FINAL REMEDIATION REPORT

CONSTRUCTION CONTRACT NO.: D004647

WORK ASSIGNMENT D004440-15.1

100 OSER AVENUE SITE
HAUPPAUGE (T)

SITE NO. 1-52-162
SUFFOLK (C), NY

Prepared for:
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway, Albany, New York

Alexander B. Grannis, Commissioner

DIVISION OF ENVIRONMENTAL REMEDIATION

URS Corporation
77 Goodell Street
Buffalo, New York 14203

March 2008

STATE SUPERFUND WORK ASSIGNMENT D004440-15.1
REMEDIAL CONSTRUCTION CONTRACT NO. D004647

FINAL REMEDIATION REPORT
FOR SOIL VAPOR EXTRACTION (SVE) SYSTEM OPERATION

FOR

100 OSER AVENUE SITE OU No. 1

SITE No. 1-52-162

HAUPPAUGE, NEW YORK

SUBMITTED BY:

URS CORPORATION
77 GOODELL STREET
BUFFALO, NEW YORK 14203

MARCH 2008

CERTIFICATION
OF
CONSTRUCTION QUALITY ASSURANCE

AT

100 OSER AVENUE SITE OU NO. 1
REMEDIAL ACTION CONSTRUCTION
HAUPPAUGE, NEW YORK
CONTRACT NO. D004647

URS Corporation's (URS's) personnel provided oversight of the remedial system operation at the 100 Oser Avenue Site OU No. 1 according to generally accepted practices. Based on field observations made by on-site personnel, field and laboratory test data, and data provided by the Contractor and its subcontractors, my professional opinion is that the remedial system operation at the site has been performed in substantial conformance with the July 2003 New York State Department of Environmental Conservation (NYSDEC) approved Contract Documents (Contract No. D004647).

This report covers only the contract items related to the operation and maintenance of the SVE treatment systems at 100 Oser Avenue and 110 Oser Avenue, generally the work associated with original Pay Items 7 through 10, Change Order No. 1 Pay Items 12 – 14, and 17, and all Pay Items from Change Order No. 2.

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Signature

MARCH 2008

TABLE OF CONTENTS

LIST OF TABLES (FOLLOWING TEXT)

LIST OF FIGURES (FOLLOWING TABLES)

APPENDICES

ACRONYMS AND ABBREVIATIONS

cfm	cubic feet per minute
GAC	granular activated carbon
IRM	Interim remedial measure
µg/m^3	micrograms per cubic meter
mg/m^3	milligrams per cubic meter
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operation & maintenance
OU	operable unit
PCE	perchloroethylene (tetrachloroethylene)
PCO	potential change order
PID	photoionization detector
ppm	parts per million
RFI	Request for Information
RI/FS	Remedial Investigation / Feasibility Study
ROD	Record of Decision
SVE	soil vapor extraction
URS	URS Corporation

FINAL REMEDIATION REPORT
100 OSER AVENUE SITE OU No. 1
NYSDEC SITE NO. 1-52-162
CONTRACT NO. D004647

1.0 INTRODUCTION

This report documents the remedial activities completed under New York State Department of Environmental Conservation (NYSDEC) Contract No. D004647 at the 100 Oser Avenue OU No. 1 Site. URS Corporation (URS) provided engineering and oversight services for the operation phase of this contract under NYSDEC Work Assignment Nos. D003825-66 and D004440-15.1. The Contractor for the duration of the contract was Envirotrac, Ltd. (Envirotrac) from Ronkonkoma, New York.

1.1 Scope of Report

This Final Remediation Report was prepared in accordance with Task 5 – SVE Operation and Maintenance (O&M) Oversight of the *Amendment Request – Construction Management, Investigation, and Design* (URS, 2006), and as requested by the NYSDEC. The report evaluates and certifies the work performed by the Contractor, verifies that the work was performed in accordance with the Contract Documents, and includes a description of all variations from the Contract Documents.

This report covers only the period of the contract associated with the operation and maintenance of three soil vapor extraction (SVE) systems; generally the work associated with original Contract Pay Items 7 through 10, new Pay Items 12 through 14 and 17 added through Change Order No. 1, and all Pay Items added through Change Order No. 2. The period of operation covered by this report is from September 29, 2004 through May 1, 2007. In addition to certifying the operation phase of this project, this report also evaluates the performance of the SVE systems and summarizes the SVE system operation under Contract No. D004647.

Two certification reports for the construction portions of the contract were prepared by Shaw Environmental, Inc. and submitted to the NYSDEC in June 2005. One report was submitted for the construction work included in the original contract documents, and a second report submitted for the construction work included in Change Order No. 1.

1.2 Site Description and Background

1.2.1 Site Description and History

The 100 Oser Avenue site, Operable Unit No. 1 (OU1), is located in the Heartland Industrial Park, immediately south of a residential area, in the Town of Hauppauge, Suffolk County, New York. The site includes the 100 Oser Avenue property, as well as two adjacent properties: 110 Oser Avenue and 90 Oser Avenue. Commercial/light industrial facilities are located east, west, and south of the site.

The remedial activities described in this report took place at the 100 and 110 Oser Avenue properties. Each property is developed with a one-story masonry building, 24,000 and 61,000 square feet in size, respectively. The remaining site areas consist of paved parking lots, driveways, grass-covered areas along Oser Avenue, and a wooded area along the northern property.

At the site, the ground water table is encountered approximately 70 feet below the ground surface. The ground water flows to the northeast, towards the New Mill Pond, located approximately 6,000 feet from the site.

Aerial photographs show that OU-1 was undeveloped and wooded in 1968. The next available photographs indicated that by 1976 OU-1 was developed to include the building at 100 Oser Avenue. The building was first owned by Vanderbilt Associates who leased it to Sands Textile Corporation (Sands). Sands used the 100 Oser Avenue property from 1975 to 1985.

The operation of the Sands textile facility included the use of tetrachloroethylene (PCE) to dry clean finished products. PCE was likely disposed into the storm water drainage system and into the septic system. Anecdotal evidence suggests that PCE was also disposed via roof drain cleanouts and open pits in the floor of the facility.

Two aboveground PCE storage tanks and one underground fuel oil storage tank were located at the site. These tanks may have leaked. The tanks were removed in 1985, when the property was sold to Mr. Anwar Chitayat, who expanded his business from the adjacent 110 Oser Avenue property.

1.2.2 Description of Remedial Actions

In 1998, the NYSDEC listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment, and where action is required.

The remedial investigation of the 100 Oser Avenue site, Operable Unit 1 (OU1), was completed in two stages. The first phase was conducted from March 1999 to October 2000. The second phase of the RI took place between October 2000 and May 2001. The RI activities are described in the Remedial Investigation Report, October 2000 and Phase II Remedial Investigation Report, May 2001.

A second operable unit (OU2) was defined in November 2000, when significant groundwater contamination was found outside of the 100 Oser Avenue property during Phase II of the OU1 Remedial Investigation. OU2 consists of the downgradient (northern) residential properties. This report does not contain further discussion of OU2.

A Record of Decision (ROD) for OU1 was signed in March 2002. The Remedial Action for OU1, as outlined in the ROD, requires that the existing SVE systems be operated to remediate soil and soil gas at the source area, in addition to preventing further migration to indoor air. A second major component of the OU1 Remedial Action requires that in-situ chemical oxidation be applied as

a method for the remediation of groundwater contamination. That construction was completed under NYSDEC Contract No. D005386. A separate *Final Remediation Report* for Contract No. D005386 was submitted by URS in October 2007.

Remedial actions at 100 Oser Avenue first began in April 2000, when 11 cubic yards of contaminated soil and water were removed from the septic system and the storm drainage structures on the 100 Oser Avenue property. In September 2000, the first interim remedial measure (IRM #1), consisting of a soil vapor extraction (SVE) system, was installed to extract PCE from the western side of the 100 Oser Avenue building. A second IRM (IRM #2), the subject of this report, became operational in September 2004. IRM #2 consists of two SVE systems, installed underneath buildings both at the 100 and 110 Oser Avenue properties. These SVE systems were intended primarily to function as sub-slab depressurization systems (as opposed to source removal) to address concerns with indoor air concentrations of PCE.

In conjunction with the installation of the IRM #2 SVE systems included under the original contract, a change order was issued for rehabilitation of the SVE system installed under the first IRM at the 100 Oser Avenue building. The primary function of this system is remediation of the source area. Operation of the rehabilitated IRM #1 SVE system also is discussed in this report.

1.3 Operation Oversight

Due to the nature of the SVE system operation, URS conducted only limited oversight of the actual SVE system operation. On-site observations were conducted "as-needed," but also when URS was on site in conjunction with other remedial activities, i.e., oversight of the in-situ oxidation remedial contract.

Other than the actual site visits, URS relied on information submitted by Envirotrac, including monthly Operation and Maintenance Status Reports, field logs e-mailed following site visits, and daily status reports that are automatically generated by the control panels for each of the IRM systems on a daily basis, and upon the occurrence of an alarm condition. Envirotrac was

required to visit the site once per week throughout the year, and as required for any unscheduled system shutdowns.

2.0 SUMMARY OF CONTRACT ISSUES

This section summarizes all variations, modifications, and final quantities from the original Contract Documents, as they relate to the operation of the SVE systems.

2.1 Submittals

Envirotrac submitted Operation and Maintenance (O&M) Summary Reports to URS and the NYSDEC on a monthly basis as required by the Contract Documents. All reports were reviewed by URS in a timely manner. The monthly O&M reports also included information submitted to URS via e-mail on a more frequent basis such as the monthly field logs, alarm reports, and weekly photoionization detector (PID) readings collected from the influent and effluent of the granular activated carbon (GAC) units on the exhaust of the SVE systems. A total of 31 reports, dating from October 2004 through April 2007 were submitted. No other submittals were required under the O&M portions of the contract.

