Flushing Industrial Park, Parcel 1

Tax Block 5066, Portion of Lot 1

FLUSHING, QUEENS, NEW YORK

Final Engineering Report

AKRF Project Number: 30141

NYSDEC BCP Number C241051

Prepared for:

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CERTIFICATIONS

I, Michelle Lapin, 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 Flushing Industrial Park, Parcel 1 (NYSDEC BCA Index No. W2-1027-04-10 Site No. C241051).

I certify that the Parcel description presented in this FER is identical to the Parcel descriptions presented in the Environmental Easement, the Site Management Plan, and the Brownfield Cleanup Agreement for Flushing Industrial Park, Parcel 1 and related amendments.

I certify that the following Remedial Action Work Plan documents approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with:

1. Revised OU-1: Remedial Action Work Plan and Supplemental Investigation Work Plan – August 2003;
2. Addendum to the ROU-1: RAWP & SIWP – October 17, 2003;
3. Modification No. 1 to OU-1 Work Plan – February 10, 2004;
4. Modification No. 2 to OU-1 Work Plan – May 12, 2004;
5. Modification No. 3 to OU-1 Work Plan – June 21, 2004;
6. Response to NYSDEC comments regarding Modification No. 3 – June 29, 2004;
7. Final procedures regarding Modification No. 3 – July 9, 2004;
8. Modification No. 4 to the Revised OU-1 Remedial Action Work Plan – March 13, 2006;
9. Follow-up to Modification No. 4 – March 20, 2006; and
10. Modification No. 5 to the Revised OU-1 Remedial Action Work Plan – May 2, 2006.

The data submitted to NYSDEC demonstrates that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been or will be achieved in accordance with the time frames, if any, established in the work plan.

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 Action 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 Parcel 1 are contained in an Environmental Easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such Easement 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 on Parcel 1, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by NYSDEC.

Any financial assurance mechanisms required by NYSDEC pursuant to ECL 27-1419 have been executed.

I certify that all export of contaminated soil, fill, water or other material from the property was performed in accordance with the Remedial Action 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 Action 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 Action 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.

_____ _____ _____

NYS Professional Engineer #073934-1 Date Signature

It is a violation of Article 130 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 130, New York State Education Law.

LIST OF ACRONYMS

Acronym	Definition
AKRF	AKRF Engineering, P.C.
ASP	Analytical Services Protocol
AST	Aboveground storage tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
C/D	Construction and Demolition
CAMP	Community Air Monitoring Plan
COC	Certificate of Completion
DER	Division of Environmental Remediation (of NYSDEC)
DOT	Department of Transportation
DSHM	Division of Solid & Hazardous Materials
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Accreditation Procedure
EM	Electromagnetic
EPA	United States Environmental Protection Agency
FER	Final Engineering Report
GA	Class of Ambient Water Quality Standard and Guidance Values for Protection of Drinking Water under TOGS 1.1.1
GPR	Ground penetrating radar
IC	Institutional Control
LNAPL	Light non-aqueous phase liquid
MW	Monitoring well
NAPL	Non-aqueous phase liquid
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OU	Operable unit
PCBs	Polychlorinated biphenyls
PID	Photoionization detector

ppb	Parts per billion
ppm	Parts per million
QA/QC	Quality assurance / quality control
RAWP	Remedial Action Work Plan
RMZ	Residual Management Zone
RSCO	Recommended Soil Cleanup Objective
SCO	Soil Cleanup Objective
SESI	SESI Consulting Engineers, P.C.
SoMP	Soil Management Plan
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSAL	Site-Specific Action Level
STARS	Spill Technology and Remediation Series
STL	Severn Trent Laboratories, Inc.
SVOC	Semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TAG	Technical Assistance Grant
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TOGS	Technical and Operational Guidance Series
TCL	Target Compound List
TCLP	Toxicity characteristic leaching potential
UST	Underground storage tank
$\mu g/m^3$	Micrograms per cubic meter
VCA	Voluntary Cleanup Agreement
VOC	Volatile organic compound
Volunteer	All Volunteers as of the November 29, 2007 amended Parcel 1 Brownfield Cleanup Agreement include: C.E. Flushing, LLC; Flushing Town Center III, L.P.; Allied Flushing Corporation; FTC East Retail Company, L.P.; FTC West Retail Company, L.P.; FTC Residential Company I, L.P.; FTC Residential Company II, L.P.; FTC Residential Company III, L.P.; AFC2, LLC; and Target Corporation.

1.0 BACKGROUND

This Final Engineering Report (FER) was prepared to document remedial activities at Flushing Industrial Park, Parcel 1 under the Brownfield Cleanup Program (BCP). Parcel 1 is a 5.4-acre portion of an approximately 13.6-acre Property located on the northwestern corner of College Point Boulevard and 40th Road, in Flushing, Queens, New York (Figure 1). The Property consists of Flushing Industrial Park (Eastern), Parcel 1 (BCP Site No. C241051); Flushing Industrial Park (Western), Parcel 2 (BCP Site No. C241078); Flushing Industrial Park (Western Waterfront), Parcel 3 (BCP Site No. C241079); and Flushing Industrial Park (Flushing River), Parcel 4 (BCP Site No. C241080). Figure 2 depicts the Parcel layout with a reference grid used in describing specific locations of an activity. This FER was prepared for Parcel 1; however, the remediation and planned development of this Parcel were tied to the Property as a whole. As such, Property-wide information is provided where appropriate.

In 2001, C.E. Flushing, LLC (the Volunteer) entered into a Voluntary Cleanup Agreement with the New York State Department of Environmental Conservation (NYSDEC) with regard to the Property. By letter dated April 2, 2004, the Volunteer requested transition from the Voluntary Cleanup Program to the BCP for completion of the remedial program for the Property. In December 2004, the Volunteer entered into four separate Brownfield Cleanup Agreements (BCAs) with the NYSDEC for each of four Parcels – each one generally matching the former operable unit (OU). The remediation of Parcel 1 was performed in accordance with BCA Index #W2-1027-04-10, Site #C241051which was issued on December 23, 2004, and amended on June 14, 2005 and April 27, 2007. Commercial and residential uses are proposed for the Property. As of November 29, 2007, the Volunteers under the Parcel 1 BCA include: C.E. Flushing, LLC; Flushing Town Center III, L.P.; Allied Flushing Corporation; FTC East Retail Company, L.P.; FTC West Retail Company, L.P.; FTC Residential Company I, L.P.; FTC Residential Company II, L.P.; FTC Residential Company III, L.P.; AFC2, LLC; and Target Corporation. When completed, the Property will contain retail and parking structures, residential structures and a waterfront esplanade. Refer to the Brownfield Cleanup Program (BCP) application for additional details.

A digital copy of this FER with all project documents approved under the BCP is included in Appendix A.

1.1 SITE LOCATION AND DESCRIPTION

Parcel 1 is located in the County of Queens, New York and is currently identified as Block 5066, a portion of Lot 1 on the Queens Tax Map. A United States Geological Survey (USGS) topographical quadrangle map attached as Figure 1 shows the Property location. Parcel 1 is bounded by Roosevelt Avenue to the north, 40th Road to the south, College Point Boulevard to the east, and Flushing Industrial Park, Parcel 2 to the west (see Figure 2). The boundary map included in the BCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419 is included in Appendix B. The Parcel is fully described in Appendix B – Metes and Bounds. Latitude and longitude coordinates for the starting point are included.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The Remedial Action performed under the Remedial Action Work Plan (RAWP) has made Parcel 1 protective of human health and the environment to standards consistent with the contemplated end use. The proposed redevelopment plan for the Property consists of commercial and residential use for Parcels 1 and 2, and a waterfront esplanade consisting of both landscaped and paved areas with upland connections on Parcel 3. Parcel 4 is land under water; therefore, no development is planned on this Parcel. The retail and parking structures will occupy a majority of Parcels 1 and 2 on the first three floors of the development, with residential towers (potentially including office space and/or community facilities) above these structures starting at the fifth

floor. The eastern two-thirds of the development will consist of open or actively vented garage space on the ground floor level. The redevelopment plan is depicted in Figure 3.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Property is in a mixed-use residential, commercial and industrial area of Queens. A Land Use Map is provided as Figure 4.

The nearest residential areas are located directly east and south of the Property, across College Point Boulevard and 40th Road, respectively. The residential complex across College Point Boulevard to the east also includes a day care center. The nearest public open space is Flushing Meadows, approximately 300 feet south of the southern Property boundary. Three schools are located between ¼-mile and ½-mile of the Property.

The nearest environmental receptor is a tidal portion of the Flushing River, which forms a portion of the western boundary of the Property, approximately 450 feet west of Parcel 1. Groundwater in this portion of Queens is not used for potable supply.

2.0 REMEDIAL INVESTIGATION FINDINGS AND REMEDIAL ACTION ASSESSMENT

The remedial investigation was conducted between 1989 and 2005. Initial investigation activities were performed in 1989 and 1999, prior to participation in the VCP. Parcel 1 was investigated further in accordance with the scope of work presented in the following NYSDEC-approved Remedial Investigation (RI) Work Plans:

- AKRF; *Revised Sampling Workplan II*, dated February 16, 2001; and
- AKRF; *Revised OU-1: Remedial Action Work Plan and Supplemental Investigation Work Plan*, dated August 2003 (ROU-1: RAWP & SIWP).

The results of the Parcel 1 RI were submitted to NYSDEC in the following documents:

- SESI; *Environmental Engineering Report*, dated June 8, 1989 (provided as an Appendix to the Voluntary Cleanup Program Application);
- AKRF; *Results of Soil Testing*, dated December 30, 1999 (provided as an Appendix to the Voluntary Cleanup Program Application);
- AKRF; *Remedial Investigation/Feasibility Study and OU-1 Remedial Work Plan*, dated September 2001;
- AKRF; *Revised Supplemental Investigation Task Report No. 1*, Parcel 1 Soil Study and Parcels 1, 2 and 3 Groundwater Study, dated October 2004 (SITR No. 1);
- AKRF; *Interim Remedial Measure Progress Report*, dated March 25, 2005; and
- AKRF; *Modification No. 4 to Revised OU-1 Remedial Action Work Plan*, dated March 13, 2006 (included Lot 79 soil analytical data).

Parcel 1 was declared not to be a significant threat site by NYSDEC and New York State Department of Health (NYSDOH).

Below is a summary of Remedial Investigation findings.

2.1 SUMMARY OF REMEDIAL INVESTIGATIONS

Multiple investigations have been performed on the Property to identify and further evaluate soil and groundwater contamination.

Prior to 2002, three investigations were performed on the Property:

- A subsurface investigation performed by SESI consisted of the installation and sampling of four soil borings and four groundwater monitoring wells. Results of this investigation were presented in a report entitled *Environmental Engineering Report*, Former Consolidated Edison Facility, College Point Blvd. and 40th Road, Queens, New York, dated June 8, 1989.
- A subsurface investigation performed by AKRF, Inc. consisted of the installation and sampling of 25 soil borings. Results of this investigation were presented in a report entitled *Results of Soil Testing – Former Con Edison Facility*, College Point Boulevard and 40th Road, Flushing, New York, dated December 30, 1999.
- A subsurface investigation performed by AKRF consisted of the installation and sampling of 17 soil borings and 12 groundwater monitoring wells. Two of the previously installed monitoring wells, surface soil from beneath the Main Building, and contents of water and sludge from three aboveground storage tanks (ASTs) were also sampled. Results of this

investigation were presented in a report entitled, *Remedial Investigation/Feasibility Study and OU-1 Remedial Work Plan*, C.E. Flushing Site, College Point Boulevard and 40th Road, Queens, New York, dated September 2001.

