College Point Properties, Inc.
120-51 5th Avenue
COLLEGE POINT, QUEENS, NEW YORK 11356

Final Engineering Report

NYSDEC VCP Site Number: V00254

Prepared for:
JTR College Point, LLC
401 West Street, 3rd Floor
New York, N.Y. 10014

Prepared by:

Albert Machlin, P.E.

for the

Environmental Technology Group, Inc.
300 Wheeler Road
Hauppauge, N.Y. 11788
631-232-1987

MARCH 2011

CERTIFICATIONS

I, Albert Machlin, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the College Point Properties, Inc. Site (NYSDEC VCA Index No. D2-0001-00-03 Site No. V00254).

I certify that the Site description presented in this FER is identical to the Site descriptions presented in the Declaration of Covenants, Restrictions, Easements, Charges and Liens dated October 31, 2007 and recorded in the Registers Office of the City of New York, County of Queens on March 21, 2008, City Register File No. 2008000116786, (the "Deed Restriction), the Site Management Plan, and the Voluntary Cleanup Agreement for the College Point Properties, Inc. and related amendments.

I certify that the Remedial Work Plan dated October 15, 2003 (revised February 27, 2004) and approved by the NYSDEC was implemented and that all requirements in those documents have been substantively complied with.

I certify that the remedial activities were observed by qualified environmental professionals under my supervision and that the remediation requirements set forth in the Remedial Work Plan and any other relevant provisions of ECL 27-1419 have been achieved.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and all operation and maintenance requirements applicable to the Site are contained in an Deed Restriction created and recorded pursuant ECL 71-3605 and the form of Deed that is delivered in connection with the sale of any part of the College Point Property (a copy of which is attached herto as Appendix F) and that all affected local governments, as defined in ECL 71-3603, have been notified that such Deed Restriction has been recorded. A Site Management Plan has been submitted by the Applicant for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by NYSDEC.

I certify that all export of contaminated soil, fill, water or other material from the property was performed in accordance with the Remedial Work Plan, and were taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that all import of soils from off-Site, including source approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Work Plan.

I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the Remedial Work Plan.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

029114	3/2/11	
NYS Professional Engineer #	Date	Signature

Note: include PE stamp

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

FINAL REMEDIAL ENGINEERING REPORT

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ABBREVIATIONS AND ACRONYMS

AOC	Area of Concern
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CAMP	Community Air Monitoring Plan
C&D	Construction and Debris
CFM	Cubic Feet per Minute
COC	Certificate of Compliance
DER-10	Department of Environmental Remediation Technical Guidance for Site Investigation and Remediation
DI/CI	Ductile Iron/Cast Iron
DO	Dissolved Oxygen
DSHM	Division of Solid and Hazardous Materials
DUSR	Data Usability Summary Report
EC	Engineering Controls
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Accreditation Program
EPA	United States Environmental Protection Agency
FER	Final Engineering Report
GA Standards	Class GA Water Quality Effluent Standard
GCAMP	Generic Community Air Monitoring Plan
GPR	Groundwater Penetrating Radar
HASP	Health and Safety Plan
HDPE	High Density Polyethylene
HVAC	Heating, Ventilation, and Air Conditioning
IC	Institutional Controls
LEL	Lower Explosive Limit
LNAPL	Light Non-Aqueous Phase Liquid
MW	Monitoring Well
NYSDEC	New York State Department of Environmental Conservation
NYCDEP	New York City Department of Environmental Protection
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
OU	Operable Unit

PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
PPB	Parts per Billion
PPM	Parts per Million
PRT	Post Run Tubing
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
RAO	Remedial Action Objectives
RWP	Remedial Work Plan
RSCO	Recommended Soil Cleanup Objective
SBL	Site Background Level
SCOs	Soil Cleanup Objective
SMP	Site Management Plan
SoMP	Soil/Material Management Plan
SSD or SSDS	Sub-slab Depressurization System
SG	Soil Gas
SPDES	State Pollution Discharge Elimination System
STARS	Spill Technology and Remediation Series
SWPPP	Stormwater Pollution Prevention Plan
SVOC	Semivolatile Organic Compound
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TCLP	Toxic Characteristic Leaching Procedure
TCL	Target Compound List
TDS	Total Dissolved Solids
TIC	Tentatively Identified Compounds
TPH or TPHC	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

FINAL REMEDIAL ENGINEERING REPORT

1.0 BACKGROUND

JTR College Point Properties, Inc. entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) in April 2000, to investigate and remediate a 8.5-acre property located in College Point, Queens, New York. A residential development is proposed for the property. When completed, the Site will contain a residential development with 86 condominiums in 12 buildings. At this time, five of the buildings have been completed.

The New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) approved the Remediation Work Plan (RWP) for cleanup of the 8.5 acre JTR College Point property site located at 121st Street and 5th Avenue in College Point, Queens, New York in June 2004 (see Figure 1 for Site Location). The RWP was prepared under the Voluntary Cleanup Agreement D2-0001-00-03, ID V00254, executed by College Point Properties, Inc. with NYSDEC to remediate the site on April 6, 2000. The invasive remediation work on the site that was started in May 2005 was completed in October 2006. This report was prepared in accordance with Section 4.3.1 of the Remediation Work Plan (dated 2/27/04). This report covers the remediation through the excavation and removal of contaminated hot spots that were identified by the Remedial Work Plan. The purpose of the report is to confirm that the invasive work is complete, and in compliance with the Remediation Work Plan.

Albert Machlin, P.E. is the author of this report and the engineer of record for the NYSDEC-approved RWP and the Voluntary Cleanup Agreement (VCA). The Remediation Work Plan is an official part of the agreement and is thereby enforceable.

Albert Machlin, P.E., together with the Environmental Technology Group (ETG) has been involved with the project since April 2001 and is the author of both the Site Investigation Report and the Remediation Work Plan (RWP). In this capacity, ETG determined the location and extent of contaminated materials that required remediation. These locations and designated Hot-Spots were identified and characterized by the background studies. The site is composed almost entirely of construction debris, much of which will remain on the site following remediation. The purpose of the remediation was to remove designated contaminants that were disposed at on the surface of the construction debris. It was not to remove or remediate construction debris.

The land immediately to the east of the Site is also a construction debris landfill, but there is no evidence either from the remedial investigation or the invasive soil removal that contaminants have moved on to the project site from the east, or any other direction.

A digital copy of this FER is included in Appendix A.

A digital copy of the entire project record is included in Appendix B.

1.1 SITE LOCATION AND DESCRIPTION

The Site is located in the County of Queens, New York, New York and is identified as Lots 1,8,12 and 18 in Block 3916, and Lot 100 in Block 3914 on the Queens County Tax Map. Figure 1 shows the Site location. The Site is situated on an approximately 8.5-acre area bounded by the East River to the north, 5th Avenue to the south, the Riverview development to the east, and the Hermon A. McNeill Park to the west (see Figure 1). The boundary map included in the VCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419 is included in Figure 2, which contains the Metes and Bounds. A global positioning system coordinate for the starting point is included.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The Remedial Action to be performed under the RWP has made the Site protective of human health and the environment to standards consistent with the contemplated end use. The proposed redevelopment plan and end use is restricted residential development.

The Site will consist of 12 buildings with 86 2-story condominiums. The development plan is depicted in Figure 3. The surface land uses are roads, sidewalks, and grass covered open spaces. The areas below grade consist of electrical, sanitary, and stormwater facilities.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The area to the east of the Site, known as the Riverview development, as well as the area across 5th Avenue south of the Site consist of multi-story building residences (mostly 2-story). The area to the west of the Site is the Hermon A. McNeill Park, and the area to the north is the East River.

The nearest school is PS 129 (Patricia Larkin School) located at 7th Avenue and College Place, which is 2 blocks away from the Site. The nearest hospital is the New York Hospital Medical Center of Queens at 56-45 Main Street, Flushing, NY 11355 (at Main Street and Booth Memorial Avenue), about 4-miles away. As indicated above, the East River borders the Site on the north. Although the Site borders the East River, no part of the Site is in the tidal wetland.

1.3.1 Sensitive Receptors

Sensitive Receptors

<u>The possible receptor populations are as follows:</u>

- Hermon A. MacNeil Park to the west of the Site:
  (This park is frequented by joggers, young families, and others).

- Riverview development to the east of the Site:
  (This is a complex of two to three story garden apartments).

- Across Fifth Avenue to the south of the Site:
  (These are two-family residences).
- Construction workers (surface and subsurface soils)
- On-Site Residents (primarily children from surface soils, and primarily adults from some subsurface soils)
- Off-Site Residents (surface soils)
- Gardeners (surface soils)
- The Public using the perimeter walkway, and other Site visitors (surface soils)
- Utility Workers (surface and subsurface soils)
- Outdoor workers (on-Site) (surface and subsurface soils)

This is covered in Section 2.6.1 below.