2.2 Change Orders and Contract Modifications

Two change orders were issued over the duration of this contract. Copies of both change orders are included in Appendix A. Change Order No.1 was issued in May 2005 during the construction phase of the project. This change order included several items related to the operation of the SVE systems. These items included O&M of the IRM #1 system, an additional year of operation for the IRM #2 systems, and other pay items related to the changeout and disposal of the GAC for the SVE systems.

The NYSDEC and Envirotrac prepared Change Order No. 2 in 2006 at the end of the 24-month operating period included under the original contract. Change Order No. 2 was a no cost change order that extended Envirotrac's operation of the three SVE systems for an additional seven months (October 2006 through April 2007) using funds that remained unspent in the existing

contract. The additional seven months operation were negotiated on a reduced scope of work at a monthly rate that was agreed to between the NYSDEC and Envirotrac.

Other than the two Change Orders, there were no contract-related items (including RFIs and PCOs) issued for the operation phase of this contract.

A substantial completion letter for the O&M portion of the work was issued by URS to Envirotrac on May 1, 2007. Envirotrac has continued to operate the SVE systems following substantial completion; this work is being conducted through a separate contract with the NYSDEC.

2.3 Final Quantities and Costs

The Remedial Action, including both construction and operation, was performed under one contract, awarded by the NYSDEC to the approved low bidder of EnviroTrac from Ronkonkoma, New York, for an original contract amount of $868,230.00. Change Order No. 1 (issued in May 2005) increased the amount of the contract by $287,547.72, bringing the total contract amount to $1,155,777.72. The final cost of the work by Envirotrac was $1,154,073.32

Tables 2-1A and 2-1B compare the originally estimated bid costs and quantities to the actual costs and quantities incurred over the course of the contract. The only pay items that differed were those associated with the changeout of carbon for the three systems. The determination of when to change carbon is highly variable and site-specific, and thus impossible to predict with any accuracy. At the end of the first two years of system operation, an amount of $103,425.05 associated with Pay Items #13 and #14 (carbon changeouts) remained unused. A change order (No. 2) was negotiated to use the unspent funds to continue the SVE system operation for seven additional months. Also completed under the seven month contract extension was a changeout of carbon for all systems prior to the end of the contract.

The final value earned under this contract by Envirotrac was $1,154,073.32. The total unused amount at the end of the contract was $1,704.40.

3.0 SUMMARY AND RESULTS OF SVE SYSTEM OPERATION

3.1 Introduction

A total of three separate SVE systems were operated under this contract: two that were installed as part of this contract (the IRM #2 systems – one at 100 Oser Avenue and one at 110 Oser Avenue) and one SVE system that was installed under a prior contract (the IRM #1 system at 100 Oser Avenue), but rehabilitated and operated under this contract. The periods of O&M covered by this report are from October 2004 through May 2007 for the IRM #2 systems, and May 2005 through May 2007 for the IRM #1 system.

Major components of each SVE system are as follows:

100 Oser Avenue IRM #2

- Designed for the purpose of preventing vapor intrusion
- 6 vapor extraction wells, all located with the building structure, installed through the floor slab.
- 1 moisture separator, 30 gallon liquid storage capacity
- 3 positive displacement blowers, 720 cfm total, 60 inch water column vacuum
- 2 vapor phase granular activated carbon canisters, each with 3,000 pounds of carbon

100 Oser Avenue IRM #1 (after rehabilitation)

- Designed for source area contaminant reduction
- 3 vapor extraction wells, all located west of the building structure in the assumed source area.
- 1 moisture separator, including automatic transfer pump and liquid phase granular activated carbon unit.
- 1 regenerative vacuum blower, 180 cfm total, 60 inch water column vacuum
- 3 vapor phase granular activated carbon canisters, each with approximately 5,500 pounds of carbon

110 Oser Avenue IRM #2

- Designed to prevent vapor intrusion
- 12 vapor extraction wells, all located with the building structure, installed through the floor slab.
- 1 Moisture separator, 30 gallon liquid storage capacity
- 3 positive displacement blowers, 720 cfm total, 70 inch water column vacuum
- 2 vapor phase granular activated carbon canisters, each with 3,000 pounds of carbon

Note that the above are the total system components installed, and do not necessarily reflect the manner in which the systems actually are operated. Further information including the locations and layouts of the SVE systems are shown in the Record Drawings, included as part of the Certification Report for the construction phase of the project.

3.2 Modifications to the SVE System

There were no significant changes to the overall construction of any SVE systems under this contract, other than the changes made to rehabilitate the IRM #1 system. Those modifications were detailed in the Certification Report for the Change Order No. 1 portion of the work, submitted by Shaw in June 2005.

3.3 Specified Operation Requirements

Operation and maintenance of the SVE systems was specified in Section 11303 of the Contract Documents. The Operation and Maintenance Manual and Sampling Plan also included requirements in regard to the O&M of the systems. Because it was added through Change Order No. 1 and not part of the original Contract Documents, there were no specific requirements for operation of the IRM #1 system. However, throughout the period of this contract, the IRM #1 system generally followed the same operational requirements as for the IRM #2 systems. Requirements for O&M of the IRM #2 systems generally included:

- Run the system 24 hours per day, 7 days per week, maintaining a minimum runtime of 90% during each month.

- Maintain the system, including repairs, as well as routine preventative maintenance for all system components.

- Provide utilities such as electric and telephone.

- Monitor system emissions, and emissions control equipment, on a weekly basis using a PID.

- Collect a monthly sample for PCE from the discharge of the air emissions control device (i.e. discharge of the carbon canisters). Analysis for PCE only.

- Collect samples for analysis of indoor air quality

- Submit reports on a weekly basis to summarize site visits and monitoring. Submit monthly reports to present laboratory data and other monthly O&M information, and to summarize the weekly reports.

In general, the Contractor performed all routine system O&M, as well as all required sampling and monitoring. Maintenance of the SVE systems included weekly O&M visits, with more frequent visits for any unscheduled system shutdowns. System sampling included weekly screening of the GAC influent, in-between units, and effluent using a photoionization detector (PID), and monthly laboratory analysis of the GAC effluent samples (for PCE only).

Summaries and results for all events are included in the monthly reports prepared by the Contractor, and previously submitted to the NYSDEC on a monthly basis.

3.4 Performance Criteria

The contract documents set forth criteria that the IRM #2 SVE systems were required to meet (no criteria were specified for IRM #1 under this contract). These performance criteria included:

- Meeting the air emissions limitations

- Ensuring that the indoor air quality meeting the NYSDOH guidelines for PCE.

The Contractor conducted sampling as required by the Contract to verify that both of these performance criteria were consistently met over the course of the project. Samples of the air effluent from all three of the SVE systems were collected on a monthly basis. Peak concentrations of PCE detected in the quarterly effluent air samples were 230 mg/m^3 at the 100 Oser Avenue IRM #2 system, 1.4 mg/m^3 at the IRM #1 system, and 7.9 mg/m^3 from the system at 110 Oser Avenue.

The high reading of 230 mg/m^3 in the effluent from the 100 Oser Avenue IRM #2 system was detected in December 2004. This was only two months after the start of the system when PCE concentrations in the influent were very high, and the carbon was quickly exhausted. The few elevated readings detected over the course of the system operation typically were of a short duration.

Indoor air samples from the buildings at 100 and 110 Oser Avenue were generally collected on a quarterly basis. Typically one sample was collected from 100 Oser Avenue, and two samples were collected from 110 Oser Avenue. The results of samples collected from inside the buildings at 100 and 100 Oser Avenue are included in the monthly reports submitted by the Contractor. At 100 Oser Avenue, PCE concentrations in samples from December 2004 were as high as 328 $\mu g/m^3$ as compared to a NYSDOH limit of 100 $\mu g/m^3$. However, indoor air concentrations have dropped considerably since operation of the systems began. The last exceedance of the 100 $\mu g/m^3$ limit occurred in a few samples collected in January 2005.

At 110 Oser Avenue, there have been no exceedances of the 100 $\mu g/m^3$ limit in any of the samples collected since sampling began in October 2004. In the more recent samples, PCE typically has not been detected in the indoor air.

3.5 Detailed Operational Summary

3.5.1 SVE Systems

Operation of the IRM #2 SVE systems officially began on September 29, 2004. October 2004 was considered to be the first month of the 12-month operation period specified in the Contract

Documents. When both the 100 and 110 buildings became unoccupied by the end of the first quarter of 2005, the two SVE systems functioning as SSD systems were scaled back to one operating blower in each building. Extraction was limited to those wells considered to be closest to the source area within the building.

The original intent for 100 Oser Avenue was 6 wells extracting 120 cfm each, with three blowers, for a total of 720 cfm. Starting in March 2005, the system operated as three wells extracting 80 cfm each, for a total of 240 cfm, and a vacuum of 33" water column. Only one of the three blowers was in operation at any time. During the weekly visits to the system, the one blower in operation was rotated between the three blowers available.

The system at 110 Oser was originally intended for 12 wells at 60 cfm, with three blowers, for a total of 720 cfm. Beginning in March 2005, the system was cut back to 4 wells at 60 cfm each, with one blower, for a total of 240 cfm, and a vacuum of 59" water column. The system operated in this manner until August 2005, when the system was completely shut down due to consistently low contaminant concentrations in the ambient air. The system was restarted only for the purpose of taking readings, and then shut down again. Operation in this manner continued for only one month. In September 2005, the entire system was restarted, including all three blowers and all twelve of the extraction wells in order to maintain the vacuum beneath the building floor slab. The system continued to run at full capacity through the end of this contract.