Since RAWP approval on 2003, the following supplemental investigations were performed:

- A groundwater study consisting of sampling each of the Property monitoring wells, performing a 24-hour tidal survey, and performing rising head and falling head slug tests was performed in April and May 2004 as part of the NYS DEC-approved ROU-1: RAWP & SIWP. Results of this groundwater study are presented in SITR No. 1.
- A geophysical survey and a delineation soil study consisting of 293 borings was performed in October 2004 to March 2005. A summary of the findings of the delineation sampling and a geophysical survey were provided in an *Interim Remedial Measure Progress Report*, dated March 25, 2005.
- A groundwater study consisting of sampling each of the Property monitoring wells was performed in April and May 2004 as part of the NYS DEC-approved ROU-1: RAWP & SIWP. Results of this groundwater study are presented in SITR No. 1 and the Parcel 2/3 RIR.
- A soil study consisting of three soil borings were installed on Lot 79 in July 2005. Lot 79 was formerly off-site, but was later included in Parcel 1. The soil study results and amendment request were submitted in *Modification No. 4 to the Revised OU-1 Remedial Action Work Plan*, dated March 13, 2006.

2.1.1 Borings and Wells

The initial investigation on Parcel 1 identified 14 hotspots [i.e., locations where soil sample concentrations exceeded one or more of the Site-Specific Action Levels (SSALs)]. Where feasible, the vertical and horizontal limits of the hotspots were determined prior to remediation by hotspot delineation borings. The remedial investigation on Parcel 1 consisted of a total of 316 soil borings completed between 1989 and 2005.

Groundwater investigation consisted of 16 monitoring wells on Parcel 1. One of the monitoring wells was a piezometer installed as part of an assessment of the vertical hydraulic gradient beneath the Property.

2.1.2 Samples Collected

2.1.2.1 Soil Samples

The initial remedial investigation consisted of soil samples analyzed for the broader suite of parameters, typically Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs) (or total petroleum hydrocarbons (TPH)), polychlorinated biphenyls (PCBs), pesticides, and Target Analyte List (TAL) metals. Additional samples were analyzed only for specific contaminants of concern (typically PCBs, or other parameters identified at concentrations greater than the SSAL). Of the 316 investigation and delineation soil borings completed on Parcel 1, 613 soil samples were submitted for one or more of the following laboratory analyses:

- 79 samples for analysis of VOCs
- 210 samples for analysis of SVOCs

- 174 samples for analysis of PCBs
- 67 samples for analysis of pesticides
- 288 samples for analysis of arsenic
- 50 samples for analysis of cadmium
- 168 samples for analysis of lead
- 56 samples for analysis of mercury
- 44 samples for analysis of silver
- 19 samples for analysis of reactive cyanide

2.1.2.2 Groundwater Samples

Two rounds of groundwater sampling were completed as part of the remedial investigation in May 2004 and August 2005. Groundwater samples were analyzed for TCL VOCs using EPA Method 8260, TCL SVOCs using EPA Method 8270 (base neutral (BN) compounds only), PCBs (both total and filtered) using EPA Method 8081, pesticides using EPA Method 8082, and TAL metals (both total and filtered) using EPA Methods 6000/7000 Series. Groundwater samples were also analyzed for the additional, non-redundant, parameters set forth under "Routine Parameters" in the Water Quality Analysis Tables of 6 NYCRR Part 360-2.11.

2.1.3 Drainage Structure Investigation

Catch basin locations on Parcel 1 of the Property were surveyed and maps from private and city records were used to assess the piping locations. Sediment samples were collected from inside each of the six catch basins identified on Parcel 1 for analysis of TCL VOCs, TCL BN SVOCs, PCBs, pesticides, TAL metals and reactive cyanide.

2.1.4 Geophysical Survey

A geophysical survey was completed across the entirety of the outdoor areas of Parcel 1 using a combination of an electromagnetic (EM) locator and ground penetrating radar (GPR). The geophysical survey was conducted in a grid pattern on 5-foot to 8-foot transects with all anomalies traced to their termination or the Property boundary. The locations of the geophysical anomalies were painted on the ground surface and subsequently surveyed and mapped to facilitate investigation during remediation excavation.

2.1.5 Documentation

Soil and groundwater sample locations are depicted on Figure 5. The red, blue, and green color-coding of the borings depicts the status of the most contaminated interval analyzed; red indicates hazardous waste levels of contaminants, blue indicates contamination at levels greater than SSALs but non-hazardous, and green indicates contaminant concentrations below the SSALs. Remedial investigation soil laboratory analytical results are summarized in Table 3. Concentrations in Table 3 are highlighted with similar color-coding, with pink highlighting instead of red used for legibility to represent the hazardous waste concentrations.

Summaries of well installation details and groundwater measurements are attached as Tables 1 and 2. Pre-remediation groundwater analytical results are presented in Tables

4a to 4h. The groundwater concentrations which exceeded the Class GA standards during the most recent pre-remediation sampling event are shown on Figures 6a and 6b.

The catch basin sediment sample laboratory analytical results are provided in Tables 6a to 6d. The sewer lines and drainage structures along with catch basin sample locations are shown on Figure 7.

The geophysical anomalies are depicted on Figure 8.

Complete laboratory analytical reports with Analytical Services Protocol (ASP) Category B data packages are provided on a DVD in Appendix C.

Results of the remedial investigation are summarized in Section 2.5.

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH have determined that Parcel 1 does not pose a significant threat to human health and the environment.

2.3 SITE HISTORY

The Property history was based on historical maps from 1859 to 1995, historical aerial photographs from 1954 to 1994 and information provided by Consolidated Edison Company of New York, Inc. (Con Edison) regarding their former facility, which operated on the Property from approximately 1923 through 1989.

2.3.1 Past Uses and Ownership

Much of the Property and vicinity was originally tidal marshlands. Filling of the wetlands and development of the area began in the late-19th century. By 1905, several dwellings were constructed on the southern side of the Property, along 40th Road. The majority of the Property served as a plumbing supply store circa 1917. New York & Queens Electric Light & Power Company (the precursor to Con Edison) purchased the majority of the Property from Remington Typewriter in 1923, and continued to acquire much of the remainder of the subject block (which then consisted of row houses in the southeastern portion of the Property) in the 1950s. Con Edison reportedly used the facility for the storage and maintenance of equipment (including PCB-containing transformers), for personnel training, for the storage and servicing vehicles, and for offices. C.E. Flushing Co. purchased a majority of the Property in 1989 (Lot 79 was acquired in September 2005) and leased it to various tenants primarily for light manufacturing of clothing (sewing, etc.) in the Main Building and automobile parking on the paved portion of the Property. A one-story building on the southern portion of Parcel 1 was used for automobile repair from at least 1980 to 2006. The Property was largely vacated in 2005, with automobile repair continuing in one building until 2006. All buildings on the Property were demolished in 2006 as part of remediation and development activities.

Historically, Parcel 1 of the Property has contained several transformers, a gasoline service station, a potential chemical storage area, equipment repair, automobile repair, and several underground storage tanks (USTs) and aboveground storage tanks (ASTs).

2.3.2 Sanborn Maps

Historical Sanborn maps from 1905, 1917, 1934, 1951, 1980, 1982, 1988, 1991, 1992, 1993, 1994, and 1995 available for Parcel 1 and the remainder of the Property were reviewed prior to preparation of the RAWP. The 1905 Sanborn Map depicts a majority

of the Property as vacant land, except for several dwellings on the southern side of Parcel 1. The 1917 Sanborn Map indicated the Main Building and the eastern portion of the Garage Building, as well as a series of single-family dwellings along the southern portion of Parcel 1. Two 10,000-gallon underground fuel oil tanks were mapped in the northwestern portion of Parcel 1. A 1934 Sanborn Map indicated the presence of a one-story structure in the southwestern portion of Parcel 1. A 1980 Sanborn Map indicated that all of the single-family dwellings except one had been demolished from the southern boundary of Parcel 1, and an auto-repair shop was mapped in their place. Sanborn Maps from 1982 to 1991 did not indicate any significant changes to the Property. On the 1992 Sanborn Map, the remaining dwelling was demolished. There were no additional changes to Parcel 1 on the 1993, 1994, and 1995 maps.

Historical aerial photographs from 1954, 1975, 1984, and 1994 were also reviewed. The aerial photographs indicate the building layout similar to the Sanborn Maps. On the 1975, 1984 and 1994 photographs, rows of vehicle or equipment staging are shown on the southern side of Parcel 1.

2.4 GEOLOGICAL CONDITIONS

At the time of the remedial investigations, the ground surface elevation of outdoor portions of Parcel 1 generally varied from +5.5 on the western side of Parcel 1 to +16 feet on the eastern side. A hill in the northeastern corner of Parcel 1 extended to elevation +32 feet. The elevations for the project are referenced to Queens Borough Datum (2.725 feet above mean sea level).

Results from the remedial and geotechnical investigations indicated that the top 6 to 16 feet of soil on Parcel 1 consisted of miscellaneous fill. The fill was variable, ranging from silty clay to sand with anthropogenic materials including brick, ash and cinders. This fill was underlain at some locations by a layer of old river deposits consisting of organic clayey silt and peat up to 17 feet thick on the western end of Parcel 1. Organic deposits, consisting of soft gray organic silty clay, generally less than 10 feet thick, were found directly below the fill at some locations. Below the fill and organic deposits was a layer of sand 30 to 60 feet thick, consisting of fine to coarse sand with varying percentages of silt and gravel. A stiff clay or silty clay stratum was encountered beneath the sand at a depth of 35 to 70 feet below grade (elevations -30 to -60 feet). A pre-remediation geologic cross-section of the Property is shown in Figure 9.

Based on water level measurements in the former Property monitoring wells, the groundwater table was encountered on Parcel 1 generally from about elevation -1.5 to +2.4 feet. A 24-hour tidal survey was conducted in May 2004 to assess the fluctuations in the water table over the tidal cycle. During the tidal study, the water table elevations on Parcel 1 varied from -0.05 feet near the Garage Building to +4.65 feet in the southeastern area of Parcel 1. There was little variation in groundwater elevation on Parcel 1 over the 24-hour period, with a maximum change of 0.14 feet. A greater degree of tidal influence was apparent on Parcels 2 and 3 of the Property, closer to the Flushing River. The general groundwater flow direction on Parcel 1 was westerly, and appeared to be somewhat tidally influenced and locally influenced by a New York City Department of Environmental Protection (NYCDEP) sewer pump house located in the southwestern area of Parcel 1.

As part of remediation, interlocking bulkhead sheeting was installed at the boundary of Parcels 3 and 4. This sheeting appears to be limiting the tidal influence on the Property, based on measurements in monitoring wells installed after remediation excavation. Post-remediation water levels continue to fluctuate, likely due in part to continued construction excavation and dewatering. Post-remediation groundwater flow will be assessed in the future under the Site

Management Plan. Groundwater elevations for both pre-remediation and post-remediation monitoring wells are included in Tables 1 and 2, respectively. The pre-remediation groundwater flow map based on average elevations measured on September 16, 2005 is shown in Figure 10.

2.5 CONTAMINATION CONDITIONS

2.5.1 Conceptual Model of Site Contamination

A majority of the soil and groundwater contamination identified on Parcel 1 of the Property appeared to be related to the historic fill. Petroleum-related compounds and PCBs identified on the western portion of Parcel 1 were likely due to the historic Con Edison underground gasoline and fuel oil storage tanks, and equipment/vehicle repair (including numerous electrical transformers which were likely PCB-containing).

2.5.2 Description of Areas of Concern

General areas of concern identified on Parcel 1 included:

- ASTs located inside the automobile repair building in the southeastern portion of Parcel 1;
- Known and suspected USTs on the western portion of Parcel 1;
- Former automobile and equipment storage and repair in several areas of Parcel 1;
- Historic fill located across a majority of Parcel 1;
- Transformers located in the southwestern portion of Parcel 1;
- Railroad tracks located in the southwestern portion of Parcel 1; and
- Storm sewers located across Parcel 1.

The remedial investigation included investigation of each of these areas of concern, and identified discrete areas on Parcel 1 where soil concentrations were greater than the established SSALs. The contamination was largely delineated as discussed in Sections 2.5.4 to 2.5.8.