2.0 DESCRIPTION OF SITE INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Site Investigation (SI) Work Plan dated October 15, 2003. The investigation was conducted between May 2001 and October 2003. The SI Report was submitted to NYSDEC on October 15, 2003 and approved by NYSDEC on June 8, 2004.

2.1 SUMMARY OF SITE INVESTIGATIONS PERFORMED

2.1.1 Borings and Wells

There were a total of 125 borings installed on the Site – 74 were installed before remediation and 51 were installed during remediation (see Figures 4 and 5 for locations).

There were a total of 24 wells drilled on the Site – 15 before remediation and 9 after remediation. There are now 10 wells on Site – the 9 that were drilled after remediation and 1 of the original wells that was retained (see Figure 6 for locations).

2.1.2 Samples Collected

During the Site Investigation phase of the project, samples were collected of the following:

- Surface water and groundwater
- Soils and Sediments
- Soil Gas

2.1.3 Chemical Analytical Work Performed

Groundwater was analyzed for Chlorides. Groundwater and surface water were analyzed for VOCs, SVOCs, Pesticides, PCBs, and Metals. Soils and sediment were analyzed for VOCs, SVOCs, Pesticides, PCBs, Metals, Petroleum Contaminants and Product, and Hazardous Waste. Soil gas was analyzed for BTEX, VOCs, SVOCs, and Methane.

2.1.4 Geophysical Work, Test Pits, Other

- **Geophysical Survey**

  This was conducted using ground penetrating radar (GPR) within a one-half acre BTEX-contaminated area to determine whether buried objects (drums, tanks, etc.) were present. The GPR identifies anomalies in the subsurface. The GPR survey identified possible underground storage tanks, large pits of steel, and 55-gallon drums at six locations.

- **Test Pits**

  Upon completion of the geophysical survey activities, test pits were excavated at each of the six anomalies. The location of these pits is shown on Figure 4. All of the pits were excavated between 18 to 20 feet below ground surface, and any subsurface anomalies were excavated and removed from the area. The anomalies excavated consisted of crushed empty 55-gallon drums, large pieces of wood, fence posts, pipes and valves associated with USTs, refrigerators, car parts, tires, and other wood and metallic debris, large bundles of metal wires, roofing material, remnants of building structures, steel sheeting, railroad ties, and concrete blocks.

- **Soil Sampling for Petroleum product Contamination**

  A soil sampling grid was established in the east central portion of the Site to delineate the petroleum contamination area. Thirty eight borings were installed and sampling was carried out for a 3-month period. Soil samples were collected just above the soil/water interface between 15.5 and 17.5 feet below ground surface and analyzed for petroleum.

- **Floating Product Investigation**

  The purpose of this was to delineate the horizontal extent of the floating petroleum on the groundwater surface. Twenty soil borings were drilled to groundwater throughout the BTEX contaminated soil area.

- **Soil Gas Survey**

A soil gas survey was performed at the same time as the soil sampling on the Site. The purpose was to determine if VOCs were present in concentrations that could present human health concerns. Sampling was carried out at ten soil sampling locations scattered throughout the Site, which involved extraction of the soil gas at one-foot intervals from one to four feet below ground surface. The gases tested for were methane, cyanide, and organic vapors. At eight gas samples all measurements indicated that there were no organic vapors, no methane gas, and no cyanide in the upper 4-feet of soil. Two of the soil samples along the eastern property line (where floating product was found in the past) did not show measurable gas in the upper 4-feet of soil, PID readings indicated measurable gas at deeper levels. Soil gas was extracted from the soil by using the Post Run Tubing (PRT) procedure (see Appendix C). This involves the use of a Geoprobe unit to insert a probe into the ground to a predetermined depth. The special design of the probe allows the extraction of gas at that depth while minimizing surface air infiltration.

2.1.5 Documentation

The locations of the soil samples taken before remediation are shown on Figure 4; the soil analyses on Table 1. The locations of the soil samples made during and after remediation are shown on Figure 5, the soil analyses on Table 2.

2.1.6 Summary of Site Investigation Findings

The distribution of patches and pockets of contaminated soil around the property resulted from dumping of miscellaneous material on the Site and is consistent with past activities such as storage of cars and disposal of scrap metal and waste oil (see Appendix D for Soil Borings and Figures 4 and 5 for location of borings). The types of contaminants that have been identified in soils were PCBs, SVOCs, Metals, VOCs, and Petroleum Hydrocarbons. It is apparent that the shallow Hot-Spots in what has been designated as OU1, and the petroleum contamination area which has been designated as OU2, were the result of activities that occurred after the completion of the construction debris landfill. Aside from these Hot-Spots, the construction debris is essentially uniform from one side of the site to the other.

For this work, it is important to distinguish between historic fill and contaminated deposits. The historic fill is composed of demolition debris and other randomly placed materials that were the original ingredients of the fill. They are, for the most part benign, and are therefore not the subject of this remediation. The contaminated areas designated for removal, or "Hot-Spots," are shown on Figure 7. The petroleum related contamination (floating product and contaminated soil) were found in individual, discrete, stable pockets, and showed no signs of significant migration.

2.2 SITE HISTORY

2.2.1 Past Uses and Ownership

The present owners of the Site are JTR Queens College Point. Previous Owners were the Oaktree Capital Management Corporation, and the Eastpoint Developers Inc.

Most of the Site was constructed by the deposition of fill material into the East River (which included construction debris and soil). Aerial photographs show that the filling started in the 1850s and was completed by the mid 1970s. In 1954, one small area of filling is noted on an aerial photo of the Site, but there is no evidence of other filling or development. By 1966, the land filling was well underway. By 1975, land filling was completed, and at that time it appears that the Site was being used for the storage of automobiles. Since 1989, there were a number of investigations of the Site (including soil borings and subsurface sampling and analyses). More intensive investigations were made from 2000 to 2005. The most recent work included soil borings to determine soil conditions, and sampling and analysis of marine sediments from near shore locations, surface water and groundwater. Soil gas surveys were also made.

Past remedial activities included excavation of soil in areas of suspected contamination. Removal of some contaminated soils was carried out in 1990. Scrap metal was removed in 1999. Additional Site investigations were made in 1999 and 2000, which included a pilot study to identify and remove free product petroleum. The above efforts resulted in an extensive and thorough investigation of the 8.5-acre site.

2.2.2 Phase I and Phase II Reports (1989)

In 1989, two abandoned residential dwellings were present on-Site. They have since been removed. Prior to this, the Site was occupied by a used car lot (circa 1973). According to New York City Building Department records, the subject Site has not been used for any type of manufacturing or production operations, and has not been occupied by heavy industry. In the late 1980s, a major residential housing complex was planned at the subject Site. In order to evaluate the environmental conditions at the subject Site, a site characterization investigation was conducted in January 1989. This investigation consisted of a historical search of past Site activities, a regulatory agency search for on-Site and off-Site incidents, a Site reconnaissance, the placement of ten soil borings, and the sampling and analysis of surface and subsurface soils. The soil samples were analyzed for total petroleum hydrocarbons (TPHs) or (TPHCs), pesticides, polychlorinated biphenyls (PCBs), total metals, extraction procedure toxicity (EP TOX) metals, and volatile organic compounds (VOCs). A follow-up to the Phase I investigation was conducted during March of 1989 (called a Phase II in the referenced report) and included the placement of twelve additional soil borings, sampling, and analyses. The soil samples were again analyzed for the parameters specified during the previous investigation. The locations of these sampling points are shown on Figure 4.

2.2.3 Phase 3 Contaminated Soils Removal (1990)

In January 1990, contaminated soils were removed from the site at selected locations. Fourteen post excavation samples were collected and analyzed to determine whether the excavation activities on-Site had effectively removed the contaminated soil. The locations of these areas, where excavation occurred, are shown on Figure 8 (VOCs), Figure 9 (SVOCs), Figure 10 (Metals), Figure 11 (PCBs), and Figure 12 (Petroleum). Three types of contaminants were identified on-site - PCBs, TPHs, and metals (specifically lead).

Potential sources of these contaminants were identified as:

- PCBs were attributable to the drippings from surface sources.
- Elevated petroleum hydrocarbon concentrations due to the Site fill, as well as motor oil from abandoned automobiles.
- Elevated levels of lead in the soil were attributed to the abandoned automobiles on-Site that leaked leaded fuel into the ground.

Soil was excavated at the subject Site on January 18, 1990 from the areas as shown on Figures 8 to 12.

After soil removal, samples were collected from the bottoms and sides of each excavation. These samples were analyzed for PCBs, TPH, and total lead. Five randomly selected soil samples from the Site were analyzed using the EPA Toxicity Extraction Procedure. None was characterized as a hazardous waste. The soils were disposed at EAC Operations, a permitted industrial waste landfill.

Two additional soil borings exhibited high TPHs. These were boring locations B-l0 (01/89), in the southeast corner of the Site, at 4 to 5 feet depth (12,700 ppm) and B-20 (3/89), near the east central portion of the Site, at 7 feet to 9 feet depth (4,350 ppm). These were not removed since the TPH did not warrant concern because "field observations indicated that the fill in these areas contained asphalt and or natural organic materials which normally contain high levels of TPHCs".

