Remedial Action Report for Soils and Building Floor Decontamination

for the

Jackson Steel Superfund Site, Mineola, New York

Prepared for:
U.S. Environmental Protection Agency Region II
290 Broadway, New York 10007

Prepared by:

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Prepared under:
Region 10 AES Contract Number 68-S7-04-01.
EPA Task Order 0013-RD-RD-02NT

September 24, 2008

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1.0 Introduction

This document represents the Final Remedial Action Report for Soils and Building Floor decontamination following completion of the soil remedy at the Jackson Steel Superfund Site located in Mineola, New York. This Remedial Action Report (RAR) was prepared following a final site inspection of the constructed facilities, conducted with Mr. Christos Tsiamis from EPA, Mr. Joe DeFranco and Mr. Robert Weitzman of NCDOH, and Mr. Andy Judd from CH2M HILL on September 29, 2008.

2.0 Background and Site Description

The Jackson Steel Superfund Site (site) is an inactive metal-forming facility located at 435 First Street, Mineola, North Hempstead, Nassau County, NY 11501. The Superfund Site Identification Number for the site is: NYD0001344456.

The entire site is approximately 66,000 ft^2 (1.5 acres) and consists of one building with a paved parking area. The building is divided into two sections: the front, which is approximately 12,500 ft^2, and the back, which is also approximately 12,500 ft^2. The parking area (approximately 10,000 ft^2) is behind the building. With the exception of long rectangular areas of unpaved soil (nominally approximately 3 feet wide) along the west wall of the back section of the building, the entire parking area was paved before the start of the remedial activities. A paved access driveway borders the west side of the front section of the building and leads to the parking area in the rear. A narrow unpaved area is present along the entire length of the east side of the building between the Jackson Steel building and the wooden fence separating it from the neighboring Richlee Court apartment complex. The loading dock within the building contains a single dry well, referred to as DW-1. The parking area contains two more dry wells, DW-2 and DW-3.

The former Jackson Steel Products, Inc. company used the property to form metal shapes from metal sheeting. It is not known when Jackson Steel Products began operating, however the earliest known records from the site are from 1977. Applications on-file with the Nassau County Department of Health indicate that trichloroethylene (TCE) was used at the site. Other degreasers that appear to have been used include perchlorethylene (PCE, synonym tetrachloroethylene) and 1,1,1-trichloroethane (1,1,1-TCA) as well as petroleum lubricants. Jackson Steel Products, Inc. ceased operations in 1991 and filed for Chapter 11 bankruptcy. The main contaminants of concern (COCs) identified for the site were TCE, PCE, and 1,1,1-TCA and related degradation products.

A Remedial Investigation (RI) and Feasibility Study (FS) were conducted at the site and supported the Record of Decision (ROD), which was signed by the EPA on September 24, 2004.

The selected remedy described in the ROD included the following activities relative to the soils:

- Excavation of the surface soils located near the building which are contaminated with volatile organic compounds (VOCs), semi-volatile organic compounds, pesticides and metals and excavation of the contents of the two dry wells and sump located outside the building and the dry well, sumps, and trench located inside the building.

- Treatment of the VOC-contaminated unsaturated subsurface soils using in-situ vapor extraction (SVE) in on-property source areas and underneath two adjacent affected buildings.

This RAR describes the construction of the above remedial activities at the site and the sampling performed to confirm that the established cleanup goals were achieved.

3.0 Chronology of Events

The construction activities for the soil remedy were completed in phases. Each phase is briefly described below with more detailed discussion of the activities presented in Section 5: Construction Activities.

Before construction activities began, all team members reviewed the site-specific Health and Safety Plan (HASP) and the planning documents developed for the respective remedial activities (e.g., Sampling and Analysis Plans (SAPs), construction specifications, and other design documents). Construction activities were performed in accordance with these documents; where deviations were needed to address encountered field conditions, these were noted in the various technical memoranda prepared to document the implementation of these remedial activities.

3.1 SVE Pilot Test Design and Implementation

The Phase 1 SVE Pilot Test Design Basis report was completed in February 2005. A pilot test of the SVE technology was performed at the site between March 21st and March 25th, 2005. The pilot test objectives were to identify the design parameters for the full-scale SVE system.