2.5.3 Identification of Standards, Criteria and Guidance

As the remedial investigation and remedial action extended over a 15-year time-frame, several Standards, Criteria and Guidance (SCG) documents were being developed concurrent with activities on Parcel 1. The SCG applied to Parcel 1 consisted of the appropriate regulatory documents and accepted industry practice at the time the work was completed. In general, the SCGs for remediation of Parcel 1 included the following:

- The following SSALs were developed in consultation with NYSDEC and NYSDOH for the protection of human health and the environment, considering the contemplated use and anticipated institutional and engineering controls. The SSALs were used for assessing areas of soil contamination to be remediated (concentration greater than SSALs) and for assessing on-site material for reuse as backfill (concentrations less than SSALs).

Soil Site-Specific Action Levels

Parameter	Criterion
Individual VOCs	TAGM 4046 RSCO
Total SVOCs	100 ppm
Total PCBs	10 ppm
Individual Pesticides	1 ppm or TAGM 4046 RSCO, if higher
Arsenic	24 ppm
Cadmium	10 ppm
Lead	500 ppm
Mercury	4 ppm
Silver	100 ppm
Cyanide	Hazardous Waste Reactivity Criterion

Notes: TAGM 4046 RSCO – Technical and Administrative Guidance Memorandum #4046 Recommended Soil Cleanup Objectives, January 24, 1994.
ppm – parts per million

- Technical and Administrative Guidance Memorandum (TAGM) #4046 Recommended Soil Cleanup Objectives (RSCOs), January 24, 1994, were used for assessing material for import as backfill.
- Class GA Standards and Guidelines Values contained in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Handling, Guidance Values and Groundwater Effluent Limitations – June 1998 with Addenda and Errata Sheets through June 2004 were used for assessing groundwater concentrations.
- NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, December 2002, was used as a guidance document in completing the remedial investigation and in preparing the RAWP.
- Although the RAWP was approved prior to Parcel 1 being admitted to the BCP, the NYSDEC Draft Brownfield Cleanup Program Guide, May 2004, was applied for subsequent action, including citizen participation and reporting.
- Waste management, hauling and disposal were performed in accordance with NYS Solid Waste Regulations under 6 NYCRR Part 360 and Part 364.

2.5.4 Soil/Fill Contamination

The remedial investigation on Parcel 1 identified 14 soil hotspots. Where feasible, the vertical and horizontal limits of the hotspots were determined prior to remediation by delineation borings. Areas of Parcel 1 where soil sample concentrations were less than the SSALs were further characterized for reuse as backfill, as discussed in Section 4.5.1.

Laboratory analytical results for remedial investigation soil samples collected on Parcel 1 are provided in Table 3. Soil sample locations are depicted on Figure 5. Concentrations in Table 3 are color-coded—pink indicates hazardous levels of contaminants, blue indicates contamination at levels greater than SSALs but non-hazardous, and green indicates levels of contaminant concentrations below the SSALs. The borings on Figure 5 are similarly color-coded based on the most contaminated interval analyzed in each boring, except that hazardous concentrations are depicted in red.

Exceedances of the SSALs during the remedial investigation were identified as follows:

- VOCs (acetone, benzene, chlorobenzene, ethylbenzene, toluene, methylene chloride, total xylenes) – The maximum VOC level detected on Parcel 1 during the remedial investigation was a concentration of 270 ppm for total xylenes;
- SVOCs – The maximum total SVOC concentration detected on Parcel 1 during the remedial investigation was 17,700 ppm;
- PCBs – The maximum PCB concentration detected on Parcel 1 during the remedial investigation was 17,300 ppm. Hazardous concentrations of PCBs greater than 50 ppm were identified only in samples collected around the MW-2 hotspot;
- Pesticides (aldrin, delta-BHC, 4,4-DDD, 4,4-DDE, endosulfan, endrin) – The maximum pesticide level detected on Parcel 1 during the remedial investigation was a concentration of 31 ppm for 4,4-DDD;
- Arsenic – The maximum arsenic concentration detected on Parcel 1 during the remedial investigation was 522 ppm;
- Cadmium – The maximum cadmium concentration detected on Parcel 1 during the remedial investigation was 12.6 ppm;
- Lead – The maximum lead concentration detected on Parcel 1 during the remedial investigation was 7,950 ppm. Characteristically hazardous lead was identified near the MW-16 hotspot; and
- Mercury – The maximum mercury concentration detected on Parcel 1 during the remedial investigation was 8.4 ppm.

Although 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) were not developed until after remedial excavation of Parcel 1, Table 3 also shows Part 375 Track 1 Unrestricted Use SCOs and Restricted-Residential Use SCOs for reference.

2.5.5 On-Site and Off-Site Groundwater Contamination

Two pre-remediation groundwater sampling events were conducted on the Property in April 2004 and August 2005. No light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL) was identified using an oil/water interface probe on Parcel 1 wells. The monitoring wells were sampled for analysis of TCL VOCs, TCL BN SVOCs, PCBs (both total and dissolved), pesticides, TAL metals (both total and dissolved), and non-redundant 6NYCRR Part 360 parameters. The remedial investigation sampling results on Parcel 1 compared to the Class GA standards for the most recent pre-remediation sampling event (August 2005) are summarized as follows:

- One VOC (toluene) was identified above the Class GA standard in groundwater from one well. The maximum VOC level detected in Parcel 1 groundwater prior to remediation was a concentration of 16 ppm for toluene. No other samples exceeded the Class GA standards for VOCs.
- No SVOCs were detected in groundwater samples from wells on Parcel 1 at levels greater than the Class GA standards.
- Total PCBs were detected above the Class GA standard in one monitoring well; however, the dissolved PCB concentration was less than the method detection limit. The maximum total PCB level detected in Parcel 1 groundwater prior to remediation

was a concentration of 0.16 ppm. No other pre-remediation groundwater samples exceeded the Class GA standard for PCBs.

- The pesticide dieldrin was detected in one of the groundwater samples at a concentration greater than the Class GA standard. The maximum pesticide level detected in Parcel 1 groundwater prior to remediation was a concentration of 0.0089 ppm for dieldrin. No other pre-remediation groundwater samples exceeded the Class GA standards for pesticides.
- Total and dissolved metals were detected in all groundwater samples at concentrations greater than the Class GA groundwater standards. With the exception of a low level Class GA exceedance of lead in one groundwater sample collected on Parcel 1, these dissolved metals exceedances consisted of common earth metals (iron, magnesium, manganese, selenium, and sodium), which are typically not associated with contamination. The maximum dissolved lead level detected in Parcel 1 groundwater prior to remediation was a concentration of 34.5 ppm.

Groundwater contaminant distribution and concentrations did not warrant active groundwater remediation given the extensive scope of the soil removal remediation performed. The detected groundwater concentrations were not clustered as in a typical contaminant plume. The risk of impact to human health or the environment on the Property from these elevated concentrations is very low given that the environmental easement on Parcel 1 prohibits future use of groundwater. However, groundwater from the western portion of the Property likely discharges to the Flushing River, where elevated PCB levels measured in sediments may be causing fish and wildlife impacts. The impact to sediment and surface water were considered as part of the FER for Parcel 2.

A summary of Property-wide pre-remediation groundwater laboratory analytical results by analyte is provided in Tables 4a to 4g. Exceedances of Class GA groundwater standards in monitoring wells prior to the remedy are shown in Table 4h. Maps that indicate the locations and parameters of exceedances of Class GA groundwater standards from the most recent sampling event prior to the remedy (August 2005) are shown in Figures 6a and 6b.

2.5.6 Aboveground and Underground Storage Tanks

Research conducted as part of the remedial investigation identified three ASTs and six potential USTs on Parcel 1. During remedial excavation, two additional USTs were encountered and removed. Details regarding the tank contents, size and locations are provided in Table 5, and the tank locations are shown on Figure 7.

2.5.7 Drainage Structures

Catch basin locations on Parcel 1 were surveyed and maps from private and city records were used to assess the piping locations. As shown on Figure 7, the sewer pipes were mapped to extend to the NYCDEP sewers located in adjacent roads.

Catch basin sediment samples were analyzed for VOCs, BN SVOCs, PCBs, pesticides, TAL metals and reactive cyanide. The catch basin sediment sample laboratory analytical results are provided in Tables 6a to 6d. The sample locations and corresponding sewer pipes and drainage structures are shown on Figure 7.

Two of the seven catch basin sediment samples had no exceedances of SSALs. Two VOCs were detected at concentrations greater than the respective SSALs in only one of the catch basin samples collected: methylene chloride was detected at 0.17 ppm and toluene was detected at 6.2 ppm. The SSAL for total SVOCs was exceeded in three of the catch basin sediment samples with a maximum concentration of 447.5 ppm. Lead exceeded the SSAL in two of the sediment samples with a maximum concentration of 929 ppm. Mercury exceeded the SSAL in two of the sediment samples with a maximum concentration of 13.6 ppm. None of the catch basin sediment samples had exceedances for PCBs, pesticides, arsenic, cadmium, silver or reactive cyanide.

2.5.8 Geophysical Anomalies

The geophysical survey was completed across the entirety of the outdoor areas of Parcel 1 using a combination of an EM locator and GPR. The locations of the geophysical anomalies were painted on the ground surface and subsequently surveyed and mapped to facilitate investigation during remediation excavation. The results of the geophysical survey are shown on Figure 8.

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

An analysis of remedial alternatives in the Parcel 1 RAWP consisted of evaluating several remedial alternatives to assess whether the selected remedial approach was sufficiently protective of public health and the environment for the contemplated use. The exposure assessment considered the following:

- Contaminated media considered in the assessment included soil, groundwater, and vapors, the nature and extent of which were identified during the remedial investigation. Flushing River sediments and surface water were also considered in the assessment (sediment sampling was conducted as part of the Parcel 4 remedial investigation, but surface water was not sampled).
- Potential contaminant transport routes included generation of dust and stormwater runoff during remediation or construction activities, groundwater flow, and vapors.
- Potential routes of exposure included direct contact (soil/particulates or water), inhalation (particulates or vapors), and ingestion (particulates, water or fish).
- Potentially exposed populations included current and future on-site and off-site residents, workers (including maintenance workers), or customers.

Exposure (and, therefore, the potential for risk) cannot occur unless there is contact with a chemical. As such, mere presence of a medium (i.e., soil or groundwater) impacted by a chemical at a site is not in itself evidence that a risk will exist. The following pathways were identified as incomplete based on Parcel 1's anticipated future use:

1. <u>On-site soil incidental ingestion, dermal contact or inhalation of particulates</u> – Parcel 1 will be capped by a building, pavement or two feet of clean fill. During any construction, the Construction Health and Safety Plan (CHASP) would be implemented.
2. <u>On-site shallow groundwater ingestion/inhalation</u> – Public water is available and water just below the ground surface would not be permitted to be used as a drinking water supply. The barring of groundwater usage for any purpose would be

incorporated into the institutional controls that would be applicable to Parcel 1. This prohibition would be in an institutional control that would apply to the entire site.

3. On-site shallow groundwater dermal contact – Public water is available and water just below the ground surface would not likely provide sufficient flow for a non-potable well, e.g., for car washing. The barring of groundwater usage for any purpose would be incorporated into the institutional controls.
4. Off-site surface water ingestion/inhalation – The Flushing River is a Class I (secondary contact recreation and fishing) saline waterbody and is not suitable for swimming.
5. Off-site surface water dermal contact or sediment incidental ingestion – Water is designated only for secondary contact recreation, i.e., no swimming.
6. All other off-site pathways – The only other route to carry contamination off-site is via dust generated during construction. By the implementation of provisions in a HASP, including provisions for community air monitoring, dust levels would be controlled before leaving the Parcel 1 boundary.
7. On-site inhalation of volatile organic compounds – At the time of the Parcel 1 RAWP, the pathway of vapor exposure inside the building was identified as potentially complete. Under the revised development plan being constructed on the Property, the ground floor levels of the structures on Parcel 1 are either open or actively vented garage areas. Therefore, this exposure pathway is not complete under the current development plan.

The following pathways are considered potentially complete:

1. Off-site ingestion of fish – The Flushing River appears to have been significantly affected by discharges of PCBs and possibly other contaminants from the BCP Property. The potential for continued contribution of on-site sources of contamination to a significant off-site threat to public health or the environment was addressed as part of the RAWP for Parcels 2 and 3 of the Property.