2.2.4 Sanborn Maps

Sanborn maps for 1916, 1943, and 1951 were reviewed for the Site. All three Sanborn maps show two dwellings and two vacant undeveloped lots at this location. The 1943 Sanborn map identifies a "U.S. Government Property" to the immediate east of the Site, where no structures are labeled and the use of this adjacent site is not noted on the map. The 1951 Sanborn map identifies this adjacent site as a vacant shipyard. All Sanborn maps available for the Site were reviewed prior to preparation of the RWP.

2.2.5 Database Review

A review of the regulatory database (1/98) indicated that three New York State Department of Environmental Conservation (NYSDEC) Spill sites are located between a quarter mile and a half mile away from the subject Site. The closest spill site, 121-11 6th Avenue, is located one avenue block away from the subject property. One gallon of gasoline was reportedly released in January 1995, which affected soil only. The spill site investigation was closed by the State in January 1995. The other two sites are located further away from the subject Site at 124-17 5th Avenue and 7-17 College Point. According to the database, only soil was affected at these two sites (not groundwater) and the State closed these files by 1995.

2.3 GEOLOGICAL CONDITIONS

Since 1989, there have been numerous investigations, sampling, analysis, and related environmental activities mostly in the years from 1989 and 2005 on this Site. All of the validated environmental sampling locations from 1989 to 2005 are shown on Figure 4. Each sample location has a number and a date. These were needed to identify an individual sample since there was repetitive use of the same numbers for completely different locations. Sampling included soils, soil gas, sediment, surface water, and groundwater, taken from both on-Site and off-Site. See Section 2.1 above for description of investigative work performed on the Site.

See Appendix D for logs of the borings taken during the investigation phase of the Site that are located on Figure 4, as well as more recent geologic borings. A geologic section is shown in Figure 13.

The construction debris landfill rests on the bed of the East River. The thickness of the fill varies from about 20-feet to about 35-feet depending on the location. In place, the fill has settled below the original riverbed.

Groundwater

As indicated, most of the Site was built on fill consisting of soil and construction and demolition debris deposited in and along the East River. The material includes large rocks and concrete, which allows marine or brackish water from the river to enter and circulate freely under the Site. The depth to groundwater is approximately 12 to 15-feet. A groundwater flow map is shown in Figure 14. See Table 3 for groundwater quality data before remediation.

2.4 CONTAMINATION CONDITIONS

2.4.1 Conceptual Model of Site Contamination

By definition, in DER 10, Areas of Concern, or AOCs, are places where hazardous substances, hazardous waste or petroleum are, or were known or suspected to have been discharged, generated, manufactured, refined, transported, stored, handled, treated, released or where such substances may have migrated. At the College Point site the AOCs are simple and easily characterized.

2.4.2 Description of Areas of Concern

At the College Point site there are two areas that fit this definition, and they have been designated as OU1 and OU2 (see Figure 15 for OU1 and Figure 16 for OU2 for locations).

OU1 is on the south side of the property, adjacent to 5th Avenue and is an area of approximately 0.8 acres, and is composed mostly of construction debris. This AOC is characterized by small areas or patches of contamination that range from surficial, meaning the upper few inches of soil, to six to eight feet in depth. The contaminants consist of metals and SVOCs.

These Hot-Spots were initially detected by surface sampling/analysis and finally by test borings and test pits. Because the Hot-Spots are generally shallow and limited in areal extent, they are attributed to local activities such as automobile storage rather than to product disposal or spillage, or subsurface migration of contaminants from elsewhere. OU1 is also unique by the fact that there is no evidence of petroleum hydrocarbons or of VOCs present anywhere. For all of these reasons, OU1 is regarded as a minor AOC, and one that has been completely restored.

In contrast, the other AOC, known as OU2, is larger and more extensive. It is approximately 3 acres in size and extends through the entire thickness of the fill material. It is located on the east side of the Site and extends to depths of 12 to 15 feet, or to the water table. Throughout most of the AOC, the soils above the water table are dark in color and show evidence of contact with petroleum. There are local patches of tar-like material, which appear in bands or layers, and in one area there is a well defined body of free product, which is defined as an LNAPL, or a light non-aqueous phase liquid floating body. Contaminants found in OU2 were

VOCs, SVOCs, PCBs, Metals, and petroleum. The ranges and maximum soil contaminant concentrations are shown in Table 4.

Soil gasses were found in the interval above the water table in OU2 with the highest levels noted in the vicinity of locations with thicker bodies of free product, or with higher levels of VOC and SVOC. There is no evidence that the gas accumulations are far reaching or being continually generated.

On-Site

The contamination in both AOCs is fully contained on the Site and has not migrated beyond the boundaries of the Hot-Spots noted in OU1. For example, there is no evidence of deep penetration of the contaminants into the construction debris fill or into the groundwater. The contaminants are mostly metals and SVOCs, which are not highly mobile in soil, and would not be likely to migrate any distance either laterally or vertically.

However, although the petroleum based contaminants, VOCs, and soil gasses associated with OU2 are potentially more mobile based on product characteristics, there is no evidence that there has been any significant migration anywhere on the Site or beyond the Site There is one area of potential migration on the east side of the Site where free flowing product has been observed in excavations and test wells. This entire area has been sealed and contained by 150-feet of sheet piling.

Off-Site

As indicated above, no evidence of offsite migration beyond the two AOCs has been found for the following reasons:

- The Hot-Sots in OU1 are limited to the shallow soils and an interval that is well above the water table. There is no way other than by groundwater flow for contaminants to move laterally from one point to another on the Site.

- All free floating product or LNAPL, which has been found in OU2 on the water table, exists in a very limited area on the east side of the Site. It is not likely to migrate in an easterly direction because of the groundwater gradient, which directs groundwater in the opposite direction to the west.

- The fill materials are of a low permeability and would serve to retard lateral movements of liquids.

- There is no evidence or indication that the free product in OU2 has a continuing source that is feeding this area. All indications are that the source is no longer active. Under these conditions, it is unlikely that the LNAPL body would continue to grow in lateral extent or otherwise get any larger. It is also noted that the groundwater monitoring program that will continue for 24-months on a quarterly schedule will confirm that the free product plume has definitely stabilized.

- Based on the current monitoring results, the soil gas appears to be limited and not likely to migrate within or beyond the site.

Site Background Contaminants existed throughout the soil fill material used to construct the site Table 5 contains the Site Background Levels approved by the NYSDEC under the Voluntary Cleanup Agreement. The source of this soil was primarily other NYC area locations from which soils were removed, and thus is representative of the level of contaminants one would expect from the NYC urban locations. These soils will remain on site. Engineering controls and other restrictions will be used to isolate the contaminants in these soils from future occupants.

Recorded Spills

These are no known or reported product spills on the site. If there were, there would have been a NYSDEC record in the form of a DEC Spill Number.

USTs

The location of USTs found on the Site during the investigative and remedial phases of the project are shown on Figure 16.

Other Potential Sources of Contamination

There are none beyond those noted in the two AOCs.

Contaminated Media

As discussed in the foregoing, the secondary contamination of construction debris on the site by localized leakage from stored vehicles in OU1, and the secondary contamination of construction debris by petroleum hydrocarbons in OU2 has resulted in soil contamination. There are limited and localized bodies of soil gas associated with the petroleum hydrocarbons.

There is no evidence of groundwater contamination resulting from the disposal products on the Site. In particular, there is no evidence of contaminant buildups in groundwater that has the appearance of plume formation.

2.4.3 Identification of Standards, Criteria and Guidance (SCGs)

The standards that were used for the remediation of the Site are the Site Background Levels (SBL) that are in the RWP that were approved by the NYSDEC. They are shown in Table 5. (for VOCs, see Table 6).

2.4.4 Soil/Fill Contamination

Most of the excavated material was disposed of off-Site, and excavations were back-filled with clean imported fill. Material that met SBLs was used to fill and grade OU2.

2.4.4.1 Description of Soil/Fill Contamination

As indicated above, there was some reuse of excavated material that met SBLs in OU2. All clean soil imported to the Site met the NYSDEC TAGM 4046 criteria (See Table 6).

2.4.5 On-Site and Off-Site Groundwater Contamination

2.4.5.1 Description of Groundwater Contamination

As indicated above, groundwater at the Site is essentially saline, and there are no detectable contamination plumes. The chloride levels found in the wells at the Site during the site investigation of the property ranged from 370 ppm to 11,000 ppm. As indicated, most of the Site was built on fill consisting of soil and construction and demolition debris deposited in and along the East River. The material includes large rocks and concrete, which allows marine or brackish water from the river to enter and circulate freely under the site.