The IRM #1 system operated at its full capacity, i.e., with all three wells in operation, and with a flow rate of 180 cfm and a vacuum of 19" water column. Operation of this system began in March 2005 and continued to run at its full capacity through the end of this contract. Operation was not modified during this contract.

3.5.2 Carbon Changeouts

In addition to O&M of the SVE systems, the Contractor was required to change out the granular activated carbon in the GAC vessels when breakthrough of the PCE was detected as

determined by monitoring with the PID and analysis of discharge samples. As would be expected, changeouts occurred most frequently during the first months of operation, when contaminant concentrations were highest. The carbon in both of the IRM #2 SVE systems was changed out during one last event in April 2007, just prior to the end of this contract. Carbon in one of the IRM #1 system also was changed during this event. GAC changeouts were conducted at the individual systems as follows:

100 Oser Avenue IRM #2

Each of the two vessels holds a total of 3,000 pounds of carbon. Carbon was changed out a total of 11 times between the two vessels. In most cases, the carbon was changed out in only one of the two vessels during the event.

100 Oser Avenue IRM #1 (after rehabilitation)

A total of three GAC vessels, each containing 5,000 pounds of carbon, are located on the discharge of this system. Only two out of the three units are used at one time. Carbon changeouts were conducted a total of six times between the three vessels.

110 Oser Avenue IRM #2

As with the IRM #2 system at 100 Oser Avenue, each of the two vessels holds a total of 3,000 pounds of carbon. Carbon was changed out a total of only four times between the two vessels. The less frequent carbon changouts correspond to the lower PID readings and contaminant concentrations found at this system.

Copies of the vapor phase carbon GAC changeout logs are included in the monthly O&M reports prepared by Envirotrac.

3.6 Unscheduled System Shutdowns

Outside of the routine O&M activities for the SVE systems, there were a few instances where the SVE system shut down and/or required additional repairs and maintenance. These instances were as follows:

- On at least one occasion, the IRM #2 system at 100 Oser Avenue shut down due to a high water level in the moisture separator.

- In early July 2006, the IRM #1 system shut down upon arrival due to a blower thermal overload. The system also was shut down upon arrival the following week for the same problem. The overload on the motor starter for the blower was replaced.

- In September 2006, the belt broke on blower #2 for the IRM #2 system at 110 Oser Avenue. The system did not register this as an alarm condition since the blower motor still was operating. The belt on the blower was replaced during the routine maintenance event on the following week. In March 2007, the same problem occurred with Blower #3, also on the IRM #2 system at 110 Oser Avenue. This belt also was replaced the following week.

No other significant shutdowns of either the IRM #1 or IRM #2 SVE systems were reported.

3.7 Results of SVE Operation

Figure 1 summarizes the influent PID readings from each of the three SVE systems over the course of this contract. These are the readings that were collected at the influent to the vapor phase carbon adsorption canisters, and thus represent an aggregate of the vapors extracted from all of the active extraction wells. As shown on this figure, when the readings are plotted on a logarithmic scale, they show a relatively consistent decline in concentration over time, especially for the two systems located at the 100 Oser Avenue building. There are some periods where the PID readings

show greater variability, especially in the February to May period when temperatures tend to fluctuate as the subsurface begins to warm again. Many of the PID readings from the system at 110 Oser Avenue have been non-detect. Because of the low initial concentrations, the trend at this system is not as apparent.

For the IRM #1 system at 100 Oser Avenue, during the first three months of operation (after rehabiliation of the system), most of the influent PID readings were so high that they pegged the PID meter and was reported only as "greater than 2600 ppm." There is no way to know exactly how high these readings were, but based on the duration that the readings remained high, it is likely that at least for the first month or so, the readings were significantly above 2600 ppm.

Figure 2 presents the estimated cumulative removal for each of the three systems in a graphical form. For the purpose of this discussion and the following calculations, the PID readings were assumed to be comprised of solely of PCE. As shown, the data follows the same general curve as typically is found with SVE systems. High rates of removal occur during the first weeks and months of system operation when the initial pore volumes and accumulated contaminant vapors are first removed. Removal rates soon tail off as the initial volumes of air are extracted from the soil, and the removal is governed by the rate at which the contamination diffuses from the contaminated soil into the pore space.

The IRM #2 systems at 100 and 110 Oser Avenue have removed an estimated total of 12,400 pounds and 2,200 pounds of PCE respectively. The rate of removal for the system at 100 Oser Avenue was originally very high, but eventually dropped off over the first couple of months. Removal rates for this system have been less than one pound per day since early 2006. Since the PID readings have typically been zero for the past several years at 110 Oser Avenue, almost all removal occurred in the first several months of operation. It is important to note that the purpose of the IRM #2 systems was not for remediation, but for the purpose of preventing vapor intrusion into the workspace of these two buildings.

The IRM #1 system at 100 Oser Avenue was intended as a remediation system for the purpose of removing contamination from the source area located just outside and to the west of the

building. This system has removed an estimated 32,900 pounds of contamination since its restart in March 2005 after the rehabilitation effort. Removal rates from this system started at a rate of 200-300 pounds per day at startup (based on an assumed concentration of 2,600 ppm), but have been less than one pound per day for the last year or so. Although this system operates at a much lower flow rate than the other two systems, its removal has been much higher since the extraction wells are located outside the building in what is assumed to be the most highly contaminated area of the site.

3.8 Recommendations

Based on the above evaluation, the two IRM #2 systems appear to be achieving their primary purpose, i.e., mitigation of vapor intrusion into the buildings at 100 and 100 Oser Avenue. No significant changes are recommended for either of these two systems. Although contaminant concentrations in the extracted air have dropped considerably (most likely to the point where the extracted air could be discharged directly to the atmosphere without treatment), continued use of the air treatment is still recommended due to the proximity of other buildings and residences.

For the IRM #1 system, which functions for the purpose of remediation, it is apparent that the system has removed a significant portion of the contamination in the source area, at least within the effective radius of influence for the SVE system in its current configuration. Future operation of the system may be more effective by pulsing the system; i.e., shutting the system down for a period of time to allow contaminant vapors to accumulate, restarting the system for a short time, and then repeating the process. The system also could be reconfigured to focus the extraction effort to only one well at a time, thus extending the radius of influence sequentially in the shallow, medium, and deep zones of soil. The results from each of these two efforts would provide indication as to whether significant contamination remains within the reach of the SVE system, or whether the remedial process is nearing completion.

Once contaminant concentrations have dropped, and pulsing the system provides little rebound in contaminant concentrations, soil samples should be collected from various locations and depths to determine the contaminant concentrations remaining in the vadose zone at the site. The results of these samples would confirm whether cleanup goals have been met, and/or whether

treatment needs to be redirected to focus on specific areas of the site. In call cases, future remedial actions in the OU #1 area need to be coordinated with other on-going remedial actions at the site.

Table 2-1A
Comparison of Bid Quantities and Costs to Actual Quantities and Costs - Through End of Year 2 O&M

Item No.	Description	Original Bid Quantity	Quantity Used at End of Year 2	Units	Unit Price	Original Bid Cost	Actual Cost at End of Year 2	Remaining Amount at End of Year 2
1	Mobilization / Demobilization	1	1	LS	$ 170,000.00	$ 170,000.00	$ 170,000.00	$ -
2	Waste Handling/Disposal	1	1	LS	$ 18,850.00	$ 18,850.00	$ 18,850.00	$ -
3	110 Oser Avenue Treatment System	1	1	LS	$ 146,400.00	$ 146,400.00	$ 146,400.00	$ -
4	100 Oser Avenue Treatment System	1	1	LS	$ 129,500.00	$ 129,500.00	$ 129,500.00	$ -
5	Start-up for 110 Oser Avenue SVE Treatment System	4	4	Days	$ 2,200.00	$ 8,800.00	$ 8,800.00	$ -
6	Start-up for 100 Oser Avenue SVE Treatment System	3	3	Days	$ 2,900.00	$ 8,700.00	$ 8,700.00	$ -
7	12-Month O&M for 110 Oser Avenue After Startup	12	12	Months	$ 6,800.00	$ 81,600.00	$ 81,600.00	$ -
8	12-Month O&M for 100 Oser Avenue After Startup	12	12	Months	$ 11,865.00	$ 142,380.00	$ 142,380.00	$ -
9	110 Oser Avenue O&M - Additional 12 Months.	12	12	Months	$ 5,700.00	$ 68,400.00	$ 68,400.00	$ -
10	100 Oser Avenue O&M - Additional 12 Months.	12	12	Months	$ 7,800.00	$ 93,600.00	$ 93,600.00	$ -
Items Added by Change Order No. 1								
11	SVE System Rehabilitation	1	1	LS	$ 51,133.10	$ 51,133.10	$ 51,133.10	$ -
12	SVE System Rehabilitation O&M	20	20	Months	$ 1,797.35	$ 35,947.06	$ 35,947.06	$ -
13	SVE Rehab GAC Changeouts - Hazardous	12	6	Each	$ 9,283.34	$ 111,400.02	$ 55,699.98	$ 55,700.04
14	SVE Rehab GAC Changeouts - Non-Hazardous	6	0	LS	$ 7,954.17	$ 47,725.01	$ -	$ 47,725.01
15	Vapor Monitoring Point Installation	1	1	LS	$ 9,486.69	$ 9,486.69	$ 9,486.69	$ -
16	Additional Indoor Air Quality Sampling & Vapor Monitoring Point	1	1	LS	$ 18,495.30	$ 18,495.30	$ 18,495.30	$ -
17	IRM #2 GAC Changeouts - Hazardous Waste	7	7	Each	$ 1,908.65	$ 13,360.54	$ 13,360.54	$ -
Totals						**$ 1,155,777.72**	**$ 1,052,352.67**	**$ 103,425.05**

Note: Some costs are not exact due to rounding, and/or to match actual costs from payment applications.