With appropriate implementation of the RAWP, including the Health and Safety Plans, Soil and Groundwater Management Plan, Stormwater Pollution Prevention Plan and institutional controls, the selected remedial alternative addressed the contamination on Parcel 1 while mitigating potential exposure pathways.

2.6.2 Fish & Wildlife Remedial Impact Analysis

No Fish and Wildlife Remedial Impact Analysis was performed for Parcel 1. The Flushing River is classified as a Class I saline waterbody, suitable for secondary contact recreation and fishing, as well as fish propagation and survival, but is not suitable for swimming. The Flushing River appears to have been significantly affected by discharges of PCBs and possibly other contaminants from the Property, especially in the vicinity of outfalls originating from Parcel 2 of the Property. The impact to sediment and surface water were considered as part of the FER for Parcel 2.

2.7 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) were identified in the Remedial Action Work Plan specific to Parcel 1:

- To remove areas of contamination on Parcel 1;

- To assure the protection of construction workers and the general public during remediation and construction; and
- To assure the safety of future building occupants and the general public after construction of the proposed building.

Generic groundwater and soil RAOs are outlined in the following subsections.

2.7.1 Groundwater RAOs

RAOs for public health protection were to:

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards; and
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for environmental protection were to:

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions;
- Prevent the discharge of contaminants to surface water; and
- Remove the source of ground or surface water contamination.

2.7.2 Soil RAOs

RAOs for public health protection were to:

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

RAOs for environmental protection were to:

- Prevent migration of contaminants that would result in groundwater or surface water contamination; and
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

3.0 DESCRIPTION OF APPROVED REMEDIAL ACTION PLAN

Parcel 1 was remediated in accordance with the scope of work presented in the NYSDEC-approved Remedial Action Work Plan, which consists of the following documents.

1. Revised OU-1: Remedial Action Work Plan and Supplemental Investigation Work Plan – August 2003;
2. Addendum to the ROU-1: RAWP & SIWP – October 17, 2003;
3. Modification No. 1 to OU-1 Work Plan – February 10, 2004;
4. Modification No. 2 to OU-1 Work Plan – May 12, 2004;
5. Modification No. 3 to OU-1 Work Plan – June 21, 2004;
6. Response to NYSDEC comments regarding Modification No. 3 – June 29, 2004;
7. Final procedures regarding Modification No. 3 – July 9, 2004;
8. Modification No. 4 to the Revised OU-1 Remedial Action Work Plan – March 13, 2006;
9. Follow-up to Modification No. 4 – March 20, 2006; and
10. Modification No. 5 to the Revised OU-1 Remedial Action Work Plan – May 2, 2006.

The factors considered during the analysis of remedial alternatives included:

- Protection of human health and the environment;
- Compliance with standards, criteria, and guidelines (SCGs), including the SSALs, as outlined in Section 2.5.3;
- 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
- Contemplated land use.

3.1 SUMMARY OF PROPOSED REMEDIAL ACTION

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

1. Excavation of soil exceeding the established SSALs listed in Section 2.5.3 to the extent practicable below the water table;
2. Removal of all ASTs and USTs;
3. Investigation, mapping and removal of out-of-service drainage structures;
4. Investigation and, if necessary, remediation, of geophysical anomalies;
5. Installation and sampling of groundwater monitoring wells;

6. Construction and maintenance of a site cover consisting of concrete or asphalt to prevent human exposure to residual contaminated soil remaining on Parcel 1;
7. Recording of an Environmental Easement, including Institutional and Engineering Controls, to prevent future exposure to any residual contamination remaining on Parcel 1 (a copy of the Environmental Easement is provided in Appendix D);
8. Publication of a Site Management Plan for long term management of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) groundwater monitoring, (3) operation and maintenance and (4) reporting;
9. Screening for indications of contamination (by visual means, odor, and monitoring with a PID) of all excavated soil during any intrusive work;
10. Performance of community air monitoring of dust and VOCs/odors in accordance with NYSDOH requirements;
11. Implementation of a Stormwater Pollution Prevention Plan (SWPPP) in accordance with NYSDEC requirements;
12. Where pre-excavation delineation was not performed, collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment the SSAL goals;
13. Appropriate off-site disposal of all material removed from Parcel 1 in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
14. Import of materials to be used for backfill and cover in compliance with: (1) TAGM 4046 RSCOs, or for which specific approval was given by NYSDEC; (2) all Federal, State and local rules and regulations for handling and transport of material;
15. All activities associated with the Remedial Action, including permitting requirements and pretreatment requirements, addressed in accordance with all applicable Federal, State and local rules and regulations;
16. Performance of all required BCP citizen participation activities (including development of a Citizen Participation Plan, public contact list, document repositories, public notices, and fact sheets); and
17. Certification of the completion of the remedy in this FER.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed on Parcel 1 of the Property were conducted in accordance with the NYSDEC-approved RAWP for Parcel 1, dated August 2003, plus the addendum and modifications listed in Section 3.0. Figure 2 depicts a reference grid used in the following subsections in describing specific locations of an activity. Digital files (PDFs) of the approved RAWP and other major documents that governed remediation are included on the DVD provided in Appendix A. All deviations from the RAWP are noted in Section 4.9.

Below is a summary of the Remedial Actions implemented on Parcel 1:

1. Excavation of soil exceeding the SSALs listed in Section 2.5.3 to the extent practicable below the water table;
2. Removal of all ASTs and USTs;
3. Investigation, mapping and removal of out-of service drainage structures;
4. Investigation and, if necessary, remediation, of geophysical anomalies;
5. Installation and sampling of groundwater monitoring wells;
6. Construction and maintenance of a site cover consisting of concrete or asphalt to prevent human exposure to residual contaminated soil remaining on Parcel 1;
7. Recording of an environmental easement, including Institutional and Engineering Controls, to prevent future exposure to any residual contamination remaining on Parcel 1 (a copy of the Environmental Easement is provided in Appendix D); and
8. Publication of a Site Management Plan for long term management of residual contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) groundwater monitoring, (3) operation and maintenance and (4) reporting;
9. Screening for indications of contamination (by visual means, odor, and monitoring with a PID) of all excavated soil during any intrusive work;
10. Performance of community air monitoring of dust and VOCs/odors in accordance with NYSDOH requirements;
11. Implementation of a SWPPP in accordance with NYSDEC requirements;
12. Where pre-excavation delineation was not performed, collection and analysis of endpoint samples to evaluate the performance of the remedy with respect to attainment the SSAL goals;
13. Appropriate off-site disposal of all material removed from Parcel 1 in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
14. Import of materials to be used for backfill and cover in compliance with: (1) TAGM 4046 RSCOs, or for which specific approval was given by NYSDEC; (2) all Federal, State and local rules and regulations for handling and transport of material;
15. All activities associated with the Remedial Action, including permitting requirements and pretreatment requirements, addressed in accordance with all applicable Federal, State and local rules and regulations;
16. Performance of all required BCP citizen participation activities (including development of a Citizen Participation Plan, public contact list, document repositories, public notices, and fact sheets); and
17. Certification of the completion of the remedy in this FER.

4.1 GOVERNING DOCUMENTS

The RAWP included support documents that outlined more specific aspects of the projects. Highlights of these documents are provided in the following subsections.

4.1.1 Site-Specific Health & Safety Plan

A Health and Safety Plan (HASP) for Parcel 1 was included as Appendix A of the RAWP. The HASP included requirements for personnel training, protocols for work zone air monitoring and community air monitoring, designated personal protection equipment, and decontamination procedures.

The Site Safety Officer (SSO) was the on-site representative of the Remedial Engineer that was responsible for implementation of the HASP. The SSO for the majority of remedial action activities was Stephen Grens, Jr.; in Mr. Grens' absence, SSOs included Mark Accetturi, Elizabeth Reif, and Kenneth Takagi. Resumes for the project staff are included in Appendix E.

Remedial work performed on Parcel 1 was in full compliance with governmental requirements, including environmental worker safety requirements mandated by OSHA.

The HASP, including the community air monitoring protocol, was complied with for all invasive remedial work performed on Parcel 1.

4.1.2 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) for the supplemental investigation and remediation of Parcel 1 was included as Appendix E of the RAWP. This document governed sampling and laboratory procedures, boring and well installation, soil excavation, geophysical anomaly survey and investigation, drainage structure investigation and removal, and tank cleaning and removal.

The QAPP established observation and testing protocols used to monitor the supplemental investigation and remediation; QA/QC methodologies applied in the field and in the lab; responsibilities and authorities of key personnel; and methods for sample collection, laboratory analyses, and data review. The QAPP defined the project team and responsibilities of key personnel.

4.1.3 Soil and Groundwater Management Plan

The Soil and Groundwater Management Plan (SGMP) for Parcel 1 was included as Appendix F of the RAWP. This document provided detailed plans for managing all soils/materials that were disturbed on Parcel 1, including excavation, handling, storage, transport and disposal. It also included 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.

4.1.4 Storm Water Pollution Prevention Plan

As required under 6 NYCRR Parts 700-705, a Storm Water Pollution Prevention Plan (SWPPP) was prepared to comply with the requirements and conditions of the State Pollutant Discharge Elimination System (SPDES) General Stormwater Permit for Construction Activity (Permit No. GP-02-01). A Property-wide SWPPP was provided as Appendix E to the Parcels 2 and 3 IRMWP dated September 2005. The SWPPP included erosion and sediment controls in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. Typical measures that

were implemented at various stages of the project to limit the potential for erosion and migration of soil included the use of hay bales, sewer inlet protection, a stabilized construction entrance, and dust control measures.

4.1.5 Community Air Monitoring Plan (CAMP)

A CAMP was included as Section 4.5.5 of the Property-wide HASP dated September 2005, which was submitted to NYSDEC as a stand-alone document and as Appendix B to the Parcels 2 and 3 RAWP dated February 2006. The CAMP established protocols for VOC and particulate air monitoring to be conducted at the Property perimeter if work zone perimeter concentrations approached the applicable community action levels. Corresponding response actions were specified for the action levels.

4.1.6 Citizen Participation Plan

As part of the BCP, a Citizen Participation Plan was prepared for the Property. The approved Citizen Participation Plan for this project is included on the DVD attached in Appendix A.

Citizen participation activities performed as part of the Parcel 1 remedial action included the following:

- November 12 and 19, 2003 – Environmental Notice Board (ENB) Public Notice – Soliciting public comments for the supplemental investigation and remedial action;
- March 2005 – Fact Sheet – Soliciting public comments for the adding Volunteers to the BCAs and the supplemental investigation results (SITR No. 1); and
- September 2005 – Fact Sheet – Announcing the start of remedial work.

The Fact Sheets were mailed to the updated contact list established in the Citizen Participation Plan. No changes were made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC.

Citizen participation activities anticipated in the future include the following:

- After the final draft of the Final Engineering Report is complete, a Fact Sheet will be mailed to the site contact list to solicit public comments on the proposed report prior to NYSDEC approval.
- Within 10 days of the issuance of the Certificate of Completion, a Fact Sheet summarizing the institutional and engineering controls will be sent to the parties on the site contact list.

A certification of mailing will be sent by the Volunteers to the NYSDEC project manager following the distribution of all remaining Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed; (2) the date they were mailed; (3) a copy of the Fact Sheet; (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (date) and that it contained all of applicable project documents.

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

Queens Borough Public Library – Central Library
89-11 Merrick Boulevard
Jamaica, NY 11432
(718) 990-0700

New York State Department of Environmental Conservation
One Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101
(718) 482-4065

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Involved Parties

Creamer Environmental, Inc. of Hackensack, New Jersey served as the general contractor for all remediation activities. The Remedial Engineer for the remedial action on Parcel 1 was Michelle Lapin, P.E. of AKRF Engineering, P.C. AKRF oversaw and documented all remedial activities; conducted health and safety and perimeter air monitoring; and performed endpoint sampling.

4.2.2 Site Preparation

Site preparation activities commenced in September 2005. A wood construction fence was installed at the perimeter of the Property and locking gates were added at the two entry points to the Property. A NYSDEC BCP project sign was erected at the project entrance and in place during all phases of the Remedial Action. A pre-construction meeting was held with NYSDEC, the Remedial Engineer, the Volunteer, and the remedial contractor on January 12, 2006.