The background VOC levels in the Site investigation wells were less than 1 ppm throughout most of the Site, except for a VOC value of 45.7 ppm in well MW-2, and a VOC value of 3.66 ppm at location Z-2-3 at the east area of the Site.

Background levels of SVOCs in groundwater were less than 1 ppm in most cases. Two locations exceeded the 1 ppm level. The SVOC level in well MW-3 ranged from 4.6 to 1.7 ppm (dropping to 0.582 ppm), and 1.066 ppm in MW-11 (dropping to 0.510 ppm) at the northeastern area of the Site.

There were no detectable pesticides in the groundwater samples. There were no PCBs found in the groundwater except for 2 locations – 0.1 ppm in MW-2, and .001 ppm at Z-2-3.

Metal levels of 13,976 ppm were found in MW-5, and 12,583 ppm at MW-11. The levels found at MW-11 were addressed in the remediation of the Site.

The locations of the wells (before remediation) are shown on Figure 4. See Table 1 for sampling results.

2.4.5.2 Comparison of Groundwater with SCGs

The groundwater samples taken during the Site investigation showed a number of exceedances over the Ambient Water Quality Standards, Class GA, which apply to groundwater used as a potential source of drinking water. Exceedances from GA groundwater standards in monitor wells prior to the remedy are shown in Table 7. A spider map that indicates the location(s) of and summarizes exceedances from GA groundwater standards prior to the remedy is shown in

Figure 17.

The maximum chloride content in the groundwater was 16,000,000 ppb, which is considerably greater than the Class GA standard for chlorides of 500,000 ppb. As was pointed out previously, the influence of the East River extends throughout the Site and results in high chloride levels in the groundwater.

As indicated above, there was petroleum contamination in the OU2 area, in the soil and the groundwater. All of the soil contaminated with petroleum was removed down to the groundwater table, as well as the petroleum product floating on the groundwater.

2.4.6 On-Site and Off-Site Soil Vapor Contamination

2.4.6.1 Description of On-Site and Off-Site Soil Vapor Contamination

During the site investigation phase, a soil gas survey was performed. The purpose of this soil gas sampling was to determine if volatile organic compounds are present in the site in such concentrations that they could present human health concerns. This includes proposed and existing structures near the property line as well as a potential for emissions from the surface of the Site.

Soil gas profile sampling occurred at each of ten soil sampling locations identified as SG-1 (04/02) through SG-10 (04/02). The sampling procedure involved extraction of the soil gas at one-foot intervals from one to four feet below the ground surface (BGS).

Extracted gas was first tested with field instruments. Presence of methane gas was measured by using an explosive gas meter. The presence of cyanide was tested by using Drager Detector tubes. A PID was used to determine if organic vapors were present. If no organic vapors were present then the probe would be extracted and moved to the next location.

If organic vapors were encountered in that four-foot interval then a sample of the organic vapors were then collected in a Tedlar Bag. Each collected sample would have been analyzed in the laboratory for volatile organic compounds.

Eight soil gas profile probes, SG-1 (04/02) through, SG-8 (04/02) were scattered throughout the Site with approximately one soil gas profile probe for each acre of the Site to ascertain soil gas conditions across the Site. All field measurements were zero, indicating no organic vapors, no methane gas, and no cyanide in the upper four-foot of soil on the Site.

Six soil gas probes B-1 (04/02) through B-6 (04/02) were taken along the east property line in the vicinity of the previously identified subsurface petroleum contamination near MW-2. All six of the locations also had zero field instrument measurements in the upper four feet of the soil. Indicating no soil gas presence in the upper four feet of the soil on the Site.

These six probe locations were coincident with soil boring probes B-1 (04/02) through B-6 (04/02) which were sampled at greater depths than the four feet. Two soil gas profile probes

were performed at two of the borings along the property line north of MW-2 (where floating product had been found in the past) near the east property line. One of these soil gas probes, SG-9 (04/02), was located at boring B-4 (04/02). The other SG-10 (04/02) was located at boring B-5 (04/02). While neither of these had any measurable soil gas in the upper four feet low level PID readings did occur at greater depth. Due to the presence of petroleum contamination and other organic material in this area soil gas readings at greater depths is expected. See Figure 18 for soil vapor sampling result contours.

The most recent soil vapor tests were made in January and October 2006. Six geoprobes were installed in January 2006, and 14 more were installed in October 2006, or a total of 20 geoprobes. See Figure 19 for location of sampling points and results.

In order to determine the possible locations of contaminated areas at the eastern edge of the Site, during the remediation phase, soil gas sampling was carried out to check the presence of methane and other gases. The six geoprobes were made in the soil to a depth of 20-feet below grade along the east end of the Site from which gas samples were taken. Gas samples were sent to Con-test Laboratories in East Longmeadow, Massachusetts for analysis (SG1, SG2, SG3, SG4, SG5, and SG6). Methane was non-detectable in SG3, SG4, SG5, and SG6, and had low values of 2.9% at SG1 and SG2.

Four of the geoprobes (SG3 to SG6) showed non-detectable levels of methane and low levels of VOCs. SG1 and SG2, which had VOC levels greater than 100 ppm and some methane, are in the 2 hot-spot locations in OU2 where petroleum contaminated areas were excavated and removed in accordance with the RWP. The results confirmed that the contamination was mainly located in the 2 hot-spot areas that were identified in the RWP. The maximum VOCs were found in SG1 (Benzene at 130,000 ug/m^3; Toluene at 30,000 ug/m^3; Methylene Chloride at 11,000 ug/m^3; and small amounts of Chloroethane, Xylene, Hexane). Similar levels of these compounds were found in SG2.

After the completion of remediation, and the placement of clean fill, fourteen additional geoprobes (SG-7 to SG-21) were installed to 2-feet below the groundwater table (see Figure 19) from which soil gas samples were taken and analyzed (TO-15 analysis). In addition, four of the samples (SG-14, SG-18, SG-20, and SG-21) were also tested for the presence of methane. The 3 samples taken under the Bentomat layers (a synthetic clay layer placed in the OU1 area under the Hot-Spots), to check for the possible build-up of methane indicated very low levels, while the fourth sample (SG-20) contained about 4.8% of methane, which is slightly below the lower explosive limit (LEL).

The results of this work indicate that soil gasses composed of Volatile Organic Chemicals exist on the Site at low levels that could present soil vapor entry issues to housing units and other enclosed structures on the Site. The monitoring ports for the Sub-Slab Depressurization system will be checked periodically to determine if they are working properly as outlined in the SMP. The presence of methane will also be monitored. The protocols for monitoring both VOC and methane are included in the SMP.

Results of the 6 soil gas analyses for the January 2006 points are in Table 8. The 14 October

2006 analyses are in Table 9. See Figure 19 for soil vapor spider map.

2.4.6.2 Comparison of Soil Vapor with SCGs

As indicated above, during the investigation phase of the project a soil gas survey was performed at 10 soil sampling locations in the top 4-feet of the Site and found no presence of VOCs, cyanide, or methane. Six additional probes were made that found no presence of soil gas in the upper 4 feet and low level PID readings at depths greater than 4 feet.

The most recent 20 soil gas probes (6 on 1/4/06 and 14 on 10/06) were made to much deeper depths (the 6 at 20-feet, and the 14 at 2-feet below groundwater). VOCs and methane were found in 2 of the 6 probes east of the OU2 where soil containing petroleum was removed. Although most of the VOC values found in the 14 probes were either undetectable, or relatively small, any levels occurring under buildings will be evacuated by the sub-slab depressurization systems. The highest value found was 82,000 ug/m^3 of chlorodifluoro-methane, and 4.8% of methane in SG-20.

Soil vapor was found in the OU2 area where there were VOCs present due to petroleum contamination. There was no indication that there was a groundwater plume that would carry the petroleum away from the area, which limited the presence of soil vapors to the OU2 area.

NYSDOH indicated that there are no SCG for soil vapor.

A contour map that indicates soil vapor levels prior to the remedy is shown in Figure 18. See Figure 4 for sampling locations.

2.5 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.5.1 Qualitative Human Health Exposure Assessment

For the Site Investigation phase of the project, a Qualitative Human Health Exposure Assessment was made by the Consulting Environmental firm of Jacque Whitford Company, Inc. of Elmsford, N.Y. That assessment conformed with the NYSDEC Voluntary Cleanup Program Guide (draft May 22, 2002) requirements. It focused on the suitability of the land for residential purposes. See Appendix E for copy of assessment document. The following is a summary of the assessment.

<u>The possible receptor populations are as follows:</u>

- Hermon A. MacNeil Park to the west of the Site:
  (This park is frequented by joggers, young families, and others).

- Riverview development to the east of the Site:
  (This is a complex of two to three story garden apartments).

- Across Fifth Avenue to the south of the Site:
  (These are two-family residences).