#N/A

Table 2-1B
Comparison of Bid Quantities and Costs to Actual Quantities and Costs - Year 2 Through End of Contract (Change Order No. 2)

Item No.	Description	Original Bid Quantity	Quantity Used at End of Year 2	Units	Unit Price	Original Change Order No.2 Cost	Actual Cost at End of Contract 1
2.1	IRM #2 SVE Systems O&M and Reporting	7	7	Months	$ 8,789.91	$ 61,529.37	$ 61,231.52
2.2	IRM #1 SVE System O&M and Reporting	7	7	Months	$ 1,604.23	$ 11,229.61	$ 11,064.58
2.3	IRM #2 GAC Changeouts - Non-hazardous	2	2	Each	$ 5,544.27	$ 11,088.54	$ 17,170.07
2.4	IRM #1 GAC Changeouts - Non-hazardous	2	2	Each	$ 8,404.27	$ 16,808.54	$ 7,154.20
2.5	Indoor Air Quality Events	2	1	Each	$ 3,197.75	$ 6,395.50	$ 3,197.75
2.6	Vapor Monitoring Events	7	7	Months	$ 271.79	$ 1,902.53	$ 1,902.53
Totals						**$ 108,954.09**	**$ 101,720.65**

Unused Costs = $1,155,777.72 - $1,052,352.67 - $101,720.65 = $1,704.40.

Note:
1. Some costs are not exact due to rounding, and/or to match actual costs from payment applications. The total "Original" costs for Change Order No. 2 shown here are higher than the amount remaining from Table 2-1A and the amount shown in the actual change order due to different calculation methods and assumptions in regard to the additional months of operation. Carbon changeout quanitities were based on the actual quantities from one event in April 2007.

#N/A

Figure 1
SVE System Influent PID Readings

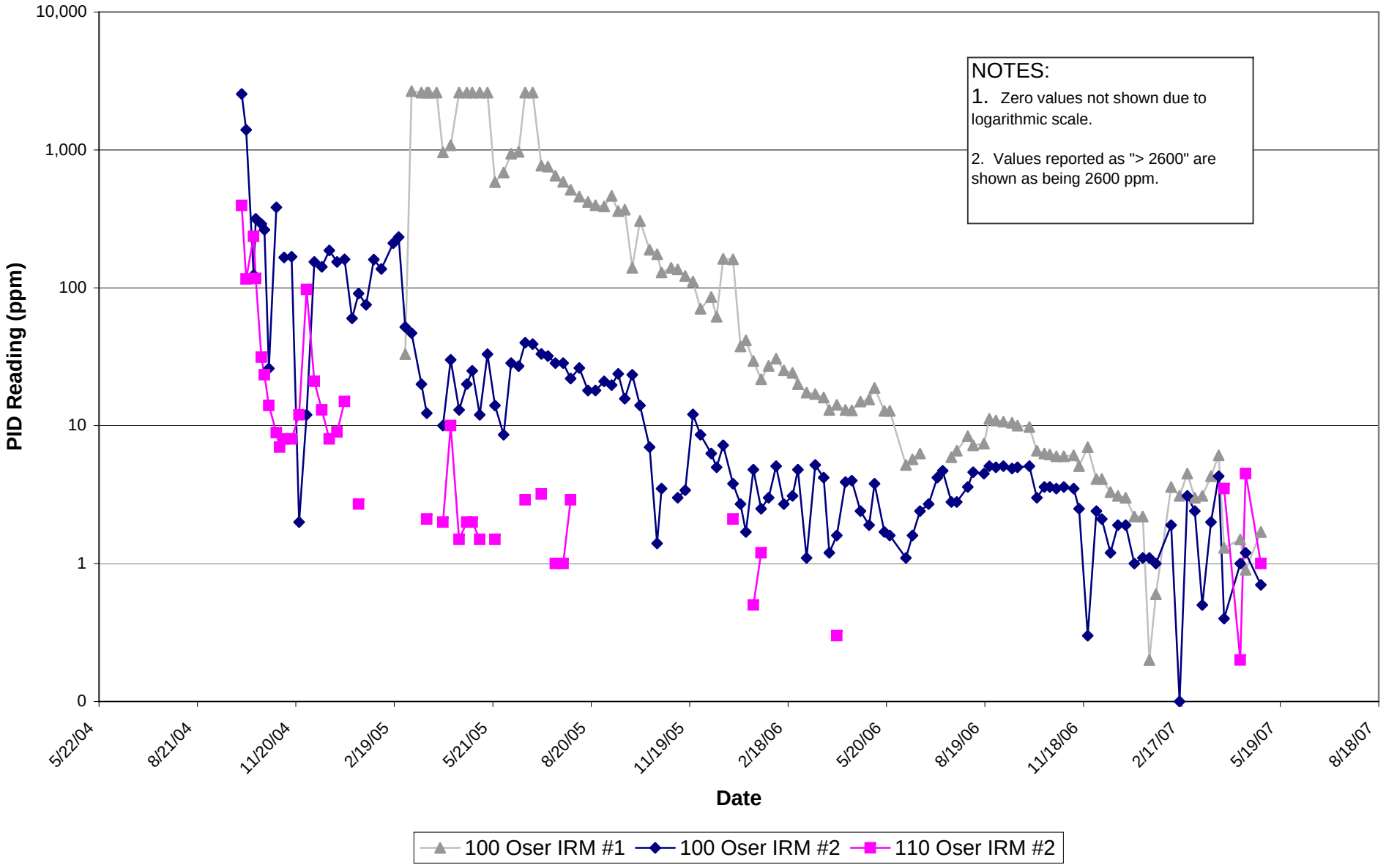
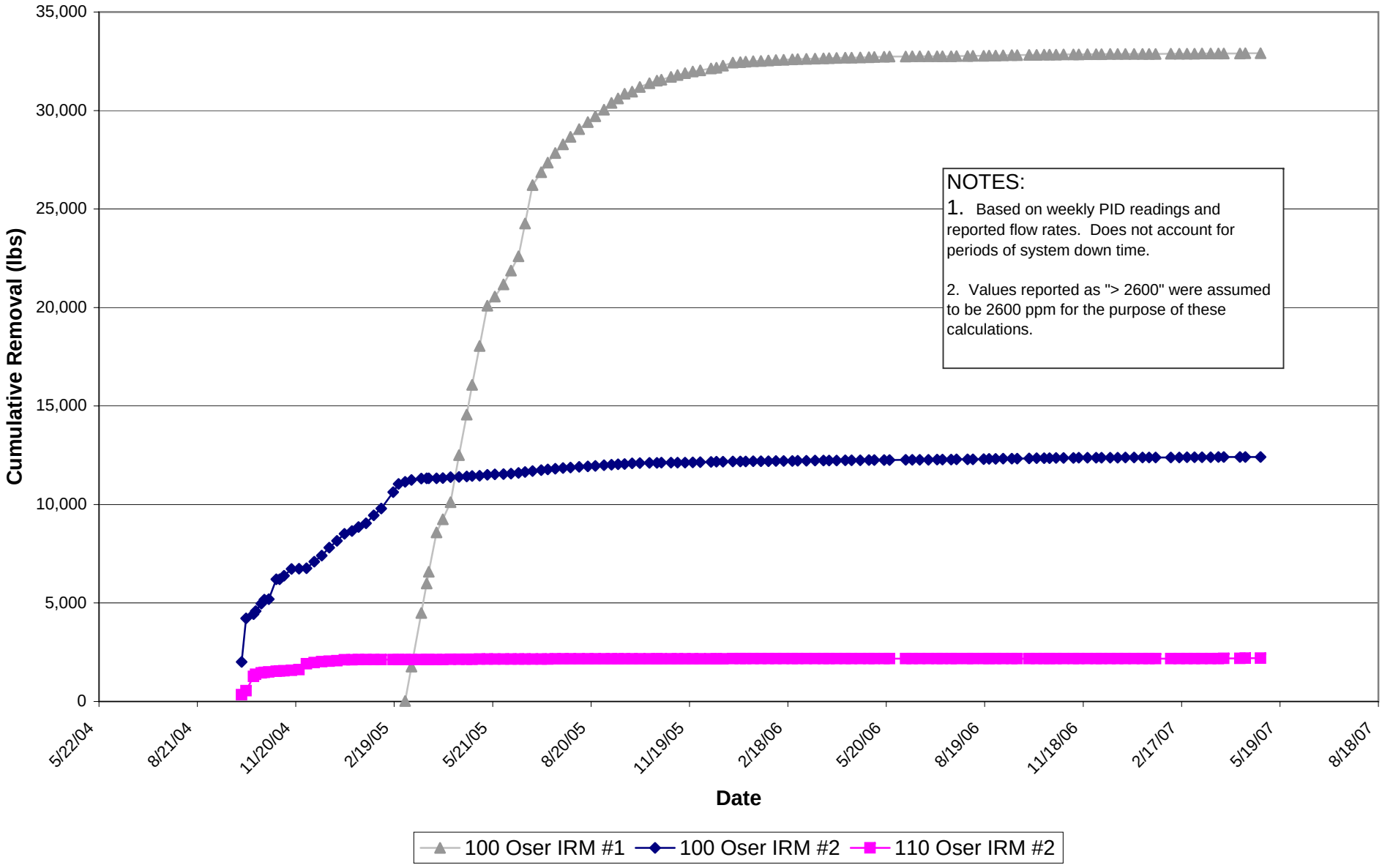


Figure 2
SVE System Estimated Cumulative Removal



APPENDIX A

CHANGE ORDERS

100 Oser Avenue
Site No. 1-52-162
State Contract No. D004647
Change Order No. 1

Change Order Amount Increase: $ 287,547.72 Date of Issue: May 24, 2005

Contractor's Name: Envirotrac, Ltd.

