prohibited. It is important that the site manager and site attorney understand whether the restrictions will be adequately addressed using the jurisdictional definitions.

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[33] The site manager and site attorney may negotiate a consent decree, an administrative order and/or permit language that requires the property owner to apply for a zoning change, if necessary.

6.3 Fishing Bans and Waterway Use Restrictions

Commercial fishing bans are sometimes used as a governmental control to ban commercial fishing for specific species or sizes of fish or shellfish. Usually, state public health agencies and/or resource agencies establish these bans. Another governmental control that may be used is a waterway use restriction where subsurface contamination remains in place. The restriction typically is placed to ensure the integrity of the remedy (e.g., capping). State and local agencies may be responsible for enforcing this type of restriction.

6.4 Other Uses of State and Local Police Power

In addition to land-use controls such as zoning and subdivision ordinances, local governments may exercise their police power to protect the public in other ways. For example, they may adopt ordinances that regulate certain activities on contaminated sites that could threaten human health or the environment; an ordinance, for example, might include a ban on swimming or other potentially inappropriate activities in specified areas. State or local governments also could require that anyone seeking a building permit for construction activities in a particular area be notified of contamination and informed of any relevant management standards. Such measures could be used to control or prohibit certain types of construction that would result in unacceptable exposures (e.g., excavation in areas where subsurface contamination has not been fully removed). Excavation issues may also be addressed, to some extent, through an already existing state or local government requirement to contact a designated office[34] (e.g., an existing "One-Call" excavation notification system) before excavating.

6.5 Cooperative Agreements to Support Initial Implementation of ICs at CERCLA Fund-lead Sites

The site manager and site attorney may consider using CERCLA § 104(d) cooperative agreements, as appropriate, to support the initial (but not O&M) implementation of ICs by state and local governments at Superfund Fund-lead sites. CERCLA authorizes EPA to enter into cooperative agreements with state and local governments to help conduct response actions at remedial action sites and non-time-critical removal sites. A Superfund cooperative agreement is the assistance vehicle that transfers EPA funds for a response to state, tribal, or local governments and documents both EPA and recipient responsibilities for a site. EPA will generally enter into cooperative agreements with the state-lead agency (usually the state's pollution control agency) as designated by the state's governor and, less commonly, with local governments. To involve other essential state agencies, the state-lead agency typically enters into an intergovernmental agreement with these other agencies. States may also enter into intergovernmental agreements with local governments as an alternative to a direct cooperative agreement between EPA and the local government.

Cooperative agreements should not be used to support activities that are considered normal functions of state or local government. If the implementation of a specific IC would require the state or local government to perform activities that are not within its normal governmental functions, those activities may be funded. Such activities, including costs for implementing, maintaining, and/or providing notice of any changes in zoning or site use, may also be funded through funding agreements between responsible parties and local government.

It is important to note that EPA does not generally use the Fund to pay directly for IC monitoring or enforcement at removal sites. The Fund may, however, pay for IC monitoring where the removal program is handing over responsibility for the site to the remedial program and before the remedy has been constructed and has reached O & M.

At remedial sites, CERCLA prohibits the use of Fund monies for O&M activities, including the processing of permit applications for projects at sites where there is an IC in place (see Section 8.7).

7. IMPLEMENTING INFORMATIONAL DEVICES

Informational devices are designed to provide information or notification that residual or contained contamination remains on site. Typical information devices include state registries, notices filed in local land records, tracking systems, and advisories.

Implementing Informational Devices

- Recorded Notices (Section 7.1)
- State Registries of Contaminated Sites (Section 7.2)
- Advisories (Section 7.3)
- Community Involvement (Section 7.4)

7.1 Recorded Notices

Unlike proprietary controls, notices contained in deeds or other instruments to be filed in the local land records are not intended to convey an interest in real property. Consequently, such notices do not serve as enforceable restrictions on the future use of the property. As a matter of practice, such notices are contained in deeds conveying real property or an interest therein or some other written instrument that would be examined during a title search on a particular parcel or parcels.

These documents are intended to provide notice to anyone

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[34] For more information about state one-call systems, please see http://www.epa.gov/oswer/docs/iwg/OneCall.pdf

reviewing the chain of title (e.g., lenders, prospective purchasers) regarding contamination on the property and to identify whether there are resulting restrictions. As a result, where exposure should be limited, a notice in a deed or other instrument alone generally will not be sufficient to assure protectiveness. Nevertheless, often there are benefits from the use of such notices. For example, notices may effectively discourage developers from purchasing the property for inappropriate land uses and lenders from funding development for such uses.

Notices to be filed in the local land records have been commonly used for general notification of site conditions in remedies under RCRA, Brownfields, UST, and CERCLA programs. This includes, for example, the requirements of § 120(h)(3) of CERCLA pertaining to federal facilities or the model RD/ RA CD requirement that any settling defendant owner record a notice to successors-in-title informing future owners of the NPL listing, the ROD, and the CD. See *Model RD/RA Consent Decree*, Office of Site Remediation Enforcement, Office of Enforcement and Compliance Assistance. October 2009, section v, paragraph 9).

Additionally, there are explicit notice requirements for certain situations under RCRA. Specifically, 40 CFR § 264.119(b)(1) states that for post-closure notices, owners/operators of RCRA hazardous waste disposal units are responsible for submitting a survey plat and ensuring that a permanent notation is made on the deed stating that: (1) hazardous waste management occurred on the property; (2) its use is restricted under RCRA 40 CFR § 264 Subpart G; and (3) the survey plat and other applicable information is available at the local zoning authority or other authority with jurisdiction over local land use and with the EPA Regional Administrator. According to 40 CFR § 264.119(b), these actions must be completed within 60 days of closure certification. Because individual state requirements for Brownfields and UST sites vary, the site manager and site attorney should research the specific requirements within the appropriate jurisdiction.

Notices can be somewhat easier to develop and implement than proprietary controls. Notices typically consist of a legal description of the property and a description of the type, location, and concentration of residual contamination and any associated use restrictions. The drafter(s) of the notice should take care to avoid unintentionally suggesting that the notice creates rights and/or obligations. For example, the recording requirements of some jurisdictions may actually require the conveyance of a property interest as a condition of filing an instrument in the deed records.

The site attorney may work with an attorney familiar with the recording statutes of the jurisdiction where the site is located to determine the requirements and limitations for recording notices. This should be done well in advance of selecting a notice as part of the response action. For example, a statute may indicate what documents are recordable, the contents of a recordable document, and the procedures for their recordation. Also, jurisdictions vary on whether the landowner's approval is needed to record a notice. In some jurisdictions, third parties can record notices, whereas in other jurisdictions only the landowner can record a notice. In jurisdictions that allow the removal of the notice by the owner at any time, the enforcement device and/or permit should be clear that the notice must remain in the land records. Also, a small number of jurisdictions remove notices after a specific period of time. In these jurisdictions the enforceable agreement and/or permit should have a re-filing requirement for the notice.