- Construction workers (surface and subsurface soils)
- On-Site Residents (primarily children from surface soils, and primarily adults from some subsurface soils)
- Off-Site Residents (surface soils)
- Gardeners (surface soils)
- The Public using the perimeter walkway, and other Site visitors (surface soils)
- Utility Workers (surface and subsurface soils)
- Outdoor workers (on-Site) (surface and subsurface soils)

Exposure pathways:

Inhalation:

- During earthmoving activities from soil contamination
- From vapors or gases from soil or groundwater
- During extensive landscaping and gardening
- Fugitive dust

Ingestion

- During earthmoving activities from surface and subsurface soils
- During any soil removal to prepare for regarding and introduction of clean fill and/or topsoil
- During trenching for utilities or extensive landscaping

Dermal absorption

- From surface and subsurface soil
- Direct contact with groundwater

Existence and Potential Sources of Contamination

Potential contaminants are VOCs, SVOCs, Metals, PCBs, and Petroleum Hydrocarbons in soils, outdoor air, and groundwater in the OU1 and the OU2 areas. These would be in the form of fugitive dusts, indoor and outdoor vapors, and surface and subsurface soils.

Protective Measures Incorporated in the Site

In accordance with the approved NYSDEC Remediation Work Plan, the Hot-Spots identified in the OU1 and OU2 areas were remediated. The contaminants indicated above were removed.

The following protections were then provided on the Site, which significantly reduced human exposure to Site-related contaminants under current or reasonably foreseeable conditions to possible receptors on and off-Site:

Soil Protection

- Placement of an orange open plastic grid with a minimum of 2-feet of new clean fill soil meeting TAGM4046 requirements and suitable for sustaining vegetation in open space, tree and grass areas. Most of the site was graded to provide more than the minimum 2-feet of clean fill required (3 to 9-feet).

- Pavement areas and other impervious surfaces on soil material presently on the Site.

Soil Vapor Protection

- Construction with impermeable membrane barriers under buildings and sealing at top where wall meets slab for all interior joints where slab meets walls.

- Construction of active sub-slab depressurization systems in each building directly beneath the impermeable barrier operating continuously.

Groundwater Protection

- The potential sources of groundwater contamination were petroleum products in the soil and floating product in the groundwater in the OU2 area. All floating product was removed from the groundwater. In addition, all contaminated soil was removed down to the groundwater table, and then replaced with clean fill.

- In the OU1 area, after contaminated material was removed, a Bentomat clay layer was installed, and the excavated material then replaced with clean fill.

2.5.2 Fish & Wildlife Remedial Impact Analysis

The East River at this location is classified as Class I, saline surface water. This classification allows for secondary contact recreation and fishing, and the waters are deemed suitable for fish propogation and survival. The East river is impacted by a number of sources in this area. For example, to the west is LaGuardia Airport, whose runways parallel Flushing Bay and, to

the east, the Tallman Island Sewage Treatment Plant.

It is difficult to distinguish between contaminants that originate from the Site and those that derive from the river.

During the site investigation phase of the project, water leaving the site and surface water samples adjacent to the site had no VOCs. Two surface water samples near the combined sewer overflow adjacent to the west showed low levels of SVOCs (0.008 ppm and 0.013 ppm). There are no NYSDEC Class I Standards for the SVOC compounds found. SVOCs are a common part of marine sediments in the NY Harbor area. There were no pesticides found in the groundwater or surface water samples. There was no PCB contamination found in surface water. Total metals in surface waters such as in the East River are naturally high – surface water samples near the site had total metals of about 10,000 ppm. Most of the on-site samples were within the range for saline waters or lower except at two locations.

The site investigation for groundwater and surface water has shown no measurable influence on the East River.

2.6 INTERIM REMEDIAL ACTION

Remediation of the Site was initiated in May 2005. All invasive work was completed in October 2006. One hundred and fifty feet of sheet piling was then placed along the east side of the Site as a preventive measure.

2.7 REMEDIAL ACTION OBJECTIVES (RAOS)

The remediation action objectives were the removal of floating product and Hot-Spot locations of contaminated soils. In addition, institutional and engineering controls are being used to isolate the remaining background contaminants in the soils from future occupants and visitors to the Site.

2.7.1 Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.

- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.

- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

2.7.2 Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.7.3 Surface Water RAOs

RAOs for Public Health Protection

- Prevent surface water contamination that may result in fish advisories.

3.0 DESCRIPTION OF APPROVED REMEDIAL ACTION PLAN

The Site was remediated in accordance with the scope of work presented in the NYSDEC-approved Remedial Work Plan dated October 15, 2003 (revised February 27, 2004).

The following reports were made on the site investigation phase (see Appendix B):

- Final – Site Investigation Report, Volume 1 – Report, October 15, 2003.
- Final – Site Investigation Report, Volume 2 – Map Appendices, October 15, 2003.
- Appendix II A, Final Draft – Site Investigation Report, Summary Tables of Chemical Compound Exceedances, March 12, 2003.

The factors considered during the analysis of remedial alternatives included:

Protection of human health and the environment;

Compliance with standards, criteria, and guidelines (SCGs);

Short-term effectiveness and impacts;

Long-term effectiveness and permanence;

Reduction of toxicity, mobility, or volume of contaminated material;

Implementability;

Cost effectiveness;

Community Acceptance; and

Land use.

The Standards, Criteria, and Guidance for the Site in the Remedial Work Plan are as follows:

- Site Background Levels (soil cleanup objectives - see Table 5).
- TAGM 4046 (criteria for clean fill brought on site).
- Water Quality Regulations, 6NYCRR Parts 700-706) (for groundwater and surface water at site)
- Voluntary Cleanup Program Guide Draft, May 2002, NYSDEC

- Voluntary Agreement by College Point Properties D2-0001-00-03, 4/6/2000, ID V000254.

- NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation - December 2002.

- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan.

- NYS Waste Transporter Permits – 6 NYCRR Part 364 (for disposal of contaminated material).

- NYS Solid Waste Management Requirements – 6 NYCRR Part 360 and Part 364 (for disposal of rocks, concrete, etc.).

3.1 SUMMARY OF PROPOSED REMEDIAL ACTION

Below is a description of the proposed Remedial Actions required by the NYSDEC-approved Remedial Work Plan.

1. Excavation of soil/fill exceeding Site Background Levels.

2. Construction and maintenance of an engineered composite cover consisting of placement of an open plastic grid with a minimum of two feet of new clean soil meeting TAGM 4046 requirements and suitable for sustaining vegetation in open space, tree and grass areas. Pavement areas and other impervious surfaces would be placed directly on the soil. These will prevent human exposure to residual contaminated soils remaining under the Site.

3. Construction with impermeable membrane barriers under all buildings.

4. Construction of active sub-slab depressurization systems (SSDS) directly beneath the impermeable membrane barrier for all buildings.

5. Recording of a Deed Restriction, including Institutional Controls, to prevent future exposure to any residual contamination remaining at the Site (a copy of the Deed Restriction is provided in Appendix F).

6. Implementation of a Site Management Plan for long term management of residual contamination as required by the Deed Restriction, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting;

7. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;

8. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of SBLs.

9. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;

10. Import of materials to be used for backfill and cover in compliance with: (1) TAGM 4046 criteria, (2) all Federal, State and local rules and regulations for handling and transport of material;

11. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, addressed in accordance with all applicable Federal, State and local rules and regulations.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved RWP for College Point Properties dated October 15, 2003 (revised February 27, 2004). An electronic copy of the approved RWP is included in Appendix B.

Deviations from the RWP are as follows:

The details at the structural foundations relating to the sub-slab depressurization system were revised since the actual foundations were constructed differently than those shown in the RWP. The impermeable membrane barriers were placed under the 5 buildings constructed and all joints were sealed on the inside of buildings where floor slabs abutted outside wall footings to prevent the possibility of soil vapors entering the building.

Although the RWP called for 5 groundwater monitoring wells that were to be monitored quarterly for a period of 18-months, the NYSDEC required that a total of 10 wells be provided and monitored quarterly for a period of 24-months.

The RWP calls for a minimum of 2-feet of clean soil underlain with an open plastic grid. The actual amount of clean soil placed above the residual material remaining on Site varied from 2 to 9- feet.

In the OU1 area, a Bentomat layer was placed under the clean soil that filled the excavation of the Hot-Spot there.

4.1 GOVERNING DOCUMENTS

4.1.1 Site Specific Health & Safety Plan (HASP)

All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site (see Appendix G).

The Site Safety Coordinator was Stephen Bates, Ph.D., whose resume is included in Appendix H.

4.1.2 Quality Assurance Project Plan (QAPP)

This document governed sampling and analytical methods for end-point sampling (see Appendix I).

4.1.3 Construction Quality Assurance Plan (CQAP)

Construction quality assurance was covered in Sections 3 to 5 of the RWP (see Appendix B). The RWP managed performance of the Remedial Action tasks through designed and documented QA/QC methodologies applied in the field and in the lab. It provided a detailed description of the observation and testing activities that were used to monitor construction quality and confirm that remedy construction was in conformance with the remediation objectives and specifications. These Plans included:

- Responsibilities and authorities of the organizations and key personnel involved in the design and construction of the remedy are as follows:

  Environmental Program Manager:
  William Seevers, AIH (Management of remediation).