Engineer's Name: Shaw E & I

Change Order Items: This Change Order comprises eight (8) items as discussed below

I. CHANGE ORDER ITEMS:

A. Description of Change: **Soil Vapor Extraction System Rehabilitation:** This Change Order item is the time and material cost of rehabilitating an existing soil vapor extraction (SVE) system on-site calculated on actual time and materials cost.

Drawing Reference: None

Specification Reference: None

Contract Pay Items: New Pay Item 11: Soil Vapor Extraction System Rehabilitation

Reason for Change: An existing soil vapor extraction system on-site had fallen into a state of disrepair. The fact that the system wasn't working was causing the Contract required SVE system to work harder to achieve the Contract goal of indoor air levels below NYSDOH guidance numbers. It is expected that by rehabilitating the SVE system, the Contract required SVE system would work more efficiently and for a shorter period of time. The rehabilitated SVE system will work to remove the source of VOC contamination at the site.

Cost: The cost of this item is a $51,133.10 increase in the Contract Price and is calculated on actual time and materials costs.(See Attachment A)

New Pay Item 11: Soil Vapor Extraction System Rehabilitation
Lump Sum @ $51,133.10

B. Description of Change: **Soil Vapor Extraction System Rehab Operation and Maintenance:** This Change Order item is all cost associated with the operation and maintenance of the rehabilitated Soil Vapor Extraction System SVE calculated on a time and material basis.

Drawing Reference: None

Specification Reference: None

Contract Pay Items: New Pay Item 12: Soil Vapor Extraction System Rehab O&M

Reason for Change: The rehabilitated SVE system requires time and material costs to operate. This pay item will allow the Contractor to be reimbursed for these costs.

Cost: The cost of this item is a $35,947.06 increase in the Contract Price and is

calculated on an agreed time and materials estimate basis.(See Attachment B)

New Pay Item 12: Soil Vapor Extraction System Rehab O&M
UNIT PRICE: 20 months @ $1,736.23/ month $35,947.06

C. Description of Change: **SVE Rehab GAC Change outs -Hazardous Waste:** This Change Order item is the time and material cost for change out and disposal of spent GAC generated by the rehabilitated (SVE) system on-site calculated as a hazardous waste for disposal on actual time and materials cost.

Drawing Reference: None

Specification Reference: None

Contract Pay Items: New Pay Item 13: SVE Rehab GAC Change outs - Haz

Reason for Change: An existing soil vapor extraction system on-site had fallen into a state of disrepair. Once it was repaired, the Volatile Organic Compounds (VOCs) were so high that the granular activated carbon (GAC) collecting the VOCs were deemed to be hazardous waste when they were used up. This change out of the hazardous waste GAC must be disposed in a special way. It is expected to need 12 change outs as hazardous waste disposal for the GAC removal. The item is for the removal and disposal of spent GAC and replacement of the 1,500 pounds of GAC in the system.

Cost: The cost of this item is a $111,400.02 increase in the Contract Price and is calculated on an agreed time and materials estimate basis.(See Attachment C)

New Pay Item 13: SVE Rehab GAC Change outs - Haz
UNIT PRICE: 12 Change outs Haz
@ $9,283.33/change out Haz $111,400.02

D. Description of Change: **SVE Rehab GAC Change outs -Non-Hazardous Waste:** This Change Order item is the time and material cost for change out and disposal of spent GAC generated by the rehabilitated (SVE) system on-site calculated as a non-hazardous waste for disposal on actual time and materials cost.

Drawing Reference: None

Specification Reference: None

Contract Pay Items: New Pay Item 14: SVE Rehab GAC Change outs - Non-Haz

Reason for Change: In the future, the rehabbed SVE system will only have GAC that is considered spent but not hazardous. At that point the cost for changing the granular activated carbon (GAC) will be much less. It is expected to need 6 Change outs as non-hazardous waste disposal for the GAC removal and replacement.

Cost: The cost of this item is a $47,725.01 increase in the Contract Price and is calculated on an agreed time and materials estimate basis.(See Attachment D)

New Pay Item 14: SVE Rehab GAC Change outs - Non-Haz
UNIT PRICE: 6 Change outs Non-Haz
@ $7,954.17/change out Non-Haz $47,725.01

E. Description of Change: **Vapor Monitoring Point Installation:** This Change Order item is the time and material cost of installing vapor point monitoring wells calculated on actual time and materials cost.

Drawing Reference: None

Specification Reference: None

Contract Pay Items: New Pay Item 15: Vapor Monitoring Point Installation

Reason for Change: NYSDOH guidance related to the monitoring of indoor air has been modified since the award of this contract. This change order item allows the Department to better conform to the guidance. To further enhance the performance monitoring capability of the Department, vapor monitoring points were installed under the building slab. The vapor monitoring points are used to confirm an applied vacuum throughout the entire subslab and to adjust the flow to each well in the SVE system to assure the depressurization of the entire subslab zone of the buildings. The subslab zone of the buildings is the pathway that VOCs enter the building's indoor air.

Cost: The cost of this item is a $9,486.69 increase in the Contract Price and is calculated on actual time and materials costs.(See Attachment E)

New Pay Item 15: Vapor Monitoring Point Installation
Lump Sum @ $9,486.69

F. Description of Change: **Additional Indoor Air Quality Sampling & Vapor Point Monitoring:** This Change Order item is the time and material cost of for extra indoor air quality sampling and sampling of the vapor monitoring points calculated on agreed upon actual time and materials cost.

Drawing Reference: None

Specification Reference: None

Contract Pay Items: New Pay Item 16: Additional Indoor Air Quality Sampling Vapor Point Monitoring

Reason for Change: NYSDOH guidance related to the monitoring of indoor air has been modified since the award of this contract. This change order item allows the Department to better conform to the guidance. Since there were people working in one building, the NYSDOH recommended that the indoor air quality sampling frequency needed to be increased. Additionally, the vapor monitoring points installed under the building slab were sampled frequently to further enhance the performance monitoring capability of the Department.

Cost: The cost of this item is a $18,495.30 increase in the Contract Price and is calculated on actual time and materials basis.(See Attachment F)

New Pay Item 16: Additional Indoor Air Quality Sampling & Vapor Point Monitoring
Lump Sum @ $18,495.30

G. Description of Change: **IRM2 GAC Change outs -Hazardous Waste:** This Change Order item is the time and material cost of additional granular activated carbon Change outs to the Contract required vapor extraction (SVE) systems calculated on agreed upon actual time and materials cost. This item is for incremental increase in cost for the disposal of the GAC as hazardous waste.

Drawing Reference: None

Specification Reference: None

Contract Pay Items: New Pay Item 17: IRM2 GAC Change outs - Haz

Reason for Change: The Contract required soil vapor extraction systems on-site pulled in much higher concentrations of Volatile Organic Compounds (VOCs). The VOCs were so high that the granular activated carbon (GAC) collecting the VOCs were deemed to be hazardous waste when they were used up. The fact that the GAC must be disposed as hazardous waste is a changed condition under the Contract. It is expected to need 7 Change outs as hazardous waste disposal for the GAC removal. This item is for incremental increase in cost for the disposal of the GAc as hazardous waste. he removal and disposal of spent GAC and replacement of the 1,500 pounds of GAC in the system.

Cost: The cost of this item is a $47,725.01 increase in the Contract Price and is calculated on an agreed time and materials estimate basis.(See Attachment G)

New Pay Item 17: IRM2 GAC Change outs - Haz
UNIT PRICE: 7 Change outs Haz
@ $1,908.65/change out Haz $13,360.54

H. Description of Change: **One Year Additional Operation and Maintenance:** This Change Order item is the increase of 365 days to the Contract Time for one additional year of Operation and Maintenance of the SVE systems in 100 and 110 Oser Avenue.

Drawing Reference: None

Specification Reference: 1220, 11303, 15050

Contract Pay Items: Pay Item 9: 110 Oser Avenue Operation and Maintenance- Add'l 12 Months
Pay Item 10:100 Oser Avenue Operation and Maintenance- Add'l 12 Months

Reason for Change: This pay item will allow the Contractor to operate the two systems for one additional year per the Contract specifications. This cost of this item was included in the contract as an option in case the two systems would need to operate longer than the first year. There was a greater amount of contamination under the buildings than originally expected. Thus it was deemed necessary to operate the SVE systems for an additional year.

Cost: There is NO COST INCREASE to the Contract for these items since the cost for pay items 9 & 10 are already incorporated into the original Contract Price.

II. CHANGE ORDER NO. 1 SUMMARY

A	New Pay Item 11:Soil Vapor Extraction System Rehabilitation	$ 51,133.10
B	New Pay Item 12:Soil Vapor Extraction System Rehab O&M	$ 35,947.06

C	New Pay Item 13: SVE Rehab GAC Change outs - Haz	$ 111,400.02
D	New Pay Item 14: SVE Rehab GAC Change outs - Non-Haz	$ 47,725.01
E	New Pay Item 15: Vapor Monitoring Point Installation	$ 9,486.69
F	New Pay Item 16: Additional IAQ Sampling & Vapor Point Monitoring	$ 18,495.30
G	New Pay Item 17: IRM2 GAC Change outs - Haz	$ 13,360.54
H.	One Year Additional Operation and Maintenance	$ 0.00
	TOTAL:	$287,547.72

III. CHANGE IN CONTRACT PRICE

Original Contract Price:	$ 868,230.00
Contract Price after previous approved Change Orders:	$ 868,230.00
Net Increase due to this Change Order:	$ 287,547.72
New Contract Price including this Change Order:	$1,155,777.72

IV. CHANGE IN CONTRACT TIME

	CALENDAR DAYS	COMPLETION DATE
Original Contract Time:	455	September 29, 2005
Contract Time after previous Change Order:	455	September 29, 2005
Net due to this Change Order:	365	September 29, 2006
New Contract Time including this Change Order:	820	September 29, 2006

It is understood and agreed that, unless expressly so stated above, the work herein authorized will not extend the time for the completion of the contract.