7.2 State Registries of Contaminated Sites

Some states maintain registries of contaminated sites, which can act as an informational IC. The registries often include a list of contaminated sites in the state; annual reports to the legislature summarizing the status of each site on the registry; requirements for inclusion of a notice in deeds that the site is contaminated; and requirements that any person conveying title to property on the registry disclose to all potential purchasers that the property is on the registry. Some laws provide that the use of property on the registry cannot be substantially changed without the state's approval. The site manager and site attorney should determine whether such registries exist early in the response action evaluation process.

A potential limitation of the use of state registries as ICs is that the procedure for listing and removing ICs from registries vary by state and are often discretionary, potentially making the available site information inconsistent or out of date. In addition, information contained in a registry may not be consistently accessed by prospective developers or local government officials in the development application review process. Nevertheless, registries can be useful in combination with other measures as part of an overall response for a site by providing information to the public and regulators.

7.3 Advisories

Advisories are typically publicly issued warnings that provide notice to potential users of a land, surface water, ground water, or other resource of some existing or potential risk associated with that use. For example, an advisory may be issued to owners of private wells in areas where contamination has been detected in ground water at levels that pose a threat to human health; or a state may issue fish consumption advisories[35] to protect people from the risks of eating contaminated fish caught in local waters. Advisories are generally issued by public health agencies, either at the federal, state, or local level (e.g., health advisories issued by the U.S. Agency for Toxic Substances and Disease Registry under CERCLA § 104(i)). The site manager and site attorney should work closely with Agency for Toxic Substances and Disease

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[35] Unlike fishing bans, fish consumption advisories are not enforced by a State or local agencies but rather provide notice to the public of risks posed by contamination.

Registry (ATSDR), state or local government officials to discuss the appropriateness of such advisory services, and to explore options for supporting advisories. Depending on the situation, certain advisories have a specific threshold that must be met for issuance. Therefore, the site manager and site attorney should coordinate early with the appropriate agencies if an advisory will be a component of the response.

7.4 Community Involvement

Due to the nature of informational devices, particularly advisories, community involvement and outreach are often an important part of the process. Consideration should be given to using multiple tools to inform the community such as web sites, mailings, outreach to community associations, and possibly public meetings. Informed community members can be in a position to provide valuable information on possible IC breaches that might otherwise go unnoticed. In developing informational devices, it is helpful to provide information about the ICs and contact information for reporting a breach.

8. MAINTAINING INSTITUTIONAL CONTROLS

Often the most useful post-implementation approach to ensuring the long-term effectiveness of ICs and maintaining the integrity of the cleanup is rigorous periodic monitoring and reporting. The site manager and site attorney should examine available mechanisms designed to ensure IC compliance at all stages throughout the enforcement process. Generally, the responsible parties, including federal facilities, have the primary obligation to monitor and report on the effectiveness of the ICs. This section discusses some of the tools that may be available to the site manager for ensuring appropriate monitoring and reporting of ICs.

Maintaining Institutional Controls:

- General Considerations (Section 8.1)
- Operations and Maintenance (Section 8.2)
- Periodic Reviews (Section 8.3)
- State, Tribal, and Local Government Oversight (Section 8.4)
- Out-Sourced Monitoring (Section 8.5)
- Community Monitoring (Section 8.6)
- Funding for IC Monitoring and Reporting (Section 8.7)

8.1 General Considerations

Because land use and ownership changes can occur over a relatively short time, developers and other parties may not be fully aware of the ICs that have been put in place as part of a cleanup. It generally should be more effective and protective of human health to proactively address potential weaknesses in ICs revealed by changes in land use before the land use changes actually do occur. The site manager[36] should ensure that there is a process in place to facilitate the routine and critical evaluation of the ICs to determine: (1) whether the instrument remains in place; and (2) whether the ICs are meeting the stated objectives and performance goals and are providing the protection required by the response.

Comprehensive monitoring is generally more effective when there is early planning and coordination, a clear delineation of roles and responsibilities, and detailed reporting requirements. In most situations, it is recommended that monitoring and reporting requirements be layered to increase the likelihood that any breaches will be detected early (e.g., by assigning the monitoring responsibility for an IC to more than one party). At the same time, it is important to ensure that each party with monitoring and reporting responsibility is held accountable and does not make shared responsibility a reason for less vigilant monitoring. Where monitoring and reporting is assigned to more than one entity, a mechanism, such as the designation of an entity with the lead monitoring and reporting responsibility may be useful in ensuring a successful monitoring and reporting effort. In addition, the site manager may want to include frequent reminders of the restrictions via such means as correspondence, notification in access letters for quarterly monitoring, and affixing warning labels to well casings that reiterate applicable restrictions. In many cases, a good way to help ensure effective and comprehensive monitoring is to develop and use an ICIAP or equivalent document early in the site management process.

8.2 Operations and Maintenance

Effective IC monitoring typically begins with a thorough understanding of the IC objectives and the desired audience for each IC, and recognition of the potential weaknesses of each IC. A primary tool for site managers can be a detailed O&M plan, an ICIAP, or other plan related to the long-term stewardship of ICs which should describe at a minimum: (1) monitoring activities and schedules; (2) responsibilities for performing each task; (3) reporting requirements; and (4) a process for addressing any potential IC issues that may arise during implementation or the reporting period.

Provisions describing IC monitoring, reporting, and enforcement mechanisms can be included in an appropriate decision document, ICIAP, and/or enforcement document. Such provisions can include a requirement in a CD to develop a detailed monitoring and reporting plan, or a description of the requirements themselves. At RCRA sites with a permit or order in place, the IC monitoring and reporting requirements may be specified in a separate document (and referenced in the permit or order) or in the permit and/or order itself. Most

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[36] Even the site manager may change over time. For instance, the site manager who initiates the IC may be at EPA but ultimately the relevant site manager may become a representative from the State.

Brownfields and UST sites have similar decision documents, cooperative agreements, or work plans, and IC monitoring and reporting should be included in those documents as well. If the site manager anticipates that monitoring or reporting requirements may be changed at some point, language should be added to the appropriate enforceable document to explain the process for approval of the change.