4.2.2.1 Sediment and Erosion Control Measures

Measures were taken to reduce runoff from entering and leaving the areas of excavation, or traveling off-site, in accordance with the SWPPP prepared for the remediation phase of work on the Property. C.E. Flushing, LLC was responsible for inspecting and maintaining the erosion control measures as specified in the SWPPP. Sediment and erosion control measures installed at the Property included the following:

- Hay bales were installed at the downgradient perimeter of the Property along 40th Road. As a potential flood control measure, 1 cubic-yard sandbags were placed in the southwestern area of Parcel 1 along 40th Road.
- Interlocking steel sheeting was used as the downgradient control on the western side of the Property along the Flushing River and on the southwestern boundary. In downgradient perimeter areas where sheeting was not used, haybales and sandbags were installed. Storm sewer inlet protection, including hay bales and filter fabric, were installed around the catch basins to encourage deposition of sediment before it entered the inlets.
- A stabilized construction entrance, consisting of aggregate placed over filter fabric, was constructed on Parcel 1 grid cells H5 and H6 adjacent to 40th Road. This gate was the sole point of egress for dump trucks throughout remediation.

- Truck decontamination pads were constructed of gravel placed over filter fabric and polyethylene sheeting. A sump was constructed in one corner to collect wash water. Prior to the start of remediation activities, a decontamination pad was constructed on grid cell H5 adjacent to the stabilized construction entrance. This decontamination pad remained in-place throughout remediation and into construction activities. In an effort to prevent trucks from tracking soil across the Property, asphalt was left in-place during remediation to the extent possible for roadways and staging areas. Trucks carrying material from remediation activities were pressure washed over the decontamination pad prior to exiting the Property.
- Soil stockpile erosion control measures included the installation of hay bales around the perimeter of each soil stockpile. The stockpiles were placed at least 50 feet from the Property boundary. Additionally, to prevent leaching and runoff, contaminated soil stockpiles were placed on polyethylene sheeting with a bermed perimeter and covered with sheeting.

4.2.2.2 Permits and Approvals

Site preparation included coordination of appropriate permits and approvals. A complete list of agency permits and approvals required for activities performed under the RAWP is included in Appendix F. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency.

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

4.2.2.3 Monitoring Well Abandonment

The planned remediation and development required excavation across the entirety of the Property. The monitoring wells were abandoned by removing any above-grade portion of the well and filling the screen and riser with wetted bentonite chips.

4.2.2.4 Waste Characterization

Waste characterization samples on Parcel 1 consisted of eight five-point composite soil samples collected from soil borings installed in the known hotspots. The soil borings were installed in September 2005. The Parcel 1 waste characterization samples were analyzed for leachable VOCs, SVOCs, pesticides, and metals using the toxicity characteristic leaching procedure (TCLP) by EPA Methods 1311, 8260, 8270, 8081, 8151, 6010 and 7470; ignitability by EPA Method 1030; corrosivity by EPA Methods 9040/9045; sulfide/cyanide reactivity by EPA Methods 9014/9034, TPH by EPA Method 418.1; total metals by 6010; and PCBs by EPA Method 8082. The waste characterization samples were analyzed by Severn Trent Laboratories, Inc. (STL) in Shelton, Connecticut, a NYSDOH Environmental Laboratory Accreditation Procedure (ELAP)-certified laboratory. Laboratory analytical results for the waste characterization samples are provided in Tables 7a to 7e, and the laboratory reports are included on the DVD provided in Appendix C.

Based on soil investigation results characterizing the soil in the MW-2 hotspot, particularly the PCB results indicating concentrations greater than 50 parts per million, which resulted in disposal as hazardous waste, further waste characterization was not performed in this area.

4.2.3 General Site Controls

To the extent practicable, stockpiles were located at least 50 feet from the Property boundaries, with special effort undertaken to avoid placing stockpiles close to College Point Boulevard, due to the presence of residences across the street. Stockpile areas were surrounded with silt fences or hay bales and managed to minimize dust generation, run-off and erosion. Stockpiles were separated by a sufficient distance to ensure that mixing of dissimilar or potentially dissimilar materials did not occur.

Remediation-derived waste (RDW), including soil and buried concrete approved for reuse, was stockpiled on double-layered polyethylene sheeting with a minimum 8-mil thickness per layer. Soil was either temporarily stockpiled adjacent to open excavation (as remedial activities progressed), or stockpiled in a central location elsewhere on the Property. The soil stockpiles were covered with polyethylene sheeting at the end of each work day. The polyethylene sheeting was secured with large rocks or other anchors. Stockpiles were inspected routinely and damaged sheeting was promptly replaced.

Soils were stockpiled based on their known or anticipated type and/or level of contamination (based on previous data, PID readings, odor, staining, etc.). Stockpiles intended for off-site disposal were mixed with other compatible stockpiles on-site. Hazardous wastes were not mixed with non-hazardous wastes.

Other site controls included the following:

- Throughout remedial excavation, the soil and groundwater conditions were observed for evidence of contamination. Contamination was addressed in accordance with the RAWP, as outlined in Section 4.3.
- Equipment was decontaminated when leaving the hazardous waste excavation work zone and trucks and equipment were washed prior to leaving the Property. Streets adjacent to the Property were kept clear of soil, gravel or debris by regular sweeping and rinsing.
- Erosion and sedimentation controls were installed and maintained throughout remediation and construction, as discussed in Section 4.2.2.1. The site was inspected regularly to ensure erosion control measures were maintained.
- The entire Property was secured by a perimeter fence with two gates manned by security personnel to restrict entry. Throughout the duration of work performed under the RAWP, there was no vandalism nor other incidents on the Property related to site security.
- Job site record keeping included maintenance of log books, personnel sign-in sheets, health and safety briefing sigh-in sheets, air monitoring forms, daily activity logs, and truck tracking logs.

4.2.4 Nuisance Controls

Potential neighborhood nuisance issues were addressed and controlled in accordance with the RAWP and other governing documents as follows:

- Other than organic decomposition-type odors emanating from the Flushing River during low tide, which were typical prior to remediation, no nuisance odors were identified on-site during remediation.

- Trucks were queued on the Property and did not idle in the neighborhood surrounding the Property.
- Dust control measures were implemented regularly. These measures included wetting of haul roads, excavation faces and stockpiles; covering of stockpiles after soil handling had ceased; and minimizing the area of open excavation.
- All contaminated soil excavated from Parcel 1 was loaded onto trucks lined with polyethylene sheeting and each truck was securely covered with a tight-fitting cover.
- Prior to leaving the Property, trucks hauling contaminated soil were inspected for evidence of exterior contamination. Trucks were washed with a pressure washer on the decontamination pad.
- The stabilized construction entrance was maintained throughout remediation.
- Trucks left the Property on the designated truck route on College Point Boulevard to either the Whitestone Expressway to the north, or the Long Island Expressway to the south.
- Throughout the course of remediation, only one public complaint was received, on June 7, 2006. At NYSDEC's suggestion, AKRF, Creamer Environmental, and Volunteer representatives met with the complainant to address any concerns. There was no specific grievance, but the party was interested in the remediation procedures and potential impact to nearby residents, as well as issues of community interest, such as neighborhood redevelopment, jobs, and parking. The complaint was rescinded in writing, and the NYSDEC was updated with the resolution of this issue on July 11, 2006.
- No substantive nuisance issues arose during the course of remediation.

4.2.5 Air Monitoring Results

Continuous air monitoring was conducted during soil disturbance activities to monitor for elevated levels of VOCs, particulates, visible dust, and odors within the work zone breathing areas. Background ambient air readings at the work zone perimeter were collected prior to, during, and following excavation activities. VOC concentrations were monitored with a Thermo 580B photoionization detector (PID) or equivalent, and respirable particulate matter was monitored using a Thermo PDR1000, DustTrak 8520 particulate monitor or equivalent. No remediation work zone or community air monitoring exceedances were noted above the 15-minute time-weighted action levels specified in the HASP through the full duration of activities performed under the RAWP. No instantaneous particulate or VOC readings were identified above background levels.

On one occasion on April 18, 2006, visible dust was noted across the Property. Although there was remedial excavation occurring at this time, the source of the dust was attributed to building demolition activities. Additional dust control measures were implemented, including the use of a street sweeper, additional application of calcium chloride to the on-site roadways, and use of additional water hoses on active demolition areas.

Electronic copies of the air monitoring logs are provided in Appendix G.

4.2.6 Reporting

Daily and monthly reports were submitted throughout remedial activities and specific construction activities that required oversight by AKRF, as a representative of the

Remedial Engineer. The daily reports consisted of a short summary of work and were submitted by email to the NYSDEC and NYSDOH Project Managers. The Monthly Progress Reports were submitted by hard copy, generally by the 10th of the following month. The Monthly Progress Reports included tables of the laboratory data, a selection of photographs, and copies of the air monitoring logs. Digital copies of all daily and monthly reports are included on a CD in Appendix H.

A DVD containing digital photographs and a corresponding photo log required by the NYSDEC is included in Appendix I.

4.3 CONTAMINATED MATERIALS REMOVAL

Contaminated materials removal on Parcel 1 included the excavation of soil hotspots (soil with exceedances of the established SSALs shown in Section 2.5.3) to the extent practicable below the water table; removal of ASTs and USTs; investigation and removal of drainage structures; and investigation of geophysical anomalies. Each area is discussed in detail in the following subsections.

Remediation on Parcels 1, 2 and 3 of the Property was performed together and tracking of excavated or backfilled material was not segregated by Parcel. Estimates of the breakdown for Parcel 1 are summarized below; however, the documentation of imported and exported material is provided for the entire Property.

4.3.1 Soil Removal

Remedial excavation included the removal of soil hotspots. Prior to remediation, 16 hotspots were identified on Parcel 1 of the Property. These hotspots were vertically and horizontally delineated through Geoprobe® borings. During excavation, the soil and groundwater (if encountered) was monitored for evidence of contamination (e.g., staining, odors, and elevated PID readings). Evidence of contamination was noted in three additional areas on the western end of Parcel 1 during tank removals and building slab removals. Excavation of the hotspots that were not delineated in advance were extended vertically and laterally until there was no noted evidence of contamination and endpoint samples indicated concentrations less than the applicable SSAL, or had proceeded as far below the water table as practicable. Practicable excavation depths typically extended from 1 to 4 feet below the observed water table, depending on soil type, adjoining ground surface elevation, and accessibility. In order to retain the structural integrity of off-site structures, sidewalks, and roads, the excavation sidewalls were sloped on the Property boundaries. At locations where pre-delineation was not completed, post-excavation endpoint samples were collected, as discussed in Section 4.4.

The excavated soil was managed as non-hazardous or hazardous based on previous laboratory analytical results. Non-hazardous soil was either temporarily stockpiled on grid cells H5, J3 and J4 or loaded directly into trucks for off-site disposal. Soil excavated from the hazardous hotspots (either PCB concentrations greater than 50 ppm or characteristic hazardous lead waste) was directly loaded into trucks for off-site disposal. All soil leaving the site was documented by non-hazardous or hazardous waste manifests, and truck logs. Tables detailing the truck logging are provided as Tables 9 and 10.

A map of the locations of investigation and delineation soil borings, endpoint samples, and the area and approximate depths where remedial excavations were performed is provided as Figure 11. A contour map of surveyed cut elevations for remedial activities on Parcel 1 is included as Figure 12a. A contour map showing the bottom elevation of

all cuts (the deeper of both remediation-related and completed construction-related excavations) is included as Figure 12b. After excavation was completed, the excavation was backfilled as discussed in Section 4.5. The fill elevations are shown on the drawings of site cover components provided as Figures 13a and 13b, and the site cover survey provided as Figure 14.

Railroad tracks and timber ties were also removed during remediation excavation on Parcel 1. The steel tracks were placed into Metals Management owned roll-off container for scrap recycling and the wooden timbers were crushed and disposed of off-site as non-hazardous waste.

4.3.2 Underground Storage Tank Removal

Research conducted as part of the remedial investigation identified six potential USTs on Parcel 1. During remedial excavation, two additional USTs were encountered and removed. Details regarding the tank contents, size and locations are provided in Table 5, and the tank locations are shown on Figure 7.