3.2 Full-scale SVE Design and Construction

Preparation for the installation of the full-scale SVE system included the development of the Phase 2 Soil Vapor Extraction Design Basis. This document identified the design parameters for the full-scale system including and associated regulatory permit requirements. The layout of the full-scale system provided treatment coverage of the areas identified for remediation in the FS completed for the site.

The full-scale SVE system was constructed between July 19th and July 28th, 2005. Wells previously installed as part of the pilot test were incorporated into the full-scale system. On July 29th, 2005, the operation of the full-scale SVE system began and it has continued to date without major repairs or incidents.

In August 2008, the SVE system was expanded to provide additional coverage within the Jackson Steel building where elevated subslab vapor concentrations, believed to be residual concentrations trapped underneath the building floor, had been measured during a recent soil gas sampling event.

3.3 Full-scale SVE Operation and Monitoring

A baseline sampling event was performed in July and August 2005 before the start-up of the system to document baseline conditions before beginning remedial activities. This sampling was followed by monthly sampling events with the frequencies adjusted based on sampling results and SVE system operational specifics.

Sampling locations were also added over the duration of system operation to provide the data needed to assess its effectiveness. To date, 17 rounds of performance sampling have been conducted to assess system performance.

Equilibrium vapor sampling was performed as part of system operations on February 20 through 23, 2006 and again on October 4 and 5, 2007 after approximately 26 months of SVE operation. The sampling results were used to assess the performance of the SVE system relative to the established goals.

3.4 Excavation of Shallow Soils, Excavation and Rehabilitation of the Dry Wells, and Decontamination of the Building Floor

Remedial construction activities consisting of the following were performed from October 2005 to February 2006:

1. Soil excavation
2. Confirmatory soil sampling
3. Pavement / floor replacement
4. Dry well excavation and rehabilitation
5. Decontamination of the building floor

These activities were performed in the following areas of the site:

- East Boundary (Area 1)
- East Strip (Area 2)
- South Strip (Area 3)
- SB-9, adjacent to the building
- Sump 1, inside the building
- Sump 2, outside the building
- Indoor Trench, inside the southwest corner of the building
- Dry Well 1 (DW-1), inside the building loading dock
- Dry Well 2 (DW-2), north end of parking lot
- Dry Well 3 (DW-3), south end of parking lot

4.0 Remedial Action Objectives, Performance Standards and Quality Control

The ROD included the following Remedial Action Objectives (RAOs) relative to the soils:

- Minimize or eliminate contaminant migration from contaminated soils and dry wells to the groundwater;

- Minimize or eliminate any contaminant migration from contaminated soils and groundwater to indoor air;

- Reduce or eliminate any direct contact, ingestion, or inhalation threat associated with contaminated soils, soil vapor, contaminated surfaces in the on-property building, and groundwater.

The soil cleanup objectives established for the soils were the NY State TAGM guidelines (Technical and Administrative Guidance Memorandum (TAGM) 4046, Determination of Soil Cleanup Objectives and Cleanup Levels, January 24, 1994). The cleanup objective for the building floor as "no visual dust". Of note, in the time since the building was cleaned 2 yrs ago, new "fresh" dust has accumulated on the building floor. This is not considered contaminated media from historical site activities.

The construction and quality control requirements related to each phase of construction activities are described in the relevant project planning documents including the Sampling and Analysis Plan; Construction Quality Control Plan; Remedial Action Excavation and Building Decontamination Site Management Plan; Indoor Air and Community Monitoring Plan; and the site specific Health and Safety Plan. These documents describe the methods and standards, inspection, monitoring and documentation requirements which were used to support the quality of the performed activities.

Confirmatory sampling was performed to monitor the effectiveness of the implemented remedial activities. The project planning documents describe the confirmatory sampling frequency, associated quality control / quality assurance samples, and the field and laboratory analytical protocols. Based on the sampling results, changes to the confirmatory sampling frequency / number of samples were made to better monitor the progress and effectiveness of the performed remedial activities.

5.0 Construction Activities

The construction activities completed during the remedial activities are discussed below. The construction activities involving soil excavation, pavement / floor repair, dry well rehabilitation and decontamination of the building floor have been completed and all associated equipment has been removed from the site. The construction of the SVE system has also been completed and the system is currently operational at the site. Permanent system construction features currently found at the site include SVE extraction wells and Vapor Monitoring Points (VMPs) and associated piping connecting the wells to the SVE equipment. The SVE equipment, rented through a commercial vendor, is situated in a temporary trailer staged within the building.