  QA/QC Manager
  Olin C. Braids, Ph.D.,

  Remedial Engineer / Engineer of Record
  Albert Machlin, P.E.

  On-Site Project Manager
  Ray Greenidge

  GIS Mapping and Data Input/Management
  J.R. Holzmacher, P.E. LLC

  Chemtech Analytical Laboratory
  Kurt Hummler, Project Manager

  Health and Safety
  Stephen Bates, Ph.D.

- The observations and tests that were used to monitor construction and the frequency of performance of such activities. This was carried out on a daily basis. This included carrying out the provisions of the CAMP, excavating contaminated material, soil sampling of excavated materials for analysis, odor control, and dust control.

- The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for implementing corrective measures as addressed in the plans and specifications indicated in the RWP.

- Requirements for project coordination meetings between the Applicant and its representatives, the Construction Manager, Excavation Contractor, remedial or environmental subcontractors, and other involved parties. This was done on a daily basis. Status meetings were held between remediation engineers and owner periodically.

- Description of the reporting requirements for quality assurance activities including such items as daily and monthly summary reports, schedule of data submissions, inspection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation. Daily and monthly reports were prepared and sent to the NYSDEC Project Manager for remediation of the Site, which included progress of the work, problems and solutions, inspections, and dealings with the community.

- Description of the final documentation retention provisions. These documents are located in the NYSDEC Region 2 Office and the Poppenhusen Library in College Point, Queens (see locations below).

4.1.4 Soil/Materials Management Plan (SoMP)

This document provides detailed plans for managing all soils/materials that were disturbed at the Site, including excavation, handling, storage, transport and disposal. It also includes all of the controls that were applied to these efforts to assure effective, nuisance free performance in compliance with all applicable Federal, State and local laws and regulations (see Appendix J).

4.1.5 Storm-Water Pollution Prevention Plan (SWPPP)

This document addressed requirements of New York State Storm-Water Management Regulations including physical methods to control and/or divert surface water flows and to limit the potential for erosion and migration of Site soils, via wind or water (see Appendix K).

The erosion and sediment controls for all remedial construction were performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control.

4.1.6 Community Air Monitoring Plan (CAMP)

This section addressed requirements of the CAMP (see Appendix L). The CAMP follows the New York State Department of Health guideline document.

4.1.7 Contractors Site Operations Plan (SOP)

This information was covered in Sections 3 to 5 of the RWP. The Remedial Engineer reviewed all plans and submittals for this remedial project (i.e. those listed above plus contractor and sub-contractor document submittals) and confirmed that they were in compliance with the RWP. The Remedial Engineer ensured that all documents submitted for this remedial project after the RWP were approved, including contractor and sub-contractor document submittals, were in compliance with the RWP. All remedial documents were submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

A copy of the as-built drawings for the sub-slab depressurization system is signed and stamped by a NYS licensed professional engineer. The as-built drawings are presented in Appendix M.

4.1.8 Community Participation Activities

After the RWP was determined to be acceptable to the DEC, there was a 30-day public comment period on the RWP. As outlined in the Voluntary Cleanup Agreement, the DEC Project Manager issued a notice of availability in the Environmental Notice Bulletin on the proposed RWP. A copy of the Notice was also mailed to the Queens Borough President's Office and Community Board #7.

The repositories for the RWP are the NYSDEC Region 2 Office and the Poppenhusen Library in College Point (see addresses below).

In addition, as a part of this task, a Fact Sheet describing the project was prepared and approved by the DEC project manager for distribution to the public (see Appendix N for copy of Fact Sheet). No changes were made to the approved Fact Sheet. In early March 2004, it was sent to all residents in the neighborhood of the Site that might be affected. The public comment period was March 10, 2004 to April 8, 2004. The DEC project manager was provided with the mailing list and notified that the mailings were made. Responses to the public comments received were made on May 3, 2004 (see RWP in Appendix B). During the progress of the remediation responses to the public were maintained.

A Fact Sheet will be mailed to the Site Contact List upon approval of the Final Engineering Report and issuance of the Release and Covenant Not to Sue.

The daily and monthly reports sent to the DEC included all contacts made with the public, when they occurred. Communications also occurred with the Northeastern Queens Nature and Historical Preserve Commission, State Senator Frank Padavan, and NYC Councilman Tony Avella.

Document repositories have been established at the following locations for the duration of the project and contain all applicable project documents:

NYSDEC Region 2 Office
1 Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101
Telephone: 718-482-4995
Monday to Friday: 9:00am to 5:00pm

Poppenhusen Library
121-23 14th Avenue
College Point, Queens, N.Y. 11356
Tel: 718-359-1102

Repository hours:

Monday: 1 to 8; Tuesday: 1 to 6; Wednesday: 10 to 6
Thursday: 1 to 8; Friday: 10 to 6; Saturday: 10 to 5; Sunday: Closed

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Involved Parties

The remediation work was performed by the Environmental Technology Group, Inc. (ETG). The Remedial Engineer is Albert Machlin, P.E.

4.2.2 Site Preparation

- Mobilization
  This took place in May 2005.

- Grubbing, fencing
  This was carried out starting in May 2005.

- Erosion and sedimentation controls
  A Notice of Intent covering the Sediment and Erosion Control plan was filed with the NYSDEC for the Site on July 2006 (revised February 2007) (see Appendix K). For the pre-construction phase, the following measures were carried out:

  - Temporary Gravel construction entrance/exit.
  - Hay Bales (along boundary of property at shoreline).
  - Silt Fences (along boundary of property at shoreline).
  - Dust Control by water spraying.

  The silt fences and hay bales were strategically placed around the western boundary of the property in accordance with the Sediment and Erosion Control plan. These control measures were periodically inspected and maintained to ensure their integrity. Clogged hay bales and torn silt fences were periodically removed and replaced after significant rainfalls.

- Utility marker layout
  Public utilities are immediately adjacent to the Site. Public utility mark-outs were requested for the Site. The NYCDEP was requested to locate sewers and water mains that service the Site.

- Acquisition of agency approvals (city permits, etc.) were obtained from the following NYC Agencies

- NYCDOS: Permit for removing contaminated material and bringing in clean fill

- NYCDOT: Permit for removing contaminated material and bringing in clean fill.

- NYCDOB: Permit for removing contaminated material and bringing in clean fill.

- NYCDEP: Water and Sewer Permits.

- A number of meetings were held with the DEC Project Managers on-Site and off-Site at the beginning and during the project from 12/14/04 to April 2008. These meetings involved a wide range of topics including preparation of a Fact Sheet, a vapor control plan, truck routes, dust and odor control, soil management plan, DEC reports, clean soil requirements, preparation of an intermediate engineering report, inspections on-Site, final engineering report, sub-slab depressurization system, and other pertinent matters.

This Voluntary Cleanup Agreement was entered into pursuant to the authority of the NYSDEC under the law that constitutes an administrative settlement for purposes of 42 USC 9613 (f). The NYSDEC has the power, inter alia, to provide for the prevention and abatement of all water, land, and air pollution ECL3-0301.1.1.

All SEQRA requirements and all substantive compliance requirements for attainment of applicable natural resource or other permits were achieved during this Remedial Action.

NYSDEC project sign was erected at the project entrance and in place during all phases of the Remedial Action.

4.2.3 General Site Controls

4.2.3.1 Soil Screening Results

Visual, olfactory and PID soil screening and assessment were performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (Residual Contamination Zone). Soil screening was performed regardless of when the invasive work was done and included all excavation and invasive work performed during development, such as excavations for foundations and utility work.

Each of the contaminants was identified in the Final Investigation Report as a location with at least one sample exceeding the Site Background Levels. These exceedances are based on one sample taken at a particular location.

The purpose of the field screening activities was to:

- Relocate the spot from which that sample was taken and where an exceedance occurred;

- Verify that the level of contamination at that location is representative of the levels of the parameters in the original sample;

- Verify that the exceedance condition represented by the original sample reflects a condition where soil removal is required and if removal is required then:

- Determine the volume of the contamination this exceedance sample represents. (i.e. The area and depth of the contamination and to determine the concentration of the contaminants).

The soil screening enabled the identification of the Hot-Spots above the SBL and the estimated volume of material that had to be remediated.

4.2.3.2 Stockpile Methods

Excavated material was placed in stockpiles over plastic liners and also covered with plastic liners. Stockpiles were kept covered at all times with appropriately anchored tarps. Stockpiles were routinely inspected and damaged tarp covers were promptly replaced.

Stockpiles were inspected at a minimum of once each week and after every storm event. Results of inspections were recorded in a logbook and maintained at the Site available for inspection by NYSDEC. Composite and grab samples were taken from each pile to determine appropriate disposal locations. A dedicated water truck equipped with a water cannon was available on-Site for dust control. Figure 20 shows the locations of the stockpiles.