The requirements and frequency of IC monitoring normally will vary depending upon site-specific circumstances, such as the types of IC instruments and monitoring tools used and how the IC is used to help ensure protectiveness. In many cases, inspections and reporting can be incorporated into other site activities, such as routine ground water monitoring and annual reports. If, after a sufficient period, the reliability of the ICs is better understood, the site manager may revisit the monitoring practices on a site-specific basis.

Long-term stewardship procedures should be in place to ensure proper maintenance and monitoring of effective ICs. The procedures can be included in the site O&M plan. The plan should address procedures to ensure regular inspection of ICs at the site; in appropriate circumstances, an annual certification to EPA that the required ICs are in place and effective may be useful. The entities responsible for implementing the plan may also send annual or semi-annual reminder letters to property owners to remind them of the existence of an IC and its provisions. Additionally, such entities should explore whether additional actions can help ensure compliance with the ICs. These actions could include the development of a communications plan and exploring the use of the state's one-call system as part of long-term stewardship.

8.3 Periodic Reviews

As discussed above, monitoring should be sufficiently frequent to ensure that ICs remain effective. In the absence of information to support a different review period, annual reviews are recommended. Reviews may include documentation to show that ICs remain in place and are effective. When changes to site conditions are likely to take place in less than a year (e.g., the site is an area being redeveloped or there has been a change in the zoning designation), more frequent monitoring should take place. If it is highly unlikely that site conditions will change, a monitoring period longer than a year may be appropriate. Some laws or regulations may specify a minimum review period for certain situations, such as the FYR required for certain Superfund remedial actions. Section 121 of CERCLA requires FYRs when remedial actions result in hazardous substances, pollutants, or contaminants being left in place. The NCP further clarifies that FYRs are to be conducted when remedial actions do not allow for UU/UE. The periodic review provides an important opportunity for a site manager to conduct an objective review of the status and performance of ICs.

During the periodic review, the site manager, facility owner/operator, or other review/enforcement authority normally should inspect the site and critically evaluate the effectiveness of the ICs in protecting human health and the environment and/or ensuring the integrity of any engineered response action (e.g., conduct site visits, and review aerial photos or other physical documentation to determine if there is any land or resource use inconsistent with the response). In addition, the site attorney should generally review updated title work to the property to determine whether proprietary controls have been modified or terminated, and should review the local government's zoning regulations for the site to determine if there have been any changes. Also, the enforcement team should follow up on the review provision in any settlement document and, if appropriate, request that the settling parties investigate the performance of the ICs.

If the ICs are not in place by the time of the periodic review, a schedule should be prepared that indicates when the ICs are to be implemented and the person or entity responsible for that activity should be identified. If EPA determines that additional ICs are necessary to protect human health and the environment, the enforcement team should review the enforceable document to determine if the settling party may be required to implement additional ICs or take additional actions (e.g., enforcement tools that may allow for modifications or pursuit of additional work under certain circumstances). An ESD or ROD amendment may also be necessary at Superfund remedial sites if additional ICs or other actions are necessary (or if ICs are being discontinued). In the case of RCRA, when the IC is being implemented by a facility-specific mechanism like a RCRA corrective action permit or order, that document may need to be amended to reflect the current status of the facility.

8.4 State, Tribal, and Local Government Oversight

State, tribal, and local governments are generally important partners in the long-term monitoring and reporting of ICs. Depending on the IC instrument and which agency is the lead agency, the state, tribal, or local government may have direct authority for long-term monitoring of ICs. At sites that rely upon state, tribal or local governments to implement, monitor and enforce ICs, the parties responsible for the cleanup at that site should cooperate with those governmental authorities to ensure the ICs remain effective. The site manager and responsible party are encouraged to coordinate with these governments when developing an approach to inspecting, monitoring, and reporting on ICs. Further, the site manager and site attorney should actively encourage the state, tribal, and/or local governments to undertake monitoring of ICs in order to avoid the need to change the response action. Such monitoring activities may include:

- Inspecting and reporting on sites following the issuance of building/excavation permits to ensure compliance with their terms;

- Inspecting and reporting on sites for compliance with proprietary controls when the state or local government is the holder of a property interest, such as an easement;
- Inspecting and reporting on compliance with zoning restrictions; and
- Reporting proposed zoning amendments that may significantly alter land use at the site or in the vicinity of the site.

State, tribal, and local government laws also may influence the implementation of proprietary controls. In states that have adopted legislation enabling environmental covenants, state law may specify certain criteria as to who qualifies as a grantee, and also may reserve enforcement authority for the state in the event that the state is not the grantee. Since the grantee may assume responsibility for monitoring and reporting on its status, a potential grantee should understand its responsibilities before accepting the conveyance of a proprietary control. Thus it generally is important for the site manager and site attorney to evaluate thoroughly the capability and willingness of a state, tribal, or local government to report on and pursue problems with the IC(s) for as long as it remains in place.

In some cases, the grantee may share monitoring responsibilities with contractors (see discussion on third-party monitoring below), community stakeholders, local governments, or others who have agreed to participate in the monitoring and reporting. Where possible, the arrangements among these parties should be documented in writing to describe commonly understood roles and responsibilities for proper and effective monitoring, reporting, and follow-up. In situations where EPA is the grantee, the site manager and site attorney should ensure that procedures are in place to appropriately monitor, report on, and follow-up on whether the parties are fulfilling their responsibilities at the site and to transition or terminate those responsibilities once the response action is complete.

8.5 Out-Sourced Monitoring

In some instances, monitoring and reporting services may be contracted out, or otherwise arranged by the entity obligated to do monitoring. However, this arrangement does not alter any legal obligations of responsible parties, grantees, and others for maintaining the response action and ensuring its protectiveness. When monitoring and reporting activities are conducted under a contract, the site manager and site attorney should ensure that the scope of monitoring activities is clear; an adequate funding source is available for the duration of this method of monitoring; and the reporting obligations are clearly defined (i.e. to whom the contractor reports and the frequency and content of reports).

8.6 Community Monitoring

Local residents, community associations, and interested organizations can be valuable resources for day-to-day monitoring of ICs. Because community members who live or work near the site will often have a vested interest in ensuring compliance with the ICs, they are generally the first to recognize changes at the site. Although local residents should not be relied upon as the primary or sole means of monitoring, the site manager should encourage local stakeholders to become involved in monitoring ICs. Community monitoring can be fostered through public outreach activities to inform nearby residents of the purpose of the ICs and what types of activities may adversely affect the integrity of the response action. In addition to public meetings and notices, mailings to nearby homeowner associations and property owners may be used to provide community stakeholders with information about the ICs and contact information for reporting a breach.