5.1 SVE System

5.1.1 SVE Pilot Test Design and Implementation

The first step in achieving the remedial action objectives for soil vapor described in the ROD was to implement a SVE pilot test and develop a design basis for the full scale system.

Prior to the initiation of the pilot test activities, a monitoring plan was developed for indoor air and the community. No air action level exceedances were measured throughout the duration of the pilot test.

A design basis was developed for the pilot test and no air permits were determined to be required. The pilot test was conducted between March 21st and March 25th, 2005 and included the following:

1) A total of four SVE wells (SVE-1 to SVE-4) and eight vapor monitoring points (VMP 1 through 8, each with shallow, intermediate, and deep screened zones) were installed in the parking area to the southwest of the Jackson Steel building. The locations were selected to provide an initial coverage of the area targeted for remediation such that these extraction wells and VMPs could then be incorporated into the full-scale SVE system for the site.

2) SVE Equipment was procured through commercial vendors and mobilized to the site. The equipment included SVE trailer-mounted equipment and two Granular Activated Carbon (GAC) vessels connected in series. Emissions from the SVE system were discharged through a pipe from the effluent of the lag GAC vessel.

3) Vapor extraction testing was conducted at each of the four SVE wells.

Samples from the extracted vapor were collected and the flow was monitored during the test to develop VOC mass removal estimates. The total mass of COCs removed during the pilot test was estimated to be 223 grams, or approximately one-half pound.

The results of the pilot test indicated that the radius of effective air exchange (Re) for an SVE well at the Jackson Steel site operating at 60 scfm is 42 feet, and the Re for 300 scfm is 94 feet. Both of these flow conditions also achieved sufficient pore gas velocity at the Re. The Re is lower than the radius of vacuum influence (ROI), which was greater than 74 feet at 60 scfm, and therefore the Re was used to design the well layout for the full-scale SVE system.

Extracted vapors were treated with GAC to decrease VOC concentrations prior to discharge to the ambient atmosphere. Treatment efficiencies were typically 97.5% or higher during the pilot test and provided the basis for treatment efficiencies used to estimate the emissions from the full-scale system.

At the end of the pilot test, all equipment was demobilized and a total of four SVE wells and eight VMPs remained onsite.

5.1.2 Full-scale SVE System Design and Construction

The full-scale SVE system was designed and constructed to meet the specific Remedial Action Objectives to:

- Minimize or eliminate any contaminant migration from contaminated soils and groundwater to indoor air;

- Reduce or eliminate any direct contact, ingestion, or inhalation threat associated with contaminated soils, soil vapor, contaminated surfaces in the on-property building, and groundwater.

The full-scale system SVE system was constructed between July 19th and July 28th,2005 and included the following:

1) Installation of a total of five additional SVE wells (SVE-5 to SVE-9) and three additional VMPs (VMP-9 through VMP-11). These wells supplemented the pilot test wells to provide vapor extraction and monitoring coverage over the area targeted for remediation. This area includes a section of the Jackson Steel site (parking lot and the section of the building where historic sources - dry well DW-1 and the trench - were located) and the neighboring former Tutor Time and Dollar Experience buildings. Two different SVE well types were installed: 1) two high flow (300 scfm) wells in the areas around the Tutor Time and Dollar Experience buildings (SVE-8 and SVE-9) to provide large radial influence under these buildings, and 2) seven moderate flow (60 scfm) wells in areas with open site access (SVE- 1 through 7). Combined, these wells were designed to achieve 1,000 pore volume exchanges within 2 years of operation.

2) Mobilization to the site the SVE process equipment including a manifold, air/water separator, blower, and GAC vapor treatment vessels. All process equipment, except the GAC vessels, is housed in an insulated, fully enclosed trailer. The trailer and the GAC vessels are located inside of the Jackson Steel building. A discharge vent was installed along the outside wall of the building. The large vacuum blower operates to remove more that 1,000 cubic feet per minute of vapor from the subsurface and maintains a net negative pressure in the subsurface while operating.

3) Connecting the SVE wells and the process equipment with piping. Piping in areas outside of the Jackson Steel building was installed below ground in trenches. Piping inside the building was installed above grade on the concrete floor slab. Each SVE well was individually plumbed with dedicated piping to the SVE system to allow adjustments to flow rate and vacuum at the manifold. Aboveground piping was subsequently heat-traced to prevent freezing of condensate during the winter months.