According to previous tank registration, Con Edison records and/or field observations during tank removal, the USTs on Parcel 1 previously contained gasoline or fuel oil. During tank removal, it was noted that four of the tanks were previously abandoned by filling with concrete, three of the tanks contained a petroleum/water mixture, and one tank was nearly empty with a sludge waste residue. All of the USTs were encased in concrete vaults.

The concrete vaults were broken up in order to remove the tanks. The tanks that were abandoned with concrete were cut open and the concrete inside the tanks was separated from the metal shells. Tank vault concrete located in non-hazardous areas of soil removal that did not exhibit signs of petroleum-like staining was stockpiled pending washing, sampling and potential reuse as on-site backfill, as discussed in Section 4.5.3. Tank vault concrete that exhibited signs of staining, petroleum-like odors, or with elevated PID readings was disposed of off-site as non-hazardous waste. Tank vault concrete that was removed from hazardous soil areas was disposed of off-site as hazardous waste.

Tanks containing a petroleum/water mixture were either pumped into the on-site water treatment system or pumped out by AARCO Environmental Services, Inc., of Deer Park, New York (AARCO) using a vacuum truck. The residual product and sludge was consolidated into the non-hazardous soil stockpile located on grid cells C4 and D4 for later off-site disposal. The tanks were removed from the ground, placed on plastic sheeting, cut open, and pressure washed with a solution of Simple Green® and tap water. Alvin Petroleum Systems, Inc. of Flushing, New York (Alvin) inspected the removed USTs, and completed affidavits confirming that the tanks were removed and cleaned in accordance with local regulations. Tanks and associated piping were crushed and placed into a Metals Management owned roll-off container for disposal at their Newark, New Jersey facility. The NYSDEC petroleum bulk storage (PBS) forms were submitted as required. Tank removal documentation is provided in Appendix J. Copies of the liquid waste disposal documentation are provided in Appendix K.

4.3.3 Aboveground Storage Tank Removal

Three ASTs were removed from Parcel 1 during remediation activities from the locations depicted on Figure 7. Details regarding the tank contents, size and locations are provided in Table 5.

The ASTs on Parcel 1 previously contained either motor oil or hydraulic oil. The tanks contained oil and sludge waste, which was pumped by AARCO using a vacuum truck and disposed of off-site. All of the tanks were cleaned with a solution of Simple Green® and tap water. Following cleaning, Alvin inspected the removed ASTs and completed affidavits confirming that the tanks were removed and cleaned in accordance with local regulations. The tanks and associated piping were crushed and placed into a Metals Management owned roll-off container for disposal. As these ASTs were each less than 550 gallons in capacity, and were located at a separate Lot number with a separate street address from the remainder of the Property, no tank registration was necessary. Tank removal documentation is provided in Appendix J. Copies of the liquid waste disposal documentation are provided in Appendix K.

4.3.4 Spill Reporting

There are six open spill numbers on the Property. The following two spills are associated with Parcel 1:

- On April 19, 2006, two 10,000-gallon USTs were encountered in grid cells F6 and G6. Following tank removal, corrosion holes up to 2 inches in diameter were noted on the sidewalls and bottoms of both USTs. A sludge-like layer with a petroleum-like odor was noted on the water table; therefore, a spill was reported to the NYSDEC Spills Hotline (Spill No. 0600907) on April 25, 2006. No LNAPL was measurable on the groundwater in the excavation using the oil/water interface probe. The tank excavation was kept open for several days while oil absorbent pads were used to soak up the sludge layer. Groundwater was pumped from the open excavation into the on-site groundwater treatment system on April 21, 24, and 27, 2006, and the sludge layer did not reappear. The soil and portions of the tank vault exhibiting petroleum-like staining and/or odors were directly loaded into trucks for disposal as non-hazardous waste. On April 27 and 28, 2006, eight perimeter endpoint samples (UST-x-3 to UST-x-10) were collected as discussed in Section 4.4.1.
- In September 2006, a 550-gallon UST was encountered on grid cell F6 east-adjacent to the former Garage Building during removal of the building pile caps. The tank was encased in concrete and was full of a petroleum/water mixture. AARCO removed approximately 525 gallons of the petroleum/water mixture and sludge with a vacuum truck. Once the sludge was removed, it was noted that groundwater was re-entering the tank through breaches in the concrete vault. The tank vault was lifted slightly with a track-mounted excavator and the remaining groundwater/petroleum mixture was removed. Based on the petroleum sheen and gasoline-like odor on the groundwater, a spill was reported to NYSDEC Spill Hotline (Spill No. 0606870) on September 14, 2006. The soil exhibiting evidence of contamination was removed for off-site disposal as non-hazardous waste; excavation continued until endpoint sample results were less than the SSALs. Endpoint samples EP-240 to EP-248 were collected in this area as discussed in Section 4.4.1.

As part of remediation under the BCP and issuance of the Certificate of Completion, the Spill numbers will be closed.

4.3.5 Removal of Drainage Structures

All out-of-service sewer piping, catch basins, and manholes identified on Parcel 1 were excavated. Based on these analytical results of the catch basin sediment, as discussed in Section 2.5.7, the sewer piping and catch basins from Parcel 1 were disposed of off-site as non-hazardous waste. A brick sewer line was identified on grid cells K3 and L3. Since this had been abandoned or caved in with soil and concrete, a larger excavation area resulted, as shown on Figure 11. Outside of the known hotspots and additional remedial excavations discussed in Sections 4.3.1 to 4.3.4, excavated soil from sewer removal on Parcel 1 had no odor, staining or PID readings and was returned to the excavation from which it was removed. Unless the sewer was located within a hotspot excavation, no soil was removed as part of the drainage structure removal.

One manhole and approximately 100 feet of sewer pipe remains in place on the Property in the southwestern portion of Parcel 1 for continued construction dewatering use. If the sewer is removed from service, it would be abandoned in accordance with NYCDEP procedures.

At the request of NYSDEC, a sample of the sediment was collected from inside the sewer pipe at the Property boundary. Sediment sample CE-Drainage Structure-2 was collected from within a 6-inch sewer pipe where the pipe left the Property on grid cell H6 at the location shown on Figure 7. A sewer pipe was also noted to exit the Property on grid cell L3; however, this was the abandoned/caved-in brick sewer discussed above; therefore, the contents were not sewer sediment.

The pipe sediment sample was compared to both the TAGM #4046 RSCOs and the SSALs. The sediment sample did not have concentrations of VOCs above RSCOs or SSALs. Several SVOCs were detected above the RSCOs; however, the total SVOC concentrations were less than the SSAL. The concentrations of PCBs and pesticides in sample CE-Drainage Structure-2 were well below the respective RSCOs and SSALs. The pipe sediment sample exceeded RSCOs for metals, but the concentrations were all less than the SSALs. Laboratory analytical results for the sewer pipe sediment samples are provided in Tables 8a to 8d.

4.3.6 Geophysical Anomaly Removal

Geophysical anomalies were investigated as part of the remedial excavation between March and May 2006. The anomalies were investigated to depths of approximately four to six feet below grade. The anomalies consisted of concentrated areas of distinct fill material, including concrete, cinder, slag, metal, rebar, and utility piping. No tanks, drums or other structures of environmental concern were identified during exploration of the anomalies. The larger pieces of debris were removed for off-site disposal and the remaining fill was placed back into the excavation as backfill. Pieces of concrete that exhibited no visible staining or odors were segregated and stockpiled for washing and on-site reuse as discussed in Section 4.5.3. The areas of removed debris are depicted on the Remedial Excavation Plan attached as Figure 11.

4.3.7 Trucking and Disposal Details

Since remediation was performed on the Property as a whole and soil removal was not segregated by Parcel, the waste tracking information is provided for the Property, with

approximations for Parcel 1. Prior to off-site disposal of soil, investigation and waste characterization data for the Property was provided to each solid waste disposal facility. Waste characterization data is summarized in Tables 7a to 7e. The receiving facilities provided confirmation that they reviewed the data and that the material was acceptable under the applicable permits. Acceptance letters from disposal facility owners are attached in Appendix L.

The Property had the following general solid waste streams:

- From February 22, 2006 to November 20, 2006, August 29 to 31, 2007, October 8, 2007, and November 7 and 8, 2007, a total of 2,890 trucks transported 60,840 tons non-hazardous waste for disposal at the Waste Management landfills in Morrisville, PA (Grows) or Tullytown, PA (TRRF). Of this quantity, approximately 5,306 tons are estimated to be from Parcel 1 remediation.
- From March 13, 2006 to November 20, 2006, a total of 877 trucks transported 22,280 tons of hazardous soil with PCB concentrations greater than 50 ppm. Of this quantity, approximately 3,008 tons are estimated to be from Parcel 1 remediation. The trucks transferred the hazardous PCB waste to rail car gondolas at an intermodal truck-to-rail transfer yard in North Bergen, New Jersey. Hazardous PCB soil was disposed of at the Heritage Environmental Services RCRA Subtitle C landfill located in Roachdale, Indiana (EPA ID #IND980603890).
- From May 3, 2006 to May 24, 2006, a total of 22 trucks transported 588 tons of characteristically hazardous lead soil (TCLP lead concentration greater than 5 mg/L) from the Property for disposal at the Heritage Environmental Services facility located in Indianapolis, Indiana (EPA ID #IND093219012). Of this quantity, approximately 350 tons of the hazardous lead soil are estimated to be from Parcel 1.
- Larger pieces of excavated metal, namely tank bodies and rail road tracks, were segregated from non-metal material and placed into roll-off containers. The metal was taken off-site for scrap recycling by Mid-Island Salvage Corp. and Metal Management Northeast, Inc.

The total quantities of non-hazardous and hazardous wastes removed from the Property and the respective disposal locations are shown on Tables 9 and 10, respectively. Copies of waste manifests and bills of lading for material disposed of off-site are included in Appendix L. Copies of the waste hauler permits and applicable disposal facility permit information are also provided in Appendix L.

4.4 REMEDIAL PERFORMANCE (ENDPOINT) SAMPLE RESULTS

4.4.1 Soil Endpoint Sampling

Post-remediation soil endpoint samples were collected on Parcel 1 in areas where the extent of the contamination was not previously delineated and as part of UST removal activities. Endpoint samples were collected from the sidewalls and bottoms of the excavations. During excavation, soil was screened for evidence of contamination (e.g. staining, odors, elevated PID readings). Endpoint samples were collected when evidence of contamination was no longer noted and/or the technical limit for the excavation was reached. In areas where PCBs were a contaminant of concern, a Dexsil Corporation L2000 PCB/Chloride Analyzer (PCB field screening kit) was used to help guide the bottom depth of endpoint soil sample collection; field observations and field screening results were not considered a replacement for laboratory analysis of endpoint samples.

In hotspots where the contaminant of concern was previously identified by soil samples with concentrations greater than an SSAL(s), endpoint samples were analyzed only for the contaminant(s) of concern. In areas where evidence of contamination was noted during slab removal or grading, the endpoint samples were analyzed at a minimum for the SSAL parameters: TCL VOCs, TCL BN SVOCs, PCBs, pesticides, arsenic, cadmium, lead, mercury, silver and reactive cyanide. In tank removal excavations, endpoint samples were analyzed at a minimum for STARS-list VOCs, STARS-list SVOCs and PCBs.