4.2.3.3 Problems Encountered

To prevent the possibility of petroleum product affecting the Site from the Riverview development, 150-foot of fiberglass sheeting was installed along the eastern side of the Site.

4.2.3.4 Erosion and Sedimentation Controls

See Section 4.2.2 above.

4.2.3.5 Equipment Decontamination and Residual Waste Management

An area at the exit to the Site was set aside for decontamination by washing of all equipment leaving the Site.

Waste that exceeded the SBL was disposed of off-Site. Residual waste that was below the SBL remained on Site

4.2.3.6 Site Security

The Site was provided with 24-hour, 7-day a week security coverage from the initiation of the work until the end of remediation.

4.2.3.7 Job Site Record Keeping

Daily and monthly records were made during the course of remediation.

4.2.4 Nuisance Controls

All trucks and other equipment leaving the site were sprayed with water at the truck washing station located at the exit before leaving the site.

Dust control was managed by monitoring the conditions at the site visually and using the readings from dust meters strategically placed on the site to determine when water should be sprayed using the water trailer. Typically, whenever there was a visible dust cloud, or dust readings exceeding 150 ppm above the background level, dust suppression was carried out. Additionally, all soil piles were covered at the end of the day using a polyethylene membrane. If there were active trucking operations such as removal of contaminated soil or receipt of clean fill, dust suppression was carried out at intervals of thirty minutes**.**

Odor control was necessary during the excavation of OU2, and was applied whenever there were odors emanating from the area being excavated. Odor control was achieved by spraying a premixed solution of Ecosorb 404 (see Appendix O for MSDS) and water into the open excavation, and onto soil piles made from excavated material. As indicated above, all soil piles were covered at the end of the day using a polyethylene membrane.

Egress housekeeping was done by eliminating any debris or sediment caused by the activities on-Site that affected the sidewalks and street in front of the Site. Possible dust accumulation on nearby autos was monitored – this was found not to be a problem.

A truck route was planned to minimize the impact on the neighborhood community by using major thoroughfares.

There were few or no complaints due to the remediation work performed at the Site.

4.2.5 CAMP Results

The CAMP requires real-time monitoring for volatile organic compounds (VOCs) and particulates at the downwind perimeter of work areas when certain activities were in progress on the Site. Its purpose was to provide protection for the downwind community. The CAMP helped to confirm that work activities did not spread off-Site contamination through the air. The CAMP program indicated that the downwind community was not affected by the remediation activities – there were no complaints during that time.

Details of the CAMP program are included in Appendix L. Upwind and downwind measuring points were located based on the prevailing wind direction, where VOC and particulate levels were monitored during work periods. Methods for air monitoring, location of air monitors, and action levels that were used are outlined in the CAMP.

4.2.6 Reporting

All daily and monthly reports are included in Appendix P.

The digital photo log required by the RWP is included in Appendix Q.

4.3 CONTAMINATED MATERIALS REMOVAL

All Hot-Spots were excavated. All excavated material was removed from the Site, even though they were below the Site Background Levels. The contaminated material removed from the Site totaled 17,553.38 tons. The quantities removed are shown in Table 10.

A list of the SBLs and SCOs for this project is shown in Table 5.

A map of the location of original sources and areas where excavations were performed is shown in Figure 21.

Estimated cut and fill thicknesses for remedial activities at the Site is included in Figures 15 and 16.

4.3.1 Contaminated Media/Material Removed

Waste characterization analyses were performed on composite and grab samples taken from stockpiles material removed from excavations (which included TCLP, PCBs, VOCs, SVOCs, and heavy metals). Analyses were carried out by the Chemtech Laboratories in Mountainside, N.J., an ELAP Certified laboratory. Hazardous materials and non-hazardous contaminated material were separated and disposed of at sites indicated below. All disposal facilities had permits for operation of their facilities

Contaminated Soils

Material determined to be hazardous was disposed of at the Clean Earth of North New Jersey facility (1,934.00 tons).

Material with hazardous levels of benzene was disposed of at the Horizon Environment facility in Quebec (67 tons).

Non-hazardous contaminated material was disposed of at the Clean Earth of New Castle facility (13,136.82 tons).

Water and Oil

Water and oil (with PCBs) were disposed of at the Clean Harbors facility in Philadelphia (4,500 kilograms).

Concrete and Rock

Concrete and rock were disposed of at the A. Russo Recycling facility in Rockaway, N.Y. (430 cubic yards).

Debris

Miscellaneous debris was disposed of at the V. Garafolo Carting facility in Brentwood, N.Y. (200 cubic tards).

USTs

Three underground storage tanks that were uncovered during excavations were disposed of at the Gershow Recycling Corporation facility in Medford, N.Y.
(24,000 lbs).

Recyclable Material

Recyclable material was disposed of at the Transmine facility in Westhampton, N.Y. (1,463.67 tons) and the Soil Safe facility in Logan, N.J. (2,415.38 tons).

Auto Bodies

Wrecked auto bodies found on the Site was disposed of at the Gershow facility in Medford, N.Y.

All excavated material (solids and liquids) exceeding the SBL were removed and disposed of off-Site. These materials were removed from the identified Hot-Spots in the OU1 and OU2 areas (see Figure 21 for locations). Some excavated material below the SBL was reused on the Site.

Cut and fill sections are shown in Figures 15 and 16. See Table 10 for summary of materials removed.

4.3.1.1 Disposal Details

The disposal of the various materials took place during the following periods:

- Auto bodies in May 2005.
- Debris was removed from 4/7/05 to 12/19/05.

- Hazardous material from OU1 from 8/3/05 to 10/6/06.
- Recyclable material was taken off-Site from 8/9/05 to 1/9/06.
- Concrete and rock were disposed of from 8/19/05 to 11/17/06.
- Water and oil were disposed of on 11/17/05.
- Non-hazardous contaminated material from OU2 from 1/10/06 to 12/5/06.
- USTs were removed from 6/14/07 to 6/27/07.

Letters from Applicants to disposal facility owners and acceptance letters from disposal facility owners are attached in Appendix R.

Manifests and bills of lading are included in Appendix S.

Table 10 shows the total quantities of each class of material removed from the Site and the disposal locations. Table 11 and Table 12 show the details for OU1 and OU2.

4.3.1.2 On-Site Reuse

Most of the excavated material exceeding the SBL was disposed of off-Site. There was some on-site reuse of excavated material that met SBLs.

4.4 REMEDIAL PERFORMANCE (END-POINT) SAMPLE RESULTS

The initial volume and extent of contamination was determined in the field by using field screening tools consisting of:

1. **Soil Examination**. Both surface and subsurface soils were examined at each location. This was done by physical observation for discolored soil and using field analytical testing.

2. **Soil Testing**. Soils were tested with a PID for VOCs in the field and by laboratory analysis. These analyses consisted of VOCs, heavy metals, PCBs, SVOCs, and TPH. If the estimated volume of the material to be removed was small, the material was removed. However, PIDs were initially used to determine the approximate amount of material to be removed by comparing the field test values with the Site Background Levels.

3. **Volume Determination**. The initial volume determination was based on the above observations and testing.

This information was used to plan for the removal for such items as: excavating equipment size and type; type and size of on site storage; and/or transportation and disposal vessels, containers, vehicles, trucks, etc. This affected final plans for removal planning such as site

health and safety zones, personnel protective equipment, and decontamination of equipment, scheduling of personnel and equipment, etc.

These methods were also used to identify which portion of the excavated material removed from the ground was below the Site Soil Background levels, and could be stock piled and remain onsite, and which portion had to be disposed of at an approved off-Site facility.

Soil borings were used to determine the top and bottom of the contamination at a specific location. Field instruments were then used to measure the relative concentrations of contaminants along that profile. Selected samples were taken from the profile and analyzed in a qualified laboratory. The identified contaminants in those samples were used as baseline remediation samples. The contaminated portion of the boring profile was shipped off-Site to an approved disposal location.

Grab and Composite Samples were used to determine the level of contaminants in an identified sample volume. Proposed sampling is given in the Analytic Parameters and Procedures (Appendix T).

Sampling procedures follow the Section VI of the NYS DEC. STARS Memo #1 was the applicable criteria at that time. Samples were composited in the field. Collection of the samples was either directly from the sample location prior to excavation, or from the material after removal and stockpiling and storage on site. The objective of the sampling was to characterize the extent of contamination in that total volume. Samples were collected with proper sampling techniques in glass containers with airtight sealable tops.

Samples were sent to an ELAP certified lab for analysis. Analytical Parameters and Procedures are given in Appendix T. Initial sample analysis consisted of the Grab and Composite samples. Those samples were used to determine the disposition of the material.

Side and End Point samples were taken only from an excavation for material that will be removed from the site to verify that the removal at that location is complete.

Floating product removal was performed by using a combination of product recovery pumps, static product recovery pumps, and surface vacuum withdrawal.