8.7 Funding for IC Monitoring and Reporting

The availability of resources should be considered when monitoring and reporting plans are developed. State agencies, local governments, and other organizations may require additional funding to meet IC monitoring and reporting requirements. This process should begin with developing a cost estimate for monitoring and reporting activities over the full life-cycle of the IC. The site manager and site attorney may provide state, tribal and local government officials with information they may want to consider concerning possible approaches and strategies to ensure that adequate funding will be available to provide adequate IC monitoring, reporting, and enforcement, including:

- Using trust funds, surety bonds, letters of credit, insurance or other means of financial assurance, as appropriate;
- Billing the responsible party;
- Requiring the responsible party to set up escrow accounts; and
- Using settlement proceeds to fund site-specific accounts for ICs.

In some instances, it may be possible for state, tribal or local authorities to use CERCLA section 107 liability provisions to secure PRP financing for these purposes. It may also be possible to ensure that all potential future IC costs are covered by the financial assurance requirements section of an enforcement document, where appropriate (e.g., three-party consent decree between U.S., state, and PRP). Additionally, financial assurance mechanisms should be reviewed periodically to ensure that they remain adequate.

Under the Brownfields Program, EPA provides grants to state and local governments to carry out site assessment and cleanup activities and to nonprofit organizations to carry out cleanup. Pursuant to EPA's grant guidelines[37] and section 104(k)(4)(C) of CERCLA, a local government that is a Brownfields grant recipient can use up to ten percent of the grant to monitor and enforce ICs designed to prevent human exposure to any hazardous substance from a Brownfields site. States can use grant funds to establish or enhance their response program for addressing Brownfields sites, including O&M or long-term monitoring activities.

For Fund-financed remedial actions, CERCLA § 104(c) requires states to pay for, or ensure payment of, all future O&M for remedial actions. EPA may not use the Fund for O&M activities except for oversight of O&M activities. Generally, it may be appropriate to consider initial implementation of ICs as part of a remedial action; generally, IC monitoring, reporting, and enforcement are considered as O&M-type activities.

Guidance on when a remedy may be considered to be in the O&M phase is provided in *Operation and Maintenance in the Superfund Program*, OSWER 9200.1-37S, EPA 540-F-01-004, May 2001.

Regarding CERCLA Fund-financed emergency and time-critical removal actions, EPA generally does not provide financial assistance to states for ICs. For non-time-critical removal actions, EPA does not generally use the Fund to pay directly for IC monitoring or enforcement, (although the Agency may provide financial assistance for initial implementation through cooperative agreements).

9. ENFORCING INSTITUTIONAL CONTROLS

This section provides an overview of the types of enforcement tools that may be available for dealing with potential problems involving improper or incomplete implementation, maintenance, and breaches of ICs. The site manager and site attorney should examine IC compliance at all stages throughout the enforcement process.[38] This section illustrates some of the more common enforcement actions that site managers and site attorneys may encounter, and is not intended to provide a comprehensive discussion of all enforcement actions available at a given site.

9.1 General Considerations

Often, the preferred and fastest approach for dealing with IC enforcement is to seek voluntary compliance through early problem identification and informal communication. Many issues can be effectively addressed at the site manager and site attorney level with a phone call and appropriate follow-up. Such follow-up may include site visits and letters to ensure complete communication and to create a record. However, there may be occasions when more formal steps are necessary. Enforcement can occur in several ways depending upon the type of IC instrument, the authority being used, the party attempting to compel an activity, and the party responsible for taking an action.

Enforcing Institutional Controls

- General Considerations (Section 9.1)
- Enforcement of Governmental Controls (Section 9.2)
- Enforcement of Proprietary Controls (Section 9.3)
- Enforcement and Permit Tools with IC Components (Section 9.4)
- Informational Devices (Section 9.5)
- Commencement of New Actions (Section 9.6)
- Other Enforcement Concerns (Section 9.7)
- State, Tribal, and Local Government Enforcement Roles and Assurances (Section 9.8)

For Superfund remedies that include ICs, EPA strives to ensure that the potentially responsible parties implement, maintain, and enforce ICs, as appropriate. See *"Enforcement First" to Ensure Effective Institutional Controls at Superfund Site*s, OSWER 9208.2, May 17, 2006. EPA uses a variety of negotiation and enforcement tools to obtain potentially responsible party participation in carrying out Superfund site cleanups, including any IC obligations. See *Negotiation and Enforcement Strategies to Achieve Timely Settlement and Implementation of Remedial Design and Remedial Action at Superfund Sites*, Office of Enforcement and Compliance Assurance memorandum, June 17, 1999. Ensuring that ICs are properly implemented and remain protective is important to both EPA and potentially responsible parties. Therefore case teams should first pursue a cooperative approach when working with potentially responsible parties to enforce ICs.

9.2 Enforcement of Governmental Controls

Governmental controls are typically implemented and maintained by a governmental entity other than the one performing or overseeing the site cleanup. This does not relieve responsible parties from monitoring and reporting on the effectiveness of the ICs (e.g., notifying regulators of any

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[37] For more information on EPA's guidelines for Brownfields Assessment Grants, please see: http://www.epa.gov/oswer/docs/grants/epa-oswer-orcr-09-04.pdf

[38] The EPA has recently elevated the importance of ensuring ICs, required as part of the remedy, are being enforced. A new Government Performance and Results Act (GPRA) performance measure, the Site-wide Ready for Anticipated Use (SWRAU), and another new measure, the Cross Program Revitalization Measure (CPRM) contain specific IC requirements. For more information on how ICs relate to the land revitalization performance measures, see *Guidance for Documenting and Reporting Performance in Achieving Land Revitalization* (EPA 2007).

change to or breach of a relied upon governmental control). Some of the most common governmental controls used in CERCLA, Brownfields, UST, and RCRA remedies are zoning ordinances, excavation/building codes, well construction/abandonment requirements, ground water regulations, ground water management zones, fishing bans/restrictions; waterways use restrictions, and restrictions on, in, and/or near water/shoreline access and/or development.[39]

Several difficulties can arise when using ICs in the form of governmental controls including: (1) the IC instrument may have not been implemented or, if implemented, may not address the specific environmental problem because of vagueness or some other deficiency in the drafting of the IC; (2) the IC may not have been appropriately monitored or reported (e.g., failure to notify environmental regulators that a zoning ordinance expires); (3) a governmental entity may not actively respond to an identified problem or breach of an IC; and (4) a governmental entity may inadvertently undermine the IC through its own actions, undertaken for unrelated purposes (e.g., amending zoning to allow uses that would not have been allowed under the prior classification). The challenge for site managers and site attorneys in the use of these types of ICs is that implementing, maintaining, and enforcing ICs generally fall within the authority and discretion of the originating governmental entity. These challenges are compounded by the fact that communication between the environmental regulators and the relevant governmental decision-maker (e.g., the well permitting office) may not be part of the established administrative process of that entity.