It is understood and agreed that this change order represents full and complete compensation for all work described herein.

This work is to be performed in accordance with the terms of the contract and original plans and specifications, except as herein modified. It is understood and agreed that this order shall be deemed executory only to the extent of moneys available and no liability shall be incurred by the State beyond the moneys available for the purpose.

CONTRACT NUMBER D004647

IN WITNESS WHEREOF, representatives of the Department and the Contractor have executed this Contract on the day and year written beneath their respective signatures. The signatory for the Department provides the following Agency Certification: "In addition to the acceptance of this contract, I also certify that original copies of this signature page will be attached to all other exact copies of this contract."

Recommended:	FOR DEPARTMENT
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____
FOR ENGINEER	FOR CONTRACTOR
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____
Approved as to Form:	Approved:
By: _____	By: _____
Attorney General	State Comptroller
Date: _____	Date: _____

STATE OF)
) SS:
COUNTY OF)

On the ____ day of _____, 20 , before me personally came _____ _____, to me known, who being duly sworn, did depose and say that (s)he resides in _____, New York: that (s)he is _____ of _____, the corporation described in and which executed the above instrument; that (s)he knows the seal of said corporation; that the seal affixed to said is such corporate seal; that it was so affixed by authority of the Board of Directors of said corporation and that (s)he signed his/her name thereto by the same authority.

_____
Notary Public

STATE OF)
) SS:
COUNTY OF)

On the ____ day of _____, 20 , before me personally came _____ _____, to me known, who being duly sworn, did depose and say that (s)he resides in _____, New York: that (s)he is _____ of _____, the corporation described in and which executed the above instrument; that (s)he knows the seal of said corporation; that the seal affixed to said is such corporate seal; that it was so affixed by authority of the Board of Directors of said corporation and that (s)he signed his/her name thereto by the same authority.

_____
Notary Public

STATE OF)
) SS:
COUNTY OF)

On the ____ day of _____, 20 , before me personally came _____ _____, to me known, who being duly sworn, state that (s)he is a member of employee of _____, the firm described in and which executed the foregoing instrument; and (s)he acknowledged to me that (s)he subscribed his/her name thereto on behalf of said firm.

_____
Notary Public

ATTACHMENT A

Task #1: IRM #1 Rehabilitation Construction Costs

100 Oser Ave, Hauppauge, NY

Materials:

Item #	Tag #	Equipment Description	Manufacturer / Ven	Part #	Quantity	Unit Price	Total Price
1		Vacuum Relief Valve	AirTech Inc	VC61Z	1	$ 100.00	$ 100.00
2		Flow Indicator (2", 20-240cfm)	Cole Palmer	A-32448-50	3	$ 600.04	$ 1,800.12
3		Vacuum Switch	Dwyer		1	$ 215.84	$ 215.84
4		Flow Indicator (Discharge)	Gasho		1	$ 328.38	$ 328.38
5		Vacuum Indicators, Pressure Indicators, Temperature Indicators, Temperature Switch, Piping and Fittings, Electrical Supplies, Control Panel Materials, Pipe Insulation	McMaster-Carr	4106K2	1	$ 3,314.02	$ 3,314.02
6		Blower (5.0 HP, 230V, 3PH) (180cfm@60")	Rotron / Gasho	EN707F72MXL	1	0.00*	
7		Inlet Filter/Silencer (2", 300 cfm)	Solberg	FS-231P-200	1	$ 145.12	$ 145.12
8		Inline Filter	Solberg	CSL-239-300C	1	$ 374.74	$ 374.74
9		Rubbermaid Storage Shed, Hardware	Home Depot		1	$ 682.52	$ 682.52
10		Exhaust Fan, Heater, Thermostats, Transfer Pump, Heat Trace	Grainger		1	$ 1,109.04	$ 1,109.04
11		4" x 2" Well Seal	Morris Industries		3	$ 26.98	$ 80.94
12		2" SCH 80 PVC Pipe and Fittings, 3" SCH 80 PVC Pipe and Fittings, 3" SCH 80 CPVC Pipe and Fittings	Holbrook Pipe		1	$ 10,211.37	$ 10,211.37
13		CPVC Pipe Fittings	Holbrook Pipe		1	$ 50.59	$ 50.59
14		10" x 3 " Well Seal	Morris Industries		6	$ 151.71	$ 910.26
15		11,000 lbs. Vapor Phase Carbon	Calgon		1	$ 7,500.00	$ 7,500.00
16		CP Materials	Powertech Controls		1	$ 340.65	$ 340.65
17		CP Materials	Powertech Controls		1	$ 204.12	$ 204.12
18		Forklift Rental	Pride Equipment		1	$ 461.54	$ 461.54
19		Freight Charges	Fedex Freight		1	$ 120.11	$ 120.11

Blower traded for decommissioned CatOx unit.

Subtotal:	**$ 27,949.36**
10% Markup:	**$ 2,794.94**
Material Total:	**$ 30,744.30**

Labor

Task	Title	Hours	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Ext Total
#1	*Dismantle Existing System (CatOx, Controls, Electrical, Fence, Piping)*							
	Site Forman	10	$ 56.00	$ 560.00	$ 8.40	$ 84.00	$ 64.40	$ 644.00
	Laborer	10	$ 45.29	$ 452.90	$ 6.79	$ 67.94	$ 52.08	$ 520.84
	Vehicle	4	$ 15.00	$ 60.00			$ 15.00	$ 60.00
#2	*System Construction, Piping, Equipment & Instrumentation Installation, Testing, O&M Manual / As-built Drawing, Work Plan*							
	Site Forman	57.5	$ 56.00	$ 3,220.00	$ 8.40	$ 483.00	$ 64.40	$ 3,703.00
	Laborer	48	$ 45.29	$ 2,173.92	$ 6.79	$ 326.09	$ 52.08	$ 2,500.01
	Laborer	20	$ 45.29	$ 905.80	$ 6.79	$ 135.87	$ 52.08	$ 1,041.67
	Laborer	48	$ 45.29	$ 2,173.92	$ 6.79	$ 326.09	$ 52.08	$ 2,500.01
	Vehicle	8	$ 15.00	$ 120.00			$ 15.00	$ 120.00
	Vehicle	24	$ 15.00	$ 360.00			$ 15.00	$ 360.00
#3	*System Electrical components, Contol Panel,Startup & Testing of system components,Modifying IRM#2 Control Panel For Telemetry*							
	Laborer	20.5	$ 45.29	$ 928.45	$ 6.79	$ 139.27	$ 52.08	$ 1,067.71
	Electrician	7	$ 66.16	$ 463.12	$ 9.92	$ 69.47	$ 76.08	$ 532.59
	Site Froman	58	$ 56.00	$ 3,248.00	$ 8.40	$ 487.20	$ 64.40	$ 3,735.20
	Electrician	45	$ 66.16	$ 2,977.20	$ 9.92	$ 446.58	$ 76.08	$ 3,423.78
	Vehicle	12	$ 15.00	$ 180.00			$ 15.00	$ 180.00
			Labor Subtotal:	**$ 17,823.31**	**Total MU (15%):**	**$ 2,413.56**	**Labor Total:**	**$ 20,388.80**

*Note: The wage rate is determined as the sum of the category wage + the supplimental benefit
Example: Electrician = $42.00 (Wages) + (43.5% (Wages) + $5.89 = $42.00 + (0.435 * $42.00 + $5.89) = $66.16

Total Cost (Labor + Materials): $ 51,133.10

ATTACHMENT B

Task #2: IRM #1 Operation and Maintenance

100 Oser Ave, Hauppauge, NY

Materials:

Item #	Equipment Description	Manufacturer / Vender	Part #	Quantity	Unit Price	Total Price
1	Laboratory Sampling	EcoTest		2	$ 120.00	$ 240.00
2	Future - Laboratory Sampling	EcoTest		19	$ 120.00	$ 2,280.00
3	Future - Electrical Costs*	LIPA		19	$ 750.00	$ 14,250.00

* Based on first five weeks of operation

Subtotal:	**$ 16,770.00**
10% Markup:	**$ 1,677.00**
Material Total:	**$ 18,447.00**

Labor

Task	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*SVE System O&M (Weekly Maintenance, Readings, Screening, Adjustments, & Reporting)*								
	Laborer (4hrs/visit)	4	5	$ 45.29	$ 905.80	$ 6.79	$ 135.87	$ 52.08	$ 1,041.67
#2	*Future - SVE System O&M (Weekly Maintenance, Readings, Screening, Adjustments, & Reporting)*								
	Laborer (4hrs/visit)	4	79	$ 45.29	$ 14,311.64	$ 6.79	$ 2,146.75	$ 52.08	$ 16,458.39
				Labor Subtotal:	**$ 15,217.44**	**Total MU (15%):**	**$ 2,282.62**	**Labor Total:**	**$ 17,500.06**

Total Cost (Labor + Materials):	**$ 35,947.06**
Cost ($)/Month:	**$ 1,736.23**

* O&M costs based on weekly visits from March 1st, 2005 through September 29th, 2006 (84 weeks).