Recovered product was transported off-Site to a licensed disposal facility. Water directly associated with the product as it is withdrawn was also disposed of at a licensed off site facility.

Product recovery continued until all visible floating product was removed. (i.e. a surface sheen or film on the surface was considered acceptable and was not considered floating product.)

The product removal pilot program conducted during the Site Investigation Report has shown that product removal occurs on a diminishing return basis. Each trip to a specific product location yields less product and the interval between product recoveries increases. Water

levels and thickness of product were monitored on a weekly basis. As product was withdrawn, the frequency of withdrawals decreased based on the product recovery thickness in a one week interval and the persistence of a product at a particular location. Once a sheen condition was achieved for two consecutive monitoring intervals, product recovery ceased and soil removal was begun.

In the OU1 area, after all Hot-Spots were removed, a Bentomat layer was placed in the excavation, which was then filled with clean fill. In the OU2 area, after all floating product was removed, all contaminated material was removed down to the groundwater level, and the exaction then refilled with clean fill.

DUSRs were prepared for all data generated by the Chemtech Laboratories, an ELAP certified facility, which carried out the analyses for the project in the Remediation Investigation. These procedures were continued during the remediation phase of the project. Samples and analyses were carried out in accordance with the QA/QC Program (see Appendix I). Chemtech Laboratories continued to report the data required for the DUSR. They reported the J values (estimated data), U values (not determined), B values (blanks), and R values (rejected) for each analysis made. This information is located with the data tables in the attachments. See Appendix U for the Data Usability Summary Report.

A tabular and map summary of all end-point sampling is included in Table 13, and locations are shown on Figure 22.

4.5 BACKFILL

The majority of the clean fill used at the site was from a location in Muttontown, Long Island, NY. The material was excavated from a development that formerly consisted of large private estates, where most of the land was never developed and had always been in a natural state. The ten soil samples taken of the fill that were analyzed by Chemtech Laboratories all met the strict criteria called for in NYSDEC TAGM 4046 regulations. That material was used to fill the Hot Spot excavations at OU1 and OU2.

A second source of clean fill was from Creedmoor Center, Queens Village, N.Y., which also met the TAGM 4046 criteria. This material was also used to fill the Hot Spot excavation at OU2.

A third source of clean fill was from a site located at Prince Street in Flushing, N.Y., which also met the TAGM 4046 criteria. The site was formerly used as an automobile showroom before the building was demolished. The material was used to bring the area to grade.

The total amount of clean fill brought to the site was 73,550 cubic yards (46,845 cy from Muttontown, 16,205 from Creedmoor, and 10,500 from Prince Street). Of the 73,550 cy, it is estimated that a total of 30,300 cy was used to fill both OU1 and OU2 (2,900 cy for OU1, and 27,400 cy for OU2). As indicated above, the remaining amount was used to bring the area to final grade.

A table of all sources of backfill with quantities for each source is shown in Table 14. Tables summarizing chemical analytical results for backfill are included in Table 15. A map showing backfill destinations at the Site is shown in Figure 21.

4.6 RESIDUAL CONTAMINATION REMAINING ON-SITE

All contaminated Hot-Spots identified in the RWP were removed to SBLs. No structures were left on Site. After removal of Hot-Spots indicated in the RWP, residual material remained on the Site.

Table 13 and Figure 23 summarize results of all soil samples remaining at the Site after completion of Remedial Action.

The survey map of the top elevation of the 'Residual Management Zone' is shown in Figure 23. Figure 23 also shows the Demarcation Layer Details.

Since residual contaminated soil and groundwater/soil vapor may exist beneath the Site after completion of the Remedial Action, Institutional and Engineering Controls are required to protect human health and the environment. These Engineering and Institutional Controls (ECs/ICs) are described hereafter. Long-term management of these EC/ICs and residual contamination will be performed under a Site Management Plan (SMP) contained in this FER (see Appendix J).

4.7 ENGINEERING CONTROL SYSTEMS

Residual contamination is present at this Site and ECs were implemented to protect public health and the environment in the future. The Site has two primary Engineering Control Systems. These are: (1) a composite cover system and: (2) sub-slab depressurization systems.

4.7.1 Composite Cover System

Exposure to residual contaminated soils is prevented by an engineered, composite cover system that has been built on the Site. This composite cover system is comprised of an open plastic grid with a minimum of two feet of new clean soil meeting TAGM 4046 requirements and suitable for sustaining vegetation in open space, tree and grass areas. In addition, impervious surfaces are placed directly on the soil material presently on the Site.

These consist of asphalt-covered roads, concrete covered sidewalks, and concrete building slabs. Figure 23 shows the NYSDEC-approved design for each remedial cover type used on this Site and the location of each cover type built at the Site. An Underground Structure Management Plan is included in Figure 22 of the SMP, and outlines the procedures required in the event the composite cover system and underlying residual contamination are disturbed. The Soil Management Plan is also discussed in detail in Section [2.3.2] of the SMP. Issues related to maintenance of this cover are provided in the Monitoring Plan included in Section 4 of the SMP.

4.7.2 Sub-slab Depressurization System

There is an active sub-slab depressurization system (SSDS) installed directly beneath the impregnable membrane barrier that was placed under and outside of the 5 buildings constructed to finished grade. It is designed to remove air beneath the building that may contain contaminated vapors and vent them to the atmosphere above the roof. See Appendix M for as-built drawings. At the present time, 5 buildings have been completed, which have been provided with SSDSs.

The SSDSs consist of 6-inch diameter perforated PVC pipe connected to a vertical 3-inch diameter PVC pipe that extends above the roof, upon which is mounted a 200cfm, 115v AC, 60 HZ suction fans at, which continuously exhausts the air beneath the bottom slab of the building to the atmosphere above the roof (see Appendix M). Each of the units is provided with an alarm system that activates a visible and audible warning system and automatically dials up the alarm message to a central monitoring location that will be sent to maintenance staff if there is a loss of pressure or air flow in the vent pipe. There are 2 of these units provided for each building.

Procedures for operating and maintaining the sub-slab depressurization system are documented in the Operation and Maintenance Plan in Section 4 of the Site Management Plan (SMP). The procedures for monitoring the systems are included in Section 3, "Monitoring Plan" of the SMP. The Monitoring Plan also addresses inspection procedures that must occur after any severe weather condition has taken place that may affect on-Site ECs.

The sub-slab depressurization systems were tested in 5 buildings and found to be operating as designed. All of the systems were creating vacuums under the sub-slabs, and the alarm systems on each of them were operating satisfactorily (see Table 16 for test results).

4.8 INSTITUTIONAL CONTROLS

A series of Institutional Controls are required under the RWP to implement, maintain and monitor Engineering Control systems and prevent future exposure to residual contamination by controlling disturbances of the subsurface soil. Adherence to these on-Site Institutional Controls is required under the Deed Restriction and will be implemented under the SMP attached to this FER. These Institutional Controls for the Site (Controlled Property) are:

- Compliance with the Deed Restriction by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- A composite cover system consisting of an open plastic grid with a minimum of two feet of new clean soil meeting TAGM 4046 requirements and suitable for sustaining vegetation in open space, tree and grass areas, and asphalt covered roads, concrete covered sidewalks, and concrete building slabs;

- A soil vapor mitigation system consisting of a sub-slab depressurization system under all building structures must be inspected, certified, operated and maintained as required by the SMP;

- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;

- Groundwater, soil vapor, and other environmental or public health monitoring must be performed as defined in the SMP;

- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

- On-Site environmental monitoring devices, including but not limited to, groundwater monitor wells and soil vapor probes, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;

- Engineering Controls may not be discontinued without an amendment or extinguishment of the Deed Restriction.

The Site (Controlled Property) also has a series of Institutional Controls in the form of Site restrictions. Adherence to these Institutional Controls is required under the Deed Restriction. Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;

- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for the intended purpose;

- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;

- The Controlled Property may be used for restricted residential use only, provided the long-term Engineering and Institutional Controls included in the SMP are employed;

- The Controlled Property may not be used for a higher level of use, such as unrestricted residential use without an amendment or extinguishment of this Deed Restriction;

- Grantor of Deed Restriction or successor to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance

of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This statement must be certified by an expert that the NYSDEC finds acceptable.

4.9 DEVIATIONS FROM THE REMEDIAL WORK PLAN

The sub-slab depressurization details were revised since the actual foundations constructed were different from those shown in the RWP, in order to insure that the slab was sealed to prevent the possibility of soil vapors entering the building.

Although the RWP called for 5 groundwater monitoring wells to be monitored for 18-months, the NYSDEC required that a total of 10 wells be monitored for 24-months. The RWP calls for a minimum of 2-feet of clean soil underlain by an open plastic grid. The actual amount of clean fill placed above the plastic grid varied from 2 to 9 feet.

In the OU1 area, a Bentomat layer was placed under the clean soil that filled the excavation of the Hot-Spot there.

4.10 SITE MANAGEMENT PLAN

The Site Management Plan for the Site is in Appendix V.