On July 29th, 2005, the operation of the full-scale SVE system began and has continued to operate to date without major repairs or incidents. To date, a total of 19,312 hours of operation have been logged with a total of 6,924 hours of down time due to condensate accumulation, GAC change-out, and planned down time for equilibrium sampling. Based on these results, the SVE system has been operating at full design specifications with greater than a 95% run time efficiency since its start-up.

No air permits were determined to be required for the full-scale system operation. The Phase 2 Soil Vapor Extraction Design Basis report estimated the effluent VOC concentrations from the SVE system after GAC treatment and compared these concentrations to regulatory emissions criteria to determine if emissions are expected to be within acceptable regulatory levels. Maximum actual annual impact (C_a), maximum potential annual impact (C_p), and maximum short-term impact (C_{st}) concentrations were calculated in accordance with 1997 DAR-1 Guidelines for the Control of Toxic Ambient Air Contaminants (NYSDEC, 1997). These values were compared to Short-Term Guideline Concentrations (SGCs) and Annual Guideline Concentrations (AGCs) obtained from the DAR-1 (Air Guide – 1) AGC/SGC Memorandum (NYSDEC, 2003). The comparison showed that C_a and C_p is less than the AGC and C_{st} is less than the SGC for all contaminants expected to be present in the treated vapor stream. In addition, the worst-case annual cavity impact (Cc) and the worst-case short-term cavity impact (Ccst) were calculated and were below the AGC and SGC, respectively, for all compounds expected to be present in the treated vapor stream. Therefore, vapor extracted and treated using GAC during the full-scale SVE system operation was determined to meet NYSDEC air criteria. A Letter of Notification of SVE System Operation was submitted to the NYSDEC (Mr. Sean Snee, NYSDEC, Division of Air Resources, Region 1 Air Pollution Control Program, dated May 9, 2005) describing the estimated emissions and the basis for the determination that an air emissions permit will not be required .

All wastes generated during the pilot test and full-scale SVE system construction and operation were managed and disposed appropriately at offsite EPA-approved disposal facilities.

In August 2008, the SVE system was expanded to provide coverage within the Jackson Steel building where newly-added subslab monitoring points had indicated elevated soil gas concentrations of COCs below the concrete building floor. The expansion included 2 SVE wells (SVE-10 and SVE-11) and associated aboveground piping connecting the wells to the system. Presently, 11 SVE wells, 11 VMPs, and aboveground and underground piping exist at the site.

5.1.3 Full-Scale SVE System Operation and Sampling

Operation and Maintenance (O&M)

Long-term O&M activities include the following:

- Recording SVE well flow rates, vacuum readings, and system performance readings
- Collecting SVE field screening data at various points of the system
- Recording VMP and SVE wells pressure readings
- Collecting samples from the SVE system influent and effluent for laboratory analysis for COCs to assess the need for GAC change-out

Technical memoranda are prepared on a semi-annual basis to document the operation and maintenance activities and the performed monitoring.

Subslab and Soil Gas Routine Sampling

Since system start-up, the following samples have been collected to monitor the performance of the system and to assess the progress towards realizing the remedial objectives of minimizing or eliminating contaminant migration from soil and groundwater to indoor air:

- Sub-slab vent samples – Samples from up to three sub-slab vents located around Tutor Time and from the one sub-slab vent adjacent to the Dollar Experience (vent located in the Jackson Steel parking lot).
- Soil gas samples - Samples from soil gas monitoring ports have been collected from 5 sampling ports in the former Tutor Time building (corresponding to the indoor air sampling locations within the building) and from 8 sampling ports in the Jackson Steel building.
- Indoor air samples – Samples from up to 17 locations on the Jackson Steel site and offsite (depending on available access) have been collected over the duration of SVE system construction and operation. These locations are in the boiler room of the Richlee Apartments complex, from the Jackson Steel parking lot (ambient air), in the Dollar Experience, in Tutor Time, and in the neighboring office building.

Thirty five (35) rounds of indoor air sampling have been conducted since the startup of the SVE system to the time of preparation of this report. The number of samples collected during each event has varied depending on access and system operational specifics.