All samples were analyzed by STL (now known as TestAmerica) of Shelton, Connecticut or their equally qualified laboratory divisions in other cities. Data was reported with Category B data deliverables, therefore, no DUSR was prepared. NYSDOH ELAP-certified laboratories were used for all endpoint sample analyses. Quality control analyses were performed, as required by the Category B sampling techniques. Field blank samples were submitted at a frequency of one blank for each 20 soil samples analyzed. Trip blank samples were submitted for sampling groups which included VOC analyses. The field blank and trip blank analytical results as part of the endpoint sampling are included on Tables 12a to 12h. Acetone was detected in each of the trip blanks and field blanks at concentrations ranging from 2.2 to 7.2 ppb. Methylene chloride was detected in each of the trip blank samples at concentrations ranging from 2.2 to 19 ppb. Methylene chloride was not detected in the field blank samples. Both acetone and methylene chloride are commonly used decontamination solvents and were also detected in the laboratory method blanks for several analytical batches. Therefore, detections of acetone and methylene chloride in the blank samples, as well as similar concentrations in the soil samples, are likely due to decontamination residue in the glassware or laboratory artifact. Benzene was identified in five of the trip blank samples at concentrations less than one order of magnitude greater than the detection limit. These concentrations were flagged as estimates and do not significantly effect the detected concentrations, since benzene was not detected above laboratory detection limits in the corresponding endpoint soil samples. No other VOCs, SVOCs, PCBs, pesticides or metals were detected in any of the trip blank or field blank samples. Internal laboratory QA/QC procedures included analyses of matrix spike/matrix spike duplicate (MS/MSD) samples, which are reported in the laboratory reports provided in Appendix C.

A tabular summary of all endpoint sampling is included in Table 11 with all exceedances of SSALs highlighted. Table 11 also includes a brief description of the location of the sample. The endpoint sample locations are depicted on Figure 11.

If analytical results indicated concentrations greater than the SSALs, then excavation continued as practicable and additional endpoint samples were collected. Final post-excavation endpoint sampling results representative of soil left in place are detailed in Tables 12a to 12h. The final endpoint analytical results on Parcel 1 indicated only two samples in a single area for which concentrations were above the SSALs, represented by bottom samples CE-UST-BOTTOM-EAST-1 and CE-UST-BOTTOM-WEST-2. The locations and elevations of residual contamination identified by these final endpoint samples with concentrations greater than the SSALs are depicted on Figure 15. A Property-wide summary table of only the final endpoint samples with concentrations greater than the SSALs is provided as Table 13.

4.4.2 Soil Gas Sampling

Post-excavation soil gas samples were collected at the perimeter of the each of the two VOC hotspots on Parcel 1 at the locations shown on Figure 16. No elevated PID readings or methane readings were identified in the field screening of the soil gas; however, VOCs were detected in the laboratory analytical results, as shown on Tables 13a to 13b. The maximum total VOC concentration detected in a soil gas sample was 1,964 micrograms per cubic meter (ug/m^3). The majority of the VOCs detected (generally 67-97% of the total concentration) was the compound 2,2,4-trimethylpentane, with some minor concentrations of other VOCs. The VOC 2,2,4-trimethylpentane is a component of gasoline; however, the concentrations of other gasoline-related VOCs are not indicative of a gasoline-related source in these samples.

4.5 BACKFILL

As part of remediation, the excavations were backfilled using: (1) soil or fill from Parcel 1; (2) crushed asphalt, concrete and brick from on-site demolition; (3) crushed buried concrete (e.g., former pile caps) from on-site demolition; and (4) rock and soil obtained from off-site sources. Backfill material was sampled prior to use and confirmed to meet the SSAL criteria (on-site material) or generally meet TAGM #4046 RSCO criteria (imported material). Some samples of imported backfill had exceedances of the TAGM #4046 RSCOs; however, the use of that material was specifically approved by NYSDEC. Tables summarizing chemical analytical results for backfill are included in Tables 15 to 18. A summary of the sources of imported backfill with quantities for each source is shown in Tables 19a to 19f.

The rock, concrete and brick was broken into appropriately sized pieces on-site using the NYSDEC-approved crusher. Backfill of remediation excavations of Parcel 1 was placed to elevations ranging from approximately elevation +3 feet to +15 feet; however, subsequent construction grading has further altered the topography. Final grades on Parcel 1 after construction-related backfilling and grading resulted in additional cut in the eastern portion of Parcel 1; the total cut elevations are shown on Figure 12b. The top elevations of the current site cover are summarized on Figure 13a and detailed on Figure 14. Backfill materials from the various sources were placed as material was available and regraded across the Property. Due to the large areas of cut and fill, variety of backfill sources and commingling of backfill material, the exact locations of material from a specific backfill source are not defined.

4.5.1 Parcel 1 Soil Reuse Characterization

Soil samples were collected from areas outside of the known hotspots on Parcel 1 to characterize the soil for reuse. The reuse samples consisted of 33 four-part or five-part composite soil samples collected from soil borings installed from September 13 to October 4, 2005. The sampling areas represent one composite sample for every 1,000 cubic yards of soil to be reused. Borings were advanced to the planned depth of the construction cut. Samples were analyzed for the SSAL parameters TCL VOCs, TCL BN SVOCs, PCBs, pesticides, arsenic, cadmium, lead, mercury, silver and reactive cyanide.

Laboratory analytical results for the Parcel 1 soil characterized for reuse are provided in Tables 15a to 15d. The soil sample locations for reuse characterization are depicted on Figure 17.

If the composite sample concentrations exceeded an SSAL, the individual components of the composite were analyzed separately for that parameter to narrow the location of the exceedance. Soil from areas where representative samples met the SSALs was excavated

for reuse elsewhere on the Property. Two additional remedial hotspots (WC-37B and WC-42) were identified by sample results from the reuse characterization. These areas were subsequently remediated as discussed in Section 4.3.1.

4.5.2 Demolition Material Reuse Characterization

Prior to demolition of the buildings on the Property, representative chip samples of brick and concrete were collected on December 14, 2005 to characterize the material for reuse as backfill. The samples were collected as three-point composites of similar sources for a total of two brick samples and eight concrete samples submitted for analysis of TCL VOCs, TCL BN SVOCs, PCBs, pesticides, and TAL metals. Laboratory analytical results for the brick and concrete samples are provided in Tables 16a to 16d.

Eight of these 10 samples met the SSALs. The two that did not, CE-CONC-8 and CE-CONC-9, exceeded the SSAL for total SVOCs due to elevated concentrations of isophorone. Isophorone diamine is a major (20-50%) ingredient in a concrete primer and moisture sealant product and, therefore, is likely bound into the concrete matrix. Based on the sample results, the NYSDEC approved all the brick and concrete generated during demolition for crushing and reuse as backfill.

4.5.3 Buried Concrete Reuse Characterization

To assess the possibility of reusing buried concrete, AKRF initially collected three grab samples representative of three different types of buried concrete that was excavated from the Property. On April 14, 2006, three grab samples were collected, two of which (CE-CONC UST-11 and CE CONC GB-13) were biased toward areas where higher contaminant concentrations would be expected, based on the contaminant concentrations in the soil surrounding the concrete. The samples were chipped from the surface of the concrete, and then washed using a bristle brush and distilled water. The samples were analyzed for TCL VOCs, TCL BN SVOCs, PCBs, pesticides, arsenic, cadmium, lead, mercury, silver, and reactive cyanide. Laboratory analytical results for the buried concrete samples are provided in Tables 17a to 17d.

The laboratory results indicated concentrations for all parameters were well below the SSALs for all three samples. Based on the results of these initial three samples of buried concrete, AKRF prepared a work plan modification to wash, crush and reuse the buried concrete (Modification No. 5 to the Revised OU-1 RAWP dated May 2, 2006). This Modification was approved by NYSDEC.

Subsequent stockpiles of buried concrete were tested via collection of one representative composite sample per 300 cubic yards of material from each segregated source type (e.g., catch basins, buried slabs, etc.). Samples were analyzed for the SSAL parameters: TCL VOCs, TCL BN SVOCs, PCBs, pesticides, arsenic, cadmium, lead, mercury, silver, and reactive cyanide. As shown on Tables 17a to 17d, the washed buried concrete samples met the SSAL criteria, and such concrete was, therefore, crushed and reused on-site as backfill.

4.5.4 Imported Backfill Characterization

AKRF personnel investigated potential source sites for backfill materials by researching the property, visually inspecting the soil and/or rock, screening the material with a PID, and collecting representative composite samples at the source site (with the exception of the Amboy Aggregates facility discussed below). The soil and rock samples were submitted for analysis of TCL VOCs, TCL BN SVOCs, PCBs, pesticides and TAL

metals. Laboratory analytical results of samples of imported fill sources are provided in Tables 18a to 18d. Based on the laboratory analytical data, the NYSDEC approved these sites as acceptable sources of backfill prior to import to the Property.

The sand from Amboy Aggregates was originally brought to the Property for use in construction of the flood control sandbags. After remediation excavation was completed, a composite sample of the sandbag contents material was analyzed for TCL VOCs, TCL BN SVOCs, PCBs, pesticides and TAL metals. Concentrations were less that the TAGM 4046 RSCOs; therefore, this material was acceptable for use as backfill material.

Backfill materials were brought to the Property between November 2005 and November 2007 from the following sites:

- Approximately 4,543 tons (approximately 2,596 cubic yards) of bedrock from a construction site on East 119th Street and 5th Avenue in New York, NY;
- Approximately 44,413 tons (approximately 25,379 cubic yards) of bedrock from the DEP Croton Water Treatment Plant construction site in Bronx, NY;
- Approximately 102 tons (approximately 58 cubic yards) of sand from the Continental Aggregates Corp. quarry in Clinton, NJ;
- Approximately 220 tons (approximately 126 cubic yards) of sand from the Amboy Aggregates facility in South Amboy, NJ; and
- Approximately 6,731 tons (approximately 3,846 cubic yards) of gravel from the Tilcon Mt. Hope quarry in Wharton, NJ.

AKRF inspected the material brought to the Property and confirmed the appearance and texture were consistent with the material sampled. Due to the large areas of cut and fill, variety of backfill sources and commingling of backfill material, the exact locations of material from a specific backfill source are not defined. A summary of the material received from off-site sources is provided in Tables 19a to 19f. Tickets documenting material source, date, and weight or volume are provided in Appendix M.

4.6 RESIDUAL CONTAMINATION REMAINING ON-SITE

Some residual contamination remains on Parcel 1 after completion of the remedial activities summarized in Section 4.2. Post remediation soil handling and health and safety procedures are defined under the Site Management Plan (provided in Appendix A) for three Residual Management Zones - A, B and C. Specifically, the following known or potential residual contamination remains on Parcel 1:

- **Residual Management Zone C –** Soil with concentrations greater than the SSALs for VOCs and PCBs was identified in two bottom endpoint samples collected from below the water table in one area on Parcel 1. The location and elevation of Residual Management Zone C are depicted on Figure 15.
- **Residual Management Zone B –** Endpoint samples indicated that soil in place beneath the remedial excavations largely met the SSALs; however, this would not preclude higher concentrations between the endpoint locations. In addition, following the remedial excavations, significant additional excavation occurred prior to foundation construction. As such, remaining soils may exceed the Part 375 SCOs for Restricted Residential Use and these soils are considered Residual Management Zone B. The elevations of the top of Residual Management Zone B are depicted on Figure 12b.

- **Residual Management Zone A –** Soil with concentrations greater than the TAGM 4046 RSCOs and that may exceed the Part 375 SCOs for Restricted Residential Use were identified in backfill material used beneath the site cover across the Property (largely soil from Parcel 1 reused as backfill) The locations and elevations of the current site cover is shown on Figure 14. The previously placed backfill directly beneath the site cover is considered Residual Management Zone A.
- Groundwater with concentrations greater than the Class GA standards for PCBs, total metals, and/or dissolved metals was identified in samples collected in post-remediation monitoring wells on Parcel 1.
- Post-excavation soil gas samples with detected concentrations of VOCs were identified on Parcel 1.

Residual contamination on Parcel 1 may extend outside of the Property boundaries. Since residual contaminated soil, groundwater and soil vapor exist beneath the Property 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), provided electronically in Appendix A of this FER.

4.6.1 Soil

The remedial excavation of soil extended vertically until the pre-excavation delineation or endpoint samples were less than the respective SSALs, or until the excavation proceeded as far below the water table as practicable. As such, bottom endpoint samples collected on Parcel 1 of the Property identified one area below the water table where residual contaminant concentrations exceeded the SSALs. The residual contamination is below the water table and between 6 feet and 7 feet below the site cover in that area. Exceedances of the SSALs in the post-excavation samples on Parcel 1 were identified as follows:

- VOCs were detected above the SSALs in two of the endpoint samples collected from beneath the tanks located in the southwestern area of Parcel 1. Compounds o-xylene and m&p-xylenes were above SSALs in two samples. Acetone was identified at levels that, if considered, would be above the SSAL in two endpoint soil samples; however, these detections were at levels less than one order of magnitude above the SSAL and are likely due to decontamination residue or laboratory artifact.
- PCBs – One final endpoint sample on Parcel 1 exceeded the SSAL for PCBs with a concentration of 16 ppm.