Typically, governmental control activities are governed by a defined administrative process. Site attorneys should familiarize themselves with this process, including written petitions and/or administrative hearings, in the event an action to enforce a governmental control is necessary.

In addition, site managers and site attorneys should evaluate the capability and willingness of a governmental entity to implement and enforce any proposed IC in the form of a governmental control, and involve that entity early in the response process when discussing the types of ICs being considered. In certain cases under Superfund, cooperative agreements may be developed to assist the local government in the initial (but not O&M) implementation of the necessary ICs at Fund-lead sites. Local governments may also arrange for direct compensation from other parties for the implementation, maintenance, and enforcement of ICs. It may be beneficial for the state, tribal and local governments to work with and reach a common understanding with the responsible parties and other stakeholders about various IC implementation issues including the roles and responsibilities of the local government in enforcing these controls. This common understanding will likely vary depending upon whether federal, state, and/or local authority is used. Where appropriate, the site manager or site attorney may consider providing IC training to local government.

9.3 Enforcement of Proprietary Controls

The most common examples of proprietary controls used in CERCLA, Brownfields, UST, and RCRA cleanups are easements and covenants. The requirements for enforcing proprietary controls may vary considerably among states, and site attorneys are encouraged to coordinate with attorneys familiar with the laws of the particular jurisdiction.

If proprietary controls are implemented under state legislation that are tailored to the requirements of ICs (e.g., a State's adoption of UECA), there likely will be clear enforcement procedures for the state, a grantee, a third-party beneficiary or others. Generally, under state-adopted laws modeled after UECA, many parties may have the authority to enforce an environmental covenant, including: (1) any parties to the covenant or any party given the right to enforce under the covenant; (2) the state environmental agency; (3) a person whose interest in the real property or liability may be affected by the violation of the covenant (this can include responsible parties); and (4) a unit of local government. If no specific state law addressing environmental covenants exists, these controls will be based more generally on the state's contract and real property law.

Under either state statute or case law, certain enforcement challenges may arise. The grantee will generally have the primary responsibility for enforcing a proprietary control. EPA will typically rely on another party to act as the grantee, due to the limitations on EPA's authority to hold proprietary interests. The grantee may be able to enforce proprietary control restrictions and obligations against the owner(s) of the property pursuant to state law in state court. To help ensure that a grantee other than EPA takes appropriate action in the event of an IC violation, it can be useful for that grantee and other parties to enter into agreements that clearly define the roles and responsibilities of the grantee.

In those cases where EPA is the grantee or has authority to enforce a proprietary control as a third-party beneficiary, the Region should refer the case to DOJ for appropriate action in state or federal court where an enforcement action can remedy the violation. For a more detailed discussion of the third-party beneficiary status, consult *Institutional Controls: Third-Party Beneficiary Rights in Proprietary Controls,* Office of Enforcement and Compliance Assistance memorandum, April 19, 2004. Furthermore, in states that have adopted legislation tailored to the requirements of environmental covenants, (such as those recommended in UECA), the Region may be able to

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[39] Note: these tools may not be available at certain federal facilities. The federal facility is generally responsible for monitoring, reporting, and enforcing any violations of the ICs and other land use controls at CERCLA cleanups, even for surplus property that has been transferred to private use. EPA and often state agencies may enforce the ROD and other post-ROD enforceable document if a federal facility fails to enforce or rectify any IC breach.

refer an enforcement action to DOJ for appropriate action in state or federal court where EPA qualifies as an "agency" that signed the covenant. Regions should note that state law may specify that the agency's enforcement right in the covenant is not based on an interest in real property, and is thus not an acquisition of real property by EPA.

In the RCRA, Brownfields, and UST context, EPA has no authority to be the grantee, so enforcement by EPA is not available unless it is a third-party beneficiary or it has agency rights under a state's UECA or other statute. If a proprietary control is used and another party is the grantee, the regulatory agency may be able to rely on the grantee to act as the enforcer.

9.4 Enforcement and Permit Tools with IC Components

Enforcement and permit tools that may be used to require implementation and maintenance of an IC, or seek a remedy for an IC breach, include CDs, FFAs, UAOs, and permits. Through these instruments, EPA or another regulatory agency may be able to specify the restrictions and requirements for implementing, maintaining, and/or fixing a breach to the IC in the enforceable document. If the responsible parties fail to carry out their obligations under a CD, order, or permit, EPA or another regulatory agency may be able to enforce those obligations under the appr[40]priate CERCLA, Brownfields, o UST, or RCRA authority. The remedies available may include requiring the defendant to implement the IC or, in some circumstances, pay certain costs or penalties. Such

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[40] A consent decree can also be enforced as an order of the court.

Figure 1. Examples of IC Categories and Enforcement Processes

IC Categories	IC Authorities and Examples	Typical Enforcement Processes
Governmental Controls	*Police Power* • Zoning ordinances • Ground water use restrictions • Building codes / permit requirements	Local government jurisdiction; enforcement may be possible through administrative process or legal action. State agency; enforcement may be possible through administrative process or legal action.
Proprietary Controls	*State statutory and common law* • Easements and covenants	The grantee of a proprietary control may be able to seek legal action against the property owner for activities prohibited by its proprietary control. EPA, the state, or another party may be able to enforce the proprietary control under state property law if they are a third-party beneficiary of the easement or covenant. Even if they are not the grantee, EPA or any other state or federal agency that signed the covenant may be able to enforce the proprietary control in states that have adopted legislation similar to UECA as the "agency" that approves of the covenant. EPA may be able to order a responsible party to implement a proprietary control
Informational Devices	*Police Power* • Health advisories • Fish advisories • Deed notices • State registries of waste sites • Tracking systems	While informational devices typically are not themselves enforceable, site-specific circumstances may warrant action by EPA. Regions should consult with OECA to discuss possible action such as issue an order to a responsible party if an imminent and substantial endangerment exists at a site due to lack of a recorded notice. Public health agencies; issuance through administrative process.
Enforcement and Permit Tools with IC Components	*Federal and state statutory law* • Superfund CDs, UAOs, AOCs, and Federal Facility Agreements (FFAs) • RCRA orders and permits • Orders issued under state authority	EPA may be able to use a variety of legal instruments to require responsible parties or the signatories of the agreement to control the use of land or resources. If a responsible party is the grantor or grantee of the proprietary control, EPA may be able to employ these tools to enforce the requirements of the IC as the "agency" that approves of the covenant.

payments may be required to reimburse an agency that has incurred the cost of implementing or maintaining the control, cover the costs incurred when addressing IC breaches, and/or pay penalties (stipulated and/or statutory).