The results of the performed sampling are summarized in monthly data summaries and in a series of semi-annual technical memoranda detailing the operation and maintenance of the system.

Equilibrium Evaluations

The SVE system has been operational at the site since July 29th, 2005. At various times since its start, operation has been intentionally discontinued to allow for equilibrium conditions to be achieved. Sampling was then performed to assess subslab and indoor air concentrations.

Equilibrium vapor sampling was performed on February 20 through 23, 2006 and again on October 4 and 5, 2007 after approximately 26 months of SVE system operation.

The objectives of both sampling events were the following:

- Determine the concentrations of COCs in the subsurface vapor during SVE system shutdown and at near-equilibrium conditions after extended system operation;
- Estimate the residual COC concentrations in soil and pore water through partitioning models;
- Compare estimated pore water COC concentrations to actual groundwater COC concentrations; and
- Assess system performance and develop recommendations for SVE system operation based on the COC concentrations that are estimated to remain in soil.

5.1.4 Effectiveness of SVE in Achieving RAOs

The operation of the SVE system has met the RAOs for the treatment of soils established in the ROD. Concentrations of COCs in subsurface soils have been detected and calculated to be below the TAGM cleanup objectives established in the ROD. The results of the equilibrium sampling and groundwater partitioning calculations suggest that vapor concentrations remaining in the subsurface vadose zone could be attributed to the low concentrations of COCs remaining in groundwater in the upper aquifer beneath the site and may not be directly attributable to residual contamination in the vadose zone soils in the former source areas. As a result, the SVE system will continue to operate until the groundwater vapors are reduced to levels that achieve the remedial objective of minimizing or eliminating migration to indoor air.

5.2 Soil and Dry Well Excavations

5.2.1 Excavation of Shallow Soils, Excavation and Rehabilitation of the Dry Wells, and Decontamination of the Building Floor

Remedial construction activities were performed between October 2005 and February 2006 and consisted the following:

- Shallow soil and dry well sediment excavation
- Confirmatory soil sampling
- Pavement /building floor replacement
- Dry well excavation and rehabilitation
- Building floor decontamination
- Confirmatory building floor wipe sampling

The areas where soils were excavated at the site include:

- East Boundary (Area 1)
- East Strip (Area 2)
- South Strip (Area 3)
- Area around SB-9, driveway adjacent to the building
- Sump 1, inside the building
- Sump 2, outside the building
- Indoor Trench, inside the building
- Dry Well 1 (DW-1), inside the building loading dock
- Dry Well 2 (DW-2), north end of parking lot
- Dry Well 3 (DW-3), south end of parking lot

During excavation activities, environmental controls were employed to prevent offsite migration of soils, dust, and waste water. All wastes were transported offsite to EPA-approved disposal facilities.

Air monitoring was conducted during the remedial activities to document that these were performed in accordance with the Community Monitoring Plan.

A Movement Monitoring Plan was implemented to monitor the potential movement (i.e., destabilization) of permanent structures and to verify the integrity and stability of nearby structures including the Jackson Steel building walls and dry wells.

Excavation of the target areas was performed in stages or lifts with post excavation confirmatory sampling performed between lifts and compared to the NYSDEC TAGM guidance levels to determine if additional excavation was required. The analytical results were provided with expedited turn-around time and were used to determine the terminating point for the excavation activities. A summary of the volume of soil removed from each excavation area is provided in Table 1.

Table 1
Summary of Excavation Removal Volumes
Jackson Steel,
Mineola, New York

Location	Excavated Quantity (cubic yards)
East Boundary (Area 1)	25
East Strip (Area 2)	37.5
South Strip (Area 3)	1.2
Area SB-9	2.4
Sump 1 (Indoor)	0.11
Sump 2 (Outdoor)	0.6
Indoor Trench	76.5
DW-1	3.7
DW-2	13.2
DW-3	10.2
Total	**170.41**

Shallow excavation occurred at Areas 1, 2, and 3, location SB-9, and the indoor trench. In these areas, the existing asphalt or concrete was removed prior to excavation and excavation was performed with confirmatory sampling. Upon completion of the excavation, certified clean fill was backfilled and compacted in each area. Asphalt or concrete was then used in each area to return the area back to the original grade.