ATTACHMENT C

Task #3: IRM #1 - GAC Change Outs - Hazardous Waste

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Date	Description	Manufacturer / Vender	Events	Quantity	Unit Price	Total Price
1	Future	GAC Change Out Services - Hazardous Waste	Calgon Carbon Corp	12	5000	$ 1.49	$ 89,400.00
2	Future	GAC Disposal Classification	Calgon Carbon Corp	1	1	$ 1,000.00	$ 1,000.00
3	Future	Forklift	Pride Rental	12	1	$ 500.00	$ 6,000.00
				Total GAC Quantity (lbs):	60,000	Subtotal:	$ 96,400.00
						10% Markup:	$ 9,640.00
						Material Total:	$ 106,040.00

Labor

Task	Description	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Future - Change Out Coordination & Oversight*									
		Laborer	8	12	$ 45.29	$ 4,347.84	$ 6.79	$ 652.18	$ 52.08	$ 5,000.02
		Vehicle	2	12	$ 15.00	$ 360.00			$ 15.00	$ 360.00
					Labor Subtotal:	$ 4,707.84	Total MU (15%):	$ 652.18	Labor Total:	$ 5,360.02

Total Cost: $ 111,400.02

Cost ($)/Change Out Event: $ 9,283.33

ATTACHMENT D

Task #4: IRM #1 - GAC Change Outs - Non-hazardous Waste

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Date	Description	Manufacturer / Vender	Events	Quantity	Unit Price	Total Price
1	Future	GAC Change Out Services - Non-Hazardous Waste	Calgon Carbon Corp	6	5000	$ 1.25	$ 37,500.00
2	Future	GAC Disposal Re-classification	Calgon Carbon Corp	1	1	$ 450.00	$ 450.00
3	Future	Forklift	Pride Rental	6	1	$ 500.00	$ 3,000.00
				Total GAC Quantity (lbs):	**30,000**	**Subtotal:**	**$ 40,950.00**
						10% Markup:	**$ 4,095.00**
						Material Total:	**$ 45,045.00**

Labor

Task	Description	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Future - Change Out Coordination & Oversight*									
		Laborer	8	6	$ 45.29	$ 2,173.92	$ 6.79	$ 326.09	$ 52.08	$ 2,500.01
		Vehicle	2	6	$ 15.00	$ 180.00			$ 15.00	$ 180.00
					Labor Subtotal:	**$ 2,353.92**	**Total MU (15%):**	**$ 326.09**	**Labor Total:**	**$ 2,680.01**

Total Cost: $ 47,725.01

Cost ($)/Change Out Event: $ 7,954.17

ATTACHMENT E

Task #5: IRM #2 - Vapor Point Installation

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Date	Description	Manufacturer / Vender	Quantity	Unit Price	Total Price
1	1/19/2005	Drilling Of Vapor Points	Associated Environmental	1	$ 7,100.00	$ 7,100.00
					Subtotal:	**$ 7,100.00**
					10% Markup:	**$ 710.00**
					Material Total:	**$ 7,810.00**

Labor

Task	Title	Hours	Rate	Labor Subtota	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Construction Oversight, coordination/setting vapor point locations*							
	Laborer	9.5	$ 45.29	$ 430.26	$ 6.79	$ 64.54	$ 52.08	$ 494.79
	Laborer	6	$ 45.29	$ 271.74	$ 6.79	$ 40.76	$ 52.08	$ 312.50
	Site Forman	13.5	$ 56.00	$ 756.00	$ 8.40	$ 113.40	$ 64.40	$ 869.40
			Labor Subtotal:	**$ 1,458.00**	**Total MU (15%):**	**$ 218.70**	**Labor Total:**	**$ 1,676.69**

Total Cost: $ 9,486.69

ATTACHMENT F

Task #6: IRM #2 - Additional Indoor Air Quality Sampling & Vapor Point Monitoring

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Date	Description	Vender	Quantity	Unit Price	Total Price
1	12/7/2004	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	8	$ 150.00	$ 1,200.00
2	12/29/2004	Laboratory Analysis Of Suma Canisters w/ 24HR Turnaround	GeoLabs, Inc	5	$ 340.00	$ 1,700.00
3	1/10/2005	Laboratory Analysis Of Suma Canisters w/ 24HR Turnaround	GeoLabs, Inc	8	$ 340.00	$ 2,720.00
4	2/10/2005	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	9	$ 150.00	$ 1,350.00
5	3/22/2005	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	8	$ 150.00	$ 1,200.00
					Subtotal:	**$ 8,170.00**
					10% Markup:	**$ 817.00**
					Material Total:	**$ 8,987.00**

Labor

Task		Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate
#1	*Coordination/Preparing Results*								
		Site Forman	33.5		$ 56.00	$ 1,876.00	$ 8.40	$ 281.40	$ 64.40
#2	*On Site Indoor Air Testing & Vapor Point Monitoring*								
		Site Forman	35		$ 56.00	$ 1,960.00	$ 8.40	$ 294.00	$ 64.40
		Laborer	17.5		$ 45.29	$ 792.58	$ 6.79	$ 118.89	$ 52.08
		Vehicle	15		$ 15.00	$ 225.00			$ 15.00
#3	*Future Vapor Point Monitoring*								
		Site Forman	2	17	$ 56.00	$ 1,904.00	$ 8.40	$ 285.60	$ 64.40
		Laobor	2	17	$ 45.29	$ 1,539.86	$ 6.79	$ 230.98	$ 52.08
					Labor Subtotal:	**$ 8,297.44**	**Total MU (15%):**	**$ 1,210.87**	**Labor Total:**

Total Cost:

* EnviroTrac's original contract included (3) three quarterly IAQ samples (1 @ 100 Oser & 2 @ 110 Oser).
The above costs are for requested sampling that was above and beyond this original scope of work.

ATTACHMENT G

Task #7: IRM #2 - Additional GAC Change Outs

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Date	Description	Manufacturer / Vender	Events	Quantity	Unit Price	Total Price
1	Future	GAC Change Out Services	Calgon Carbon Corp	7	3000	$ 0.24	$ 5,040.00
2	Future	GAC Disposal Re-classification	Calgon Carbon Corp	1	1	$ 450.00	$ 450.00
3	Future	Forklift	Pride Rental	7	1	$ 500.00	$ 3,500.00
						Subtotal:	**$ 8,990.00**
						10% Markup:	**$ 899.00**
						Material Total:	**$ 9,889.00**

Labor

Task	Description	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Future - Change Out Coordination & Oversight*									
		Site Forman	4	7	$ 56.00	$ 1,568.00	$ 8.40	$ 235.20	$ 64.40	$ 1,803.20
		Laborer	4	7	$ 45.29	$ 1,268.12	$ 6.79	$ 190.22	$ 52.08	$ 1,458.34
		Vehicle	2	7	$ 15.00	$ 210.00			$ 15.00	$ 210.00
					Labor Subtotal:	**$ 3,046.12**	**Total MU (15%):**	**$ 425.42**	**Labor Total:**	**$ 3,471.54**

Total Cost: $ 13,360.54

Additional Cost ($) / Change Out Event: $ 1,908.65

* EnviroTrac's original contract included sixteen (16) 3000lb GAC changeouts (Non-hazardous waste disposal) for the combined two years O&M.
To date (4/29/05) a total of seven(7) changeouts have been performed. For the remainder of the 24 month O&M period (through 9/29/06), it has been estimated that anadditional seven (7) changeouts will be performed as "hazardous" waste, with the remaining two (2) to be completed as "non-hazardous".
The unit price for GAC change out services of $0.24/lb is the diference between the cost for non-hazardous to hazardous waste pricing.
Due to this clssification change, additional costs are associated with the disposal of this GAC, as shown above.

ATTACHMENT F

Task #6: IRM #2 - Additional Indoor Air Quality Sampling & Vapor Point Monitoring

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Date	Description	Vender	Quantity	Unit Price	Total Price
1	12/7/2004	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	8	$ 150.00	$ 1,200.00
2	12/29/2004	Laboratory Analysis Of Suma Canisters w/ 24HR Turnaround	GeoLabs, Inc	5	$ 340.00	$ 1,700.00
3	1/10/2005	Laboratory Analysis Of Suma Canisters w/ 24HR Turnaround	GeoLabs, Inc	8	$ 340.00	$ 2,720.00
4	2/10/2005	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	9	$ 150.00	$ 1,350.00
5	3/22/2005	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	8	$ 150.00	$ 1,200.00
					Subtotal:	**$ 8,170.00**
					10% Markup:	**$ 817.00**
					Material Total:	**$ 8,987.00**

Labor

Task		Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Coordination/Preparing Results*									
		Site Forman	33.5		$ 56.00	$ 1,876.00	$ 8.40	$ 281.40	$ 64.40	$ 2,157.40
#2	*On Site Indoor Air Testing & Vapor Point Monitoring*									
		Site Forman	35		$ 56.00	$ 1,960.00	$ 8.40	$ 294.00	$ 64.40	$ 2,254.00
		Laborer	17.5		$ 45.29	$ 792.58	$ 6.79	$ 118.89	$ 52.08	$ 911.46
		Vehicle	15		$ 15.00	$ 225.00			$ 15.00	$ 225.00
#3	*Future Vapor Point Monitoring*									
		Site Forman	2	17	$ 56.00	$ 1,904.00	$ 8.40	$ 285.60	$ 64.40	$ 2,189.60
		Laobor	2	17	$ 45.29	$ 1,539.86	$ 6.79	$ 230.98	$ 52.08	$ 1,770.84
					Labor Subtotal:	**$ 8,297.44**	**Total MU (15%):**	**$ 1,210.87**	**Labor Total:**	**$ 9,508.30**

Total Cost: $ 18,495.30

* EnviroTrac's original contract included (3) three quarterly IAQ samples (1 @ 100 Oser & 2 @ 110 Oser).
The above costs are for requested sampling that was above and beyond this original scope of work.