An action pursuant to the CD, order, FFA, or permit generally will be effective only against the parties specified in these documents. For example, a provision in a CD or AOC may require a facility operator to secure a proprietary control to prevent a particular type of land use. However, the land owner may not be a party to the CD or AOC and, therefore, would not be obligated to convey the interest. Furthermore, the requirements of the CD may not be enforceable against any successor-in-title if the successor was not a party to the CD.

If proprietary controls are needed on property that is not owned by a responsible party, enforcement documents generally require that the responsible party use "best efforts" to obtain access and to implement the controls. In cases where the responsible party does not use its best efforts to implement the proprietary controls, EPA can seek to enforce the relevant provisions of the CD, order, FFA or permit in place. If the responsible party is unable to acquire proprietary controls on the property of concern despite exercising best efforts (e.g., the property owner is unwilling to sell or agree on a price for an easement or other property interest), there are several approaches to consider, depending on the situation. For Superfund remedial actions, the site attorney may consider acquiring or condemning the necessary real property interests[41] subject to the requirements of CERCLA §104(j). Under CERCLA, many state statutes, and typically under consent agreements such as CDs, the responsible party may be required to reimburse EPA and/or the state for the cost of acquiring the control either through negotiated purchase or condemnation. Alternatively, this may be resolved by selecting and implementing different types of ICs. If other ICs are not viable and the long-term protectiveness of the response is threatened, it may be necessary to reconsider the response action that was selected.

9.5 Informational Devices

The most common informational devices used in UST, Brownfields, federal facility, RCRA, and CERCLA cleanups are notices filed in local land records, state registries, and advisories. Notices are useful devices, but are not typically enforceable. However, some states recently have established laws that allow the state to enforce placement of notices in the local land records under state environmental laws. Similarly, many states are developing laws that require sites with ICs to be placed in a registry. However, these laws typically only apply to the listing of sites in registries, and do not affirmatively limit land or resource use at a site.

9.6 Commencement of New Actions

Where ICs are not properly implemented or maintained, it may be necessary to commence an enforcement action against the responsible party. For example, it may be possible to issue a UAO to require the responsible party to use best efforts to acquire real property interests limiting future land use where zoning restrictions are repealed.

In the event of an IC violation, the site attorney may consider issuing an administrative order under CERCLA § 106(a) and/or RCRA § 7003(a) requiring that the IC be maintained if there is a resulting actual or threatened imminent and substantial endangerment to human health and the environment. If the administrative order is not complied with, EPA may seek judicial enforcement of the order. If the party responsible for enforcing an IC fails to do so in a timely manner, EPA may also use these authorities to seek a court order imposing the IC.

9.7 Other Enforcement Concerns

One significant enforcement concern may be the premature close-out of CDs, orders, FFAs or permits despite a long-term requirement for ICs. Often, a responsible party is anxious to close out its CD, order, or permit and end its relationship with regulatory agencies through those documents once the construction work is complete and routine site maintenance has commenced. It is important that the site manager and site attorney retain the appropriate enforcement authority for implementing, maintaining, and enforcing the ICs over the duration of the period in which ICs may be needed. In some cases, ICs, and, therefore, enforcement instruments, need to be retained for a long period of time. In other cases, such as RCRA permits that have a specific period of performance and long-term requirements for ICs, retaining an adequate instrument mechanism may be needed to ensure the long-term durability, reliability, and effectiveness of the control. An additional area of concern is the change of ownership of facilities subject to orders without proper notification to the site manager. A RCRA order, or other enforceable device, may include a requirement for notification of change of ownership.

9.8 State, Tribal, and Local Government Enforcement Roles and Assurances

Many governmental controls are established under state, tribal, or local jurisdiction. To keep remedies protective, Regions should encourage states, tribes, and local agencies to be proactive in ensuring that ICs subject to their authorities are properly maintained. The site manager and site attorney may choose to request some form of written commitment from the appropriate state, tribal, or local government regarding its capability and willingness to maintain, oversee, and enforce the ICs.

In considering the capabilities and willingness to maintain, oversee, and enforce the ICs, the source of funding for these activities can be a particularly important factor, since a lack of funding may lead to IC breaches and an un-protective response action. The format for these commitments will likely vary depending upon the available state, tribal and/or local authority. A written ICIAP or equivalent document can be a valuable tool in helping define goals, planned activities, and roles, and in establishing relationships.

10. SUMMARY

ICs are often a vital component of remedies in most cleanup programs, including the five programs addressed in this guidance. However, over time, Regions should continue to review their effectiveness in light of any changes to land use, communities, laws, the condition and location of subsurface materials, and responsible entities. This guidance document provides an overview of some key issues the Regions may encounter when evaluating whether ICs are properly selected, implemented, maintained, and enforced.

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[41] Under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA) (Pub. L. No. 91-646), negotiations that include offering compensation are required to be completed first.

- When planning and selecting ICs, the site manager and site attorney should familiarize themselves with appropriate state statutes and identify the governmental bodies that have jurisdiction over the site. It may be useful to collaborate with attorneys and remedial and/or removal practitioners familiar with the laws, regulations, and practices in the jurisdiction where the site is located.

- Meeting with community members and local government representatives is often important throughout the IC life cycle to ensure that the need for ICs is understood and accepted as necessary for ensuring protection of human health and the environment.

- An appropriate tool, such as a CD, order, or permit (e.g., under CERCLA, RCRA, and/or state law) should be used in order to implement the cleanup, including any ICs that are part of the cleanup action.
- If a proprietary control is being implemented, selection of an appropriate grantee and careful drafting of the language of the conveyance is often important.
- If an IC in the form of a governmental control is used, the site manager and site attorney should work closely with the state or local government that has jurisdiction to ensure that it has the capability and willingness to implement and enforce the control.
- A good way to ensure effective implementation of ICs is to develop an ICIAP that documents responsibilities over the full life-cycle of each IC, and include this plan, or a reference to it, in the final decision documents. EPA is developing guidance on recommended contents for such a plan.
- A strategy for monitoring and reporting on ICs should be included in the O&M plan for Superfund sites, included in an ICIAP, or developed as part of the permit or order that implements a response decision under RCRA. In addition, the site manager and site attorney should discuss appropriate monitoring roles with the local government and appropriate state agencies.
- If an IC is not being properly maintained or is violated, appropriate enforcement actions should be taken.