Remediation of the dry wells consisted of removing approximately 2 to 4 feet of sediment from the bottom of the dry well. This organic rich, silty-clay compost had accumulated in the well from surface debris washed into the dry well. The removal of native soil below the compost proceeded until post excavation confirmatory samples met the project requirements. Certified clean fill was then backfilled in each dry well to replace the void created by soil removal.

Two sumps at the site were addressed during the remedial construction activities. Sump 1 is located inside the building and Sump 2 is located outside the building to the north. Debris was removed from within concrete-lined Sump 1 which was followed by power washing. Native soil was removed from the earthen-bottomed Sump 2 and replaced with clean fill.

Upon completion of the above activities, the building floor was swept to remove pigeon waste, vacuumed to remove gross particulate contamination, and then power washed to remove residual material. Wipe samples were collected and compared to the desired cleanup level specified in the ROD to document the effectiveness of the cleaning.

5.2.2 Effectiveness of Soil and Dry Well Excavation and Building Floor Decontamination in Achieving RAOs

The soil and dry well excavation activities and the building floor decontamination met the RAOs established in the ROD for these media. Concentrations of COCs on the building floor surface, in soils and dry wells are below the TAGM cleanup objectives established in the ROD. In a few locations alternative field condition criteria for certain SVOC compounds had to be established because of encountered site conditions[1].

6.0 Remedial Action Construction Inspection

A construction inspection of the site condition and remedial systems was performed on September 29, 2008. The inspection was conducted by the EPA Project Manager, Mr. Christos Tsiamis, Mr. Joe DeFranco and Mr. Robert Weitzman of NCDOH, and CH2M HILL's Assistant Project Manager, Mr. Andy Judd.

At the time of the inspection, the following features were present at the site:

- 11 SVE wells
- 11 VMP (one shallow, intermediate, and deep interval per location)
- 13 subslab soil gas sampling points
- 4 subslab sampling vents
- SVE equipment trailer and GAC units (rented)
- Associated SVE above ground and below ground conveyance piping, including the discharge stack

The portable equipment used during soil excavation had been removed from the site upon completion of these activities.

7.0 Certification that Remedy is Operational and Functioning

At the time of the construction inspection and preparation of this report, the soil excavation, pavement / floor repair, building floor decontamination, dry well rehabilitation, and SVE system construction had been completed and the SVE system is operational at the site.

The soil and dry well excavation activities met the RAOs established in the ROD for these media. [1]

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[1] In Area 3, the concentrations of the SVOC compounds Benzo(a)anthracene and Benzo(a)pyrene were estimated at 280 ug/Kg (TAGM: 224 ug/Kg) and 290 ug/Kg (TAGM: 61 ug/Kg) respectively at the sidewall of the excavation right below the existing concrete footer for the building wall. At location SB-9, the concentration of Benzo(a)pyrene at the bottom of the excavation had an estimated value of 64 ug/Kg, slightly above the TAGM value of 61 ug/Kg. Finally, excavation at dry well DW-2 had to be terminated at 21 feet below grade to avoid collapse of the dry well structure. At the bottom of the excavation, SVOC compound Chrysene was detected at 490 ug/Kg (TAGM: 400 ug/Kg).

The SVE system has been operational at the site since its start-up in July 2005. At the time of preparation of this report, the SVE system is estimated to have removed approximately 1,300 pore volumes exchanges (PVE) for SVE wells 1-7, and 1,100 PVEs for SVE wells 8 & 9. Approximately 60.4 pounds of COCs have been removed to date.

The construction and operation of the SVE system has met the RAOs established in the ROD. The observed performance of the SVE system since the start of its operation indicates that it is effectively removing COC's from the subsurface vadose zone. The results of the equilibrium sampling and groundwater partitioning calculations suggest that vapor concentrations remaining in the subsurface vadose zone could be attributed to the low concentrations of COCs remaining in groundwater beneath the site and may not be directly attributable to source area contamination in the vadose zone soils. Based on these results, SVE system operation is being continued until vapor levels are reduced such that they achieve the RAOs.

8.0 Operation and Maintenance

Operations and maintenance of the SVE system will continue until vapor levels are reduced such that they achieve the RAOs. The frequency and locations for sample collection may be adjusted based on future analytical results.

9.0 Summary of Project Costs

The construction costs are presented below.

- SVE system construction - $470,100
- SVE system operation - $874,000
- Excavation of shallow soils, excavation and rehabilitation of the dry wells, and decontamination of the building floor - $771,400