A summary of all Parcel 1 endpoint sample results compared with SSALs (including the endpoint samples with SSAL exceedances that were subsequently excavated) is provided as Table 11. A summary of all Property-wide final endpoint samples with concentrations greater than the SSALs is provided as Table 13. Figure 15 (spider map) summarizes results of all final endpoint soil samples remaining at the Property after completion of Remedial Action that exceed the SSALs. Figure 15 also shows the surveyed elevations of the top of the Residual Management Zone C.

Although the SSALs were the comparison standard for remediation purposes, the soil analytical results were also compared to Part 375 SCOs for Unrestricted Use (Track 1)

and Restricted Residential Use for informational purposes in accordance with current NYSDEC guidance. The Part 375 regulation was promulgated in December 2006, after remedial excavation and a majority of the backfilling was completed on Parcel 1. Parcel 1 has an Environmental Easement; therefore, the Restricted Residential SCOs would be the applicable standard. The laboratory results of the post-excavation endpoint samples which represented the final extent of excavation compared to the Part 375 SCOs for Unrestricted Use (Track 1) and Restricted Residential Use are provided in Tables 12a to 12h (with exceedances of each SCO highlighted).

4.6.2 Groundwater

Prior to remediation, groundwater samples from several wells on Parcel 1 contained low level exceedances of Class GA standards for PCBs, pesticides total metals, and/or dissolved metals. Groundwater contaminant distribution and concentrations do not indicate that active groundwater remediation is warranted given the extensive scope of the soil removal remediation performed. The detected groundwater concentrations were not clustered as in a typical contaminant plume. The continued risk of impact to human health or the environment from groundwater contamination on Parcel 1 was determined to be very low given that the environmental easement on the Property prohibits future use of groundwater and the SMP establishes a protocol for future soil disturbance.

Post-remediation groundwater sampling is being conducted to monitor the levels of residual groundwater contamination. Post-remediation groundwater samples collected on Parcel 1 to date have identified PCBs and metals at concentrations greater than the Class GA standards. However, it is anticipated that the removal of nearly all the identified contaminated soil from Parcel 1 will result in a decrease in groundwater contaminant levels in the future. The post-remediation monitoring well locations are shown on Figure 18 and the analytical results for the post-remediation samples collected to date are provided in Tables 20a to 20f. Groundwater monitoring will continue to be performed as defined in Section 3.0 of the Site Management Plan, a digital copy of which is included in Appendix A.

4.6.3 Soil Gas

As discussed in Section 4.4.2, VOCs were detected in the laboratory analytical results for post-excavation soil gas samples collected at the perimeter of two VOC hotspots on Parcel 1. The maximum total VOC concentration detected in a soil gas sample was 1,964 micrograms per cubic meter (ug/m^3). The majority of the VOCs detected (generally 67-97% of the total concentration) were the compound 2,2,4-trimethylpentane, with some minor concentrations of other VOCs. The VOC 2,2,4-trimethylpentane is a component of gasoline; however, the concentrations of other gasoline-related VOCs are not indicative of a gasoline-related source in these samples. Laboratory analytical results are detailed on Tables 14a to 14b, and the sample locations are depicted on Figure 16.

The lowest level of the buildings on Parcel 1 will contain either an open-air parking garage or actively ventilated parking area designed to prevent accumulation of potential vapors in accordance with New York City building code. Any areas of non-parking use in the garages, such as storage areas or utility rooms, will be ventilated into the corresponding garage space. Prior to issuance of a Certificate of Occupancy for the building, the New York City Department of Buildings requires certification that the ventilation system is operating. Accordingly, no vapor barrier or sub-slab venting system was required beneath these buildings. As outlined in Section 4.8, the environmental

easement for Parcel 1 includes a provision that converting the parking areas to other less restricted or unventilated uses, requires an amendment to or the extinguishment of this Environmental Easement and NYSDEC and NYSDOH approval.

4.7 ENGINEERING CONTROL SYSTEMS

Residual contamination is present on Parcel 1, and ECs were implemented to protect public health and the environment in the future. The Engineering Control System on Parcel 1 is a composite cover system consisting of asphalt or, concrete building slabs and other concrete. In the future, the cover system may also include a minimum of two (2) feet of clean fill.

Exposure to residual contaminated soils is prevented by an engineered, composite cover system that has been built on Parcel 1. This composite cover system is currently comprised of asphalt or concrete. In the future, the cover system may also include a minimum of two (2) feet of clean fill. Figure 13a shows the NYSDEC-approved design for each current remedial cover type used on Parcels 1, 2 and 3 of the Property, and Figure 13b shows the future anticipated cover type for the planned development. A survey of the current site cover is provided as Figure 14. A Soil Management Plan is included in Appendix D 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 3.0 of the SMP.

As part of future development activities, a new, additional site cover may be placed at a revised ground surface elevation and the current site cover may remain intact as a subsurface layer. Imported backfill that may be placed over the former site cover would meet the requirements outlined in Section 2.3.2.9 of the SMP. Any changes in the site cover components or Residual Management Zones would meet the requirements of this SMP and be detailed in the Annual Site Management Report. Figure 13b shows the location of the anticipated final cover on the Property. The final development is depicted on Figure 3.

Procedures for operating and maintaining the site cover are documented in the Operation and Maintenance Plan in Section 4.0 of the Site Management Plan (SMP). The procedures for monitoring the systems are included in Section 3.0, 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 the ECs.

4.8 INSTITUTIONAL CONTROLS

A series of Institutional Controls are required under the RAWP 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 Institutional Controls is required under the Environmental Easement and will be implemented under the SMP attached to this FER. These Institutional Controls for the Property (Controlled Property) are:

- Compliance with the Environmental Easement 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 the SMP;
- A composite cover consisting of asphalt, concrete or a minimum of 2 feet of clean fill must be inspected, certified, operated and maintained as required by the SMP;
- Groundwater 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;
- Environmental monitoring devices, including but not limited to, groundwater monitoring wells, 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 Environmental Easement.

Parcel 1 (the Controlled Property) also has a series of Institutional Controls in the form of land use restrictions. Adherence to these Institutional Controls is required under the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- Single family housing, vegetable gardens and farming on the Controlled Property are prohibited;
- A school or day care facility on the Controlled Property is 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 Management Zones (beneath the site cover) 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 as defined in 6 NYCRR 375-1.8(g)(2)(ii) only, provided that the long-term Engineering and Institutional Controls included in the SMP remain in use;
- The Controlled Property may not be used for a less restricted level of use, such as residential use, nor may the parking areas be converted to other enclosed purposes, without an amendment or extinguishment of the Environmental Easement and NYSDEC and NYSDOH approval; and
- Grantor of Environmental Easement or successor to submit to NYSDEC and NYSDOH 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 NYSDOH; 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 annual statement must be certified by an expert that the NYSDEC finds acceptable.

The environmental easement will include: a description of the use restrictions; a map showing the area of the restrictions; and a copy of the NYSDEC-approved SMP. Prior to recording the environmental easement, notification of the intent to establish the institutional controls will be sent to all adjacent property owners, NYSDOH, New York City Department of Health and Mental Hygiene, and the Queens County Clerk's office. The property deed and all subsequent instruments of conveyance will contain language indicating that the site is subject to the environmental easement.

4.9 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

The remediation and activities were completed substantial conformance with the NYSDEC-approved RAWP for Parcel 1. Deviations from the RWP are summarized below:

- The contemplated use indicated in the August 2003 RAWP indicated that the entirety of Parcel 1 would be covered with a building. The revised development plan includes some paving on the southern side of the property for an entry ramp into the parking garage and some loading dock space for the retail tenants. Under the final development plan, the entirety of Parcel 1 will be covered with concrete or asphalt.
- Section 2.3.4 of the August 2003 RAWP indicated "The site will not include a school, day care or medical facility." After further discussions with NYSDOH documented in an email from NYSDOH Project Manager on August 4, 2005, medical facilities will be allowed in the planned development, provided that they are not located on the bottom floor.
- Section 4.1 of the August 2003 RAWP indicated that separate task reports would be prepared for individual tasks (geophysical anomaly investigation, tank closure, drainage structure investigation, and hot spot removal activities). Since all subsurface remedial activities occurred within the same time-frame, these activities were summarized in daily and monthly reports, and detailed in this FER. It is our understanding that the spill numbers will be closed under the BCP.
- A Construction Health and Safety Plan (CHASP) was attached as Appendix D to the August 2003 RAWP. This version of the CHASP was superseded by a Property-wide CHASP included in the NYSDEC-approved February 2006 RAWP for Parcels 2 and 3.
- Section 3.9 of the QAPP attached as Appendix E to the August 2003 RAWP indicated that post excavation soil gas samples would be collected through hand-drilled probes. Consistent with current standard practice, these probes were installed as temporary soil gas sample point using Geoprobe direct-push rig. As requested by the laboratory to maintain sample integrity, the soil gas samples submitted for laboratory analysis were collected in a laboratory-supplied summa canister and not in Tedlar bags.
- Section 5.0 of the QAPP attached as Appendix E to the August 2003 RAWP indicated that a DUSR would be prepared to assess data quality. As discussed with NYSDEC in meetings on May 24, 2005, since ASP Category B deliverables were provided by the laboratory, no DUSR was necessary for newly-collected data. The quality assurance samples (field and trip blanks) were reviewed as discussed in Section 4.4.1.

4.10 COSTS

Detailed costs incurred to date are included in Appendix N. Work associated with the remediation included the following:

- Remedial investigation activities;
- Engineering and remedial action plan development;
- Environmental oversight and monitoring;
- Remedial construction;
- Transportation and disposal of contaminated soil and liquids;

- Importing of clean fill; and
- Preparation of remediation close-out documents.

4.11 SITE MANAGEMENT PLAN

A Site Management Plan (SMP) was prepared to manage residual contamination on Parcel 1 and is included on a CD attached in Appendix A. The SMP describes procedures and protocols for post-remediation disturbance of soil and groundwater during future maintenance activities and long-term use. The SMP includes four plans: an Engineering and Institutional Control Plan for implementation and management of institutional and engineering controls; a Monitoring Plan for implementation of site monitoring; an Operation and Maintenance Plan for implementation of the remedial cover and the groundwater monitoring system; and a Site Management Reporting Plan for submittal of data, information, recommendations and certifications to NYSDEC. Attachments to the SMP include a Soil Management Plan and Construction Health and Safety Plan, which further detail procedures for work in residual contaminated areas.

TABLES

FIGURES

APPENDIX A

FILES OF MAJOR PROJECT DOCUMENTS
(2 CDS)

APPENDIX B

PARCEL 1 METES AND BOUNDS

APPENDIX C

LABORATORY ANALYTICAL REPORTS
(2 DVDS)

APPENDIX D
ENVIRONMENTAL EASEMENT (CD)

APPENDIX E

RESUMES OF PROJECT STAFF
(CD)

APPENDIX F

REMEDIATION-RELATED PERMITS AND APPROVALS

APPENDIX G

AIR MONITORING LOGS
(CD)

APPENDIX H

DAILY AND MONTHLY REPORTS
(CD)

APPENDIX I

REMEDIATION PHOTOGRAPHS AND PHOTO LOG
(DVD)

APPENDIX J
TANK REMOVAL DOCUMENTATION

APPENDIX K
LIQUID WASTE DISPOSAL DOCUMENTATION

APPENDIX L

SOLID WASTE DISPOSAL DOCUMENTATION (DVD)

WASTE HAULER PERMITS
DISPOSAL FACILITY APPROVAL LETTERS
FACILITY PERMITS
WASTE MANIFESTS

APPENDIX M

IMPORTED BACKFILL BILLS OF LADING
(CD)

APPENDIX N

REMEDIAL AND DEVELOPMENT COSTS