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APPENDIX B: GLOSSARY OF TERMS

For purposes of this guidance, the following terms are defined as:

Administrative Order on Consent (AOC) - a legally enforceable document signed by EPA and an individual, business, or other entity through which the party agrees to pay for the correction of violations, take the necessary corrective or cleanup actions, or refrain from an activity. An AOC, which may be subject to a comment period, describes the actions to be taken, is civil rather than criminal in nature, and can be enforced in court.

Advisories - Warnings, usually issued by public health agencies, either at the federal, state, or local level, that provide notice to potential users of land, surface water, or ground water that there is some existing or impending risk associated with the use of these resources.

Appurtenant - A legal term meaning "belonging to" or "incidental to." An easement that is deemed to be appurtenant benefits an adjacent parcel of land and is usually held by the owner of the adjacent land. For example, an easement allowing the owner of a parcel of land the right to cross an adjoining parcel would be deemed appurtenant to the easement holder's parcel of land.

Brownfields Site - Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. See CERCLA 101(39) for additional information on what sites may qualify as Brownfields under CERCLA.

Chain of Title - A history of conveyances, judgments, and encumbrances affecting title to real estate from the time that the original patent was granted, or as far back as records are available.

Common Law - The body of English law developed primarily from judicial decisions based on custom and precedent, unwritten in statute or code, and constituting the basis of the legal system in all of the U.S. except Louisiana.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund) - Legislation enacted in 1980 to identify, investigate, and clean up the nation's most contaminated hazardous waste sites and respond to emergency situations involving hazardous substances, pollutants or contaminants.

Condemnation - The process by which a government agency, exercising the power of eminent domain, acquires an interest in property.

Consent Decree (CD) - A legal document, approved by a judge, that formalizes a settlement reached between EPA and responsible parties through which responsible parties will conduct all or part of a cleanup action at a Superfund site, cease or correct actions or processes that are polluting the environment, or otherwise comply with an EPA-initiated enforcement action. The consent decree describes the actions responsible parties will take and is subject to a public comment period.

Conveyance - The transfer of title to property or an interest in property (e.g., an easement) from one person to another.

Cooperative Agreement - An agreement, including CERCLA §104(d) agreements, that transfers money for the accomplishment of authorized activities or tasks.

Corrective Action - EPA can require RCRA treatment, storage, and disposal facilities (TSDFs) handling hazardous waste to undertake corrective actions to clean up contamination resulting from failure to follow hazardous-waste management procedures or other mistakes.

Covenant - A promise by one landowner to another generally made in connection with a conveyance of property (e.g., warranty of title) that may or may not run with the land. Covenants may also include a promise by the holder of a possessory interest in property to use or refrain from using the property in a certain manner. Covenants are similar to easements but have been traditionally subject to somewhat different formal requirements.

Deed - A written instrument that transfers legal title to real property or an interest therein from one party to another. Generally, it contains the names of the grantor and grantee, a description of the property, and the estate being conveyed. It is signed by the grantor, usually acknowledged before a notary public, and should be recorded.

Deed Notice - Commonly refers to a non-enforceable, purely informational provision in a deed that alerts anyone performing a title search to important information about a particular property but may also be used, somewhat confusingly, to refer to other purely informational documents that are recorded in local land records.

Deed Restriction - Not a traditional real property law term, but rather is used in the NCP as a shorthand way to refer to various types of proprietary controls.

Easement - A right that allows the holder to use the property of another or restrict its use according to the terms of the easement. An "affirmative" easement allows the holder to enter upon or use another's property for a particular purpose (e.g., ingress/egress). A "negative" easement imposes limits on how the owner of the servient estate can use the property.

Emergency Removal Action - A CERCLA emergency removal action generally occurs when a release or threatened release requires the lead agency to initiate on-site cleanup activities within hours of determining that a removal is required.

Enforcement Tools - Tools, such as administrative orders or consent decrees, available to EPA under CERCLA and RCRA that can be used to restrict the use of land. Enforcement authority can be used to either (1) prohibit a party from using land in certain ways or from carrying out certain activities at a specified property, or (2) require a settling party to put in place some other form of control, such as a proprietary control.

Explanation of Significant Differences (ESD) - A CERCLA decision document prepared when there has been a significant change in cost, performance, or cost of a remedy selected in a Record of Decision (ROD). The significant change to the remedy may be as a result of new information.

Environmental Data Standards Council (EDSC) - This organization was established in 1999 to oversee a consensus-based process for developing and promoting environmental data standards. In 2005, the responsibility for overseeing the consensus-based process was transferred to the Exchange Network Leadership Council. http://www.exchangenetwork.net/standards

Five-Year Review (FYR) - An evaluation that may be required by §121(c) of CERCLA. Consistent with the NCP (40 CFR §300.430(f)(4)(ii)), Regions should conduct a review at Superfund sites where the remedy does not allow for unlimited use and unrestricted exposure. FYRs are designed to determine whether the remedy at a site remains protective of human health and the environment. Where remedial actions are still under construction, FYRs can help confirm that immediate threats have been addressed and that the remedy is expected to be protective when all remedial actions are completed.

Governmental Controls - Controls using the regulatory authority of a government entity to impose restrictions on citizens or sites under its jurisdiction. Generally, EPA turns to state, local, or tribal governments to enforce existing controls of this type and to establish new controls. Typical examples of governmental controls include zoning, the issuance of building permits, and state and local ground water use restrictions.

Grantee/Grantor - The entity to/from which ownership of a property interest (e.g., an easement) is transferred.

Informational Devices - IC instruments that provide information or notification that residual or capped contamination could remain on site. Common examples include state registries of contaminated properties, notices in deeds, and advisories.

In Gross - A property law term used to describe easements that provide a benefit not related to any property owned by the holder of the easement. Easements used under CERCLA and RCRA generally will be "in gross" because the restrictions generally are not for the benefit of any particular neighboring parcel owned by the holder of the easement.

Institutional Controls - Non-engineered instruments, such as administrative and legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a response action. They are typically used in conjunction with, or as a supplement to, other measures, such as waste treatment or containment. There are generally four categories of ICs: governmental controls; proprietary controls; enforcement and permit tools with IC components; and information devices.

Land Use Control (LUC) - Any restriction or control, including institutional controls and engineering controls, arising from the need to protect human health and the environment, such as the restriction of access or limitation of activities at a site that has residual contamination.

Layering - The use of different types of institutional controls at the same time to enhance the protectiveness of the remedy.

Memorandum of Understanding (MOU) - A non-enforceable document that outlines the intentions of its signatories.

Non-Time-Critical Removal Action - A CERCLA non-time-critical removal action occurs when at least six months are available after determining that a removal is appropriate and before on-site cleanup activities must begin.

Overlay Zone - A set of zoning regulations that supplement (i.e., overlay) those of the underlying district. Developments within the overlay zone normally conform to the requirements of both zones, or the more restrictive of the two. Overlay zones may be used to address issues such as historical areas, flood plains, and environmental contamination.

Post-Removal Site Controls (PRSCs) - Actions necessary to ensure the effectiveness and integrity of the removal action after the completion of the on-site removal action

Proprietary Controls - Use of real property law to prohibit certain activities that may interfere with the engineering remedy applied at a site, or to restrict activities or future uses of a resource that may result in unacceptable risk to human health or the environment. The most common examples of proprietary controls are easements and covenants.

Prospective Purchaser Agreement - An agreement between EPA or a state and the prospective purchaser of a property known to be contaminated. Under the agreement, EPA or the state typically provides the purchaser with a covenant not to sue for the contamination existing at the site as of the date of the agreement. In return, the purchaser usually provides EPA with a benefit, which may include carrying out actual cleanup work and/or funding for cleanup at the site. EPA generally would enter into such an agreement at sites where an EPA action has been, is currently being, or will be taken. Parties seeking to operate on or lease contaminated property also may be eligible for such an agreement.

Record of Decision (ROD) - A document that selects the remedial action at a CERCLA site. It is a legal document that is an important part of the remedy selection process carried out in accordance with CERCLA. It includes, but it not limited to the following: a basis for the action, the selected remedy, a discussion of the supporting rationale, and response to stakeholder comments.

Resource Conservation and Recovery Act (RCRA) - The public law that creates the framework for the proper treatment, storage, and disposal of hazardous and nonhazardous solid waste. RCRA focuses on active and future facilities and does not address abandoned or historical sites which are managed under CERCLA, commonly known as Superfund.

Responsible Party - The term "responsible party" as used in this document is intended to mean a person or entity with cleanup or IC responsibilities under the various cleanup programs addressed in this guidance.

"Run with the Land" - A term indicating that a proprietary control will bind subsequent owners of the affected parcel as opposed to one that is personal and binds only the original parties.

Subdivision Ordinance - A local ordinance that regulates the conversion of land into building lots for development. The regulations establish requirements for streets, utilities, site design, and procedures for dedicating land for open space or other public purposes to the local government (or fees in lieu of dedication). In short, subdivision ordinances regulate land conversion, whereas zoning ordinances regulate land use.

Superfund State Contract (SSC) - An agreement between EPA and a state generally before remedial action begins at Superfund sites. Typically, the SSC documents the state's assurances under CERCLA and outlines the roles and responsibilities of both parties.

Time-Critical Removal Action - A time-critical removal action occurs when less than six months are available after determining that a removal is appropriate and before on-site cleanup activities must begin.

Uniform Environmental Covenants Act (UECA) - A model state legislation that addresses the use of proprietary controls as ICs (e.g., environmental covenants) and can be used to reduce the legal and management complications and common law impediments associated with ICs. UECA was developed by the National Conference of Commissioners on Uniform State Laws. http://www.environmentalcovenants.org/ueca

Unilateral Administrative Order (UAO) - A legal document signed by EPA directing any person to take corrective action or refrain from an activity. It describes the violations and actions to be taken, and can be enforced in court.

Unlimited Use/Unrestricted Exposure (UU/UE) - As discussed in EPA guidance documents, UU/UE generally refers to a situation when there are no exposure limitations required for the remedy at a site to be protective.

Zoning - A widely used type of land use control that is based upon the police power. Zoning ordinances typically consist of a map indicating the various land use zones (or districts) in the jurisdiction, and text that sets forth regulations for the development of land by zone.

Appendix E

IDA Request to the NYSDEC Regarding Angler’s Club And Sewage Pumping Station Being Included In The Gladsky ERP

Ralph V. Suozzi
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GLEN COVE
COMMUNITY DEVELOPMENT AGENCY
AND
INDUSTRIAL DEVELOPMENT AGENCY
City Hall, 9 Glen Street, Glen Cove, NY 11542

November 6, 2009

Salvatore Ervolina, Assistant Director
Division of Environmental Remediation
NYS Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7015

Re: Glen Cove Creek Waterfront Revitalization Area
NYSDEC Environmental Restoration Project

Dear Sal:

As a follow-up to our recent telephone discussion, the meeting at the Department on August 11, 2009 with Remedial Division representatives, and in furtherance of the City of Glen Cove's redevelopment efforts along Glen Cove Creek and upland areas, we are seeking clarification, and, as needed, are hereby making a request, relative to the boundary and coverage of the Environmental Restoration Project including the so-called Gladsky Marina, Anglers Club and Pump Station properties, located on Garvies Point Road, Glen Cove, New York.

As the Department is aware, State and Federal funding sources have been used to perform environmental assessments at the Gladsky Marina (city-CDA owned property), Anglers Club (city-CDA owned property) and Pump Station (city-owned property) properties. Further investigation, feasibility and remedial considerations are ongoing at the Gladsky Marina property (Site No. 1-30-152). At this point, we understand that no further action is contemplated for the Anglers Club or Pump Station properties, although the designated developer of the properties may conduct further assessment and/or remedial work.

Attached hereto is the 2006 ROD for the Gladsky property. You will see that the Figure 2 appears to show the ERP boundary including the Pump Station property along with the Gladsky property. Also attached hereto is the "Phase 1 Environmental Assessment Report Anglers Club/Gladsky Marina site", dated May 2000, which appears to identify the Phase 1 Site Plan boundary as including the Pump Station, Gladsky Marina and Anglers Club property. The "Project Background" defines the site as the "Anglers Club (western portion), and Gladsky Marina and a City of Glen Cove sanitary wastewater pump station (eastern property)" (pg. 1-1). Section 2.0 of the Phase 1 (attached). indicates there is one tax lot, and three parcels, comprising the Phase 1 site, namely, Section 21, Block A, Lot 12.

It is important to clarify and confirm or, as needed, the City hereby requests, that the boundary of the ERP include the Anglers Club, Pump Station and Gladsky properties. With these properties being included within the ERP designation, we anticipate greater opportunities for redevelopment, private investment and liability limitation. While we understand the Department's ERP program may not have current funding available for restoration projects, we request that the State confirm the ERP site boundaries to include the Anglers Club, Gladsky and Pump Station properties in order to provide statutory ERP liability protection for these properties.

I look forward to hearing from you in this regard, and appreciate the efforts of the Department in facilitating redevelopment along Glen Cove Creek.

Very truly yours,

K. Kelly Morris
Executive Director
City of Glen Cove CDA/IDA

Attachments