$ 14,767.83

EnviroTrac
Environmental Services

September 20th, 2006

NYSDEC
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, NY 12233-7010
Attn: Gerard Burke

Re: **Change Order #2**
NYSDEC 100 & 110 Oser Ave.
Hauppauge, New York
Site No. 1-52-162

Dear Mr. Burke

The purpose of this letter is to summarize the tasks that are included in Change Order #2, which includes a written scope of work and detailed cost explanation for each task. For the purpose of this change order, costs were calculated to include the dates of October 1, 2006 through April 31, 2007.

Task #2.1 and 2.2: O&M Services for the SVE system at IRM#1 and IRM#2 (Cost detailed in Attachment A & B)

Scope of Work

- O&M services: These services are to be continuous of the on going O&M of the IRM#1 and IRM#2 systems.
    - Weekly O&M visit (inc. Equipment maintenance, instrument readings, system adjustments, and PID screening of VGAC influent, in-between, and effluent sample ports).
    - Monthly sampling and analysis of system discharge (VGAC effluent). Laboratory analysis will be for PCE only.
    - Monthly system reporting: System status, O&M tasks, sampling results, and any other O&M related information will be combined with in the monthly IRM#2 reports. The first monthly report will also contain a detailed startup report.
- Electrical costs for operation of the system. Currently the electrical service is tied into the existing building service and is equipped with a circuit breaker panel and a service demand meter. Estimates of the electrical costs are included in Attachments A and B. This cost will be reimbursed directly to the building tenant or owner.

Task #2.3: Vapor Phase GAC change outs for the SVE System at IRM#2 (Cost detailed in Attachment C)

Scope of Work

- Change out of vapor phase GAC. The capacity of each unit is 3000 lbs each. The cost per change out per vessel (5500lbs) includes coordination, oversight, new carbon, change out services, disposal of spent carbon, and equipment rental.

Task #2.4: Vapor Phase GAC change outs for the SVE System at IRM#1 (Cost detailed in Attachment D)

Scope of Work

- Change out of vapor phase GAC. The capacity of each units is 5000 lbs each. It has been confirmed with the unit manufacturer (Tigg Corporation) that the model number for the vessels in the N-4000-PDB, which can hold from 3700 to 5500 lbs of vapor phase carbon. The cost per change out per vessel (5000lbs) includes coordination, oversight, new carbon, change out services, disposal of spent carbon, and equipment rental.

Task #2.5 and 2.6: Indoor Air Quality and Vapor Point Monitoring (Cost Detailed in Attachment E)

Scope of Work

- Indoor Air Quality (IAQ) Monitoring. EnviroTrac was directed to perform quarterly IAQ sampling at various locations in both buildings at 100 and 110 Oser Ave, during the performance period. The original contract called for a total of three (3) quarterly samples (one (1) at 100 Oser Ave and two (2) at 110 Oser Ave. The costs include coordination with laboratory, setup and collection of the samples (over a 24 hour period), collection of PID readings at sample locations, summarization of laboratory and field reading results, and reporting of data.
- Vapor point monitoring. With the addition of the sixteen (16) new vapor monitoring points as well as the existing four (4) monitoring points, additional vacuum readings are to be collected on a monthly basis. The costs associated with this task include the collection of the vacuum readings from each point, and the summary and incorporation of these results into the monthly reports.

Summary:
A summary of the costs that associated with this change order can be seen on the following page with a cost detail for each task in the attachments. The total cost for above mentioned work (Task #'s 2.1 through 2.6) is **$99,887.22.**

If you have any questions or require additional information, please do not hesitate to call me.

Sincerely,
EnviroTrac, Ltd.

Dale C Konas, PE
Senior Project Engineer

EnviroTrac

Change Order No. 2 Summary - 7 Month Extension

100 & 110 Oser Ave, Hauppauge, NY

Task #	Attachment #	Task Description	Task Total	Unit Cost	(Units)
2.1	A	IRM#2 100 & 110 Oser System O&M & Reporting	$ 52,739.43	$ 8,789.91	$/Month
2.2	B	IRM#1 SVE System O&M & Reporting	$ 19,250.72	$ 1,604.23	$/Month
2.3	C	IRM#2 GAC Changeouts - Non-Hazardous Waste	$ 11,088.54	$ 5,544.27	$/Change Out
2.4	D	IRM#1 GAC Changeouts - Non-Hazardous Waste	$ 16,808.54	$ 8,404.27	$/Change Out
2.5	E	IAQ Events	$ 6,395.51	$ 3,197.75	$/Quarter
2.6	E	Vapor Monitoring Events	$ 1,630.77	$ 271.79	$/Month
		Total:	**$ 99,887.22**		

* Section VIII 10.7.2.1 of the contract document specifies a fifteen percent (15%) Contractor's fee for general and administrative overhead costs for Labor

** Section VIII 10.7.2.2 of the contract document specifies a ten percent (10%) Contractor's fee for general and administrative overhead costs for Materials

ATTACHMENT A

Task #2.1: IRM #2 Operation and Maintenance

100 Oser Ave, Hauppauge, NY

Materials:

Item #	Equipment Description	Manufacturer / Vender	Part #	Quantity	Unit Price	Total Price
1	Laboratory Sampling	EcoTest		14	$ 130.00	$ 1,820.00
2	Electrical Costs	LIPA		14	$ 1,900.00	$ 26,600.00

* Based on first five weeks of operation

Subtotal:	$ 28,420.00
10% Markup:	$ 2,842.00
Material Total:	$ 31,262.00

Labor

Task	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*SVE System O&M (Weekly Maintenance, Readings, Screening, Adjustments, & Reporting)*								
	Forman	3	30	$ 56.00	$ 5,040.00	$ 8.40	$ 756.00	$ 64.40	$ 5,796.00
	Laborer	6	30	$ 45.29	$ 8,152.20	$ 6.79	$ 1,222.83	$ 52.08	$ 9,375.03
	Vehicle	6	30	$ 15.00	$ 2,700.00			$ 15.00	$ 2,700.00
#2	*Monthly Reporting*								
	Forman	8	7	$ 56.00	$ 3,136.00	$ 8.40	$ 470.40	$ 64.40	$ 3,606.40
				Labor Subtotal:	$ 13,988.20	Total MU (15%):	$ 1,693.23	Labor Total:	$ 21,477.43

Total Cost (Labor + Materials):	$ 52,739.43
Cost ($)/Month:	$ 8,789.91

* O&M costs based on weekly visits from October 1st, 2006 through April 29th, 2007 (30 weeks) = 7 Months.

ATTACHMENT B

Task #2.2: IRM #1 Operation and Maintenance

100 Oser Ave, Hauppauge, NY

Materials:

Item #	Equipment Description	Manufacturer / Vender	Part #	Quantity	Unit Price	Total Price
1	Laboratory Sampling	EcoTest		7	$ 130.00	$ 910.00
2	Electrical Costs	LIPA		7	$ 850.00	$ 5,950.00

* Based on first five weeks of operation

Subtotal:	$ 6,860.00
10% Markup:	$ 686.00
Material Total:	$ 7,546.00

Labor

Task		Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*SVE System O&M (Weekly Maintenance, Readings, Screening, Adjustments, & Reporting)*									
		Forman	2	30	$ 56.00	$ 3,360.00	$ 8.40	$ 504.00	$ 64.40	$ 3,864.00
		Laborer	3	30	$ 45.29	$ 4,076.10	$ 6.79	$ 611.42	$ 52.08	$ 4,687.52
		Vehicle	3	30	$ 15.00	$ 1,350.00			$ 15.00	$ 1,350.00
#2	*Monthly Reporting*									
		Forman	4	7	$ 56.00	$ 1,568.00	$ 8.40	$ 235.20	$ 64.40	$ 1,803.20
					Labor Subtotal:	$ 6,994.10	Total MU (15%):	$ 846.62	Labor Total:	$ 11,704.72

Total Cost (Labor + Materials):	$ 19,250.72
Cost ($)/Month:	$ 1,604.23

* O&M costs based on weekly visits from October 1st, 2006 through April 29th, 2007 (30 weeks) = 7 Months.

ATTACHMENT C

Task #2.3: IRM #2 - GAC Change Outs - Non-hazardous Waste

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Description	Manufacturer / Vender	Events*	Quantity	Unit Price	Total Price
1	GAC Change Out Services - Non-Hazardous Waste	Calgon Carbon Corp	2	3000	$ 1.30	$ 7,800.00
2	Forklift	Pride Rental	2	1	$ 500.00	$ 1,000.00
		Total GAC Quantity (lbs):		6,000	Subtotal:	$ 8,800.00
					10% Markup:	$ 880.00
					Material Total:	$ 9,680.00

Labor

Task	Description	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Change Out Coordination & Oversight*									
		Forman	4	2	$ 56.00	$ 448.00	$ 8.40	$ 67.20	$ 64.40	$ 515.20
		Laborer	8	2	$ 45.29	$ 724.64	$ 6.79	$ 108.70	$ 52.08	$ 833.34
		Vehicle	2	2	$ 15.00	$ 60.00			$ 15.00	$ 60.00
					Labor Subtotal:	$ 1,232.64	Total MU (15%):	$ 108.70	Labor Total:	$ 1,408.54

Total Cost: $ 11,088.54

Cost ($)/Change Out Event: $ 5,544.27

*Based on an estimate of a maximum of two (2) GAC change outs at the two sites per 7 month period.

ATTACHMENT D

Task #2.4: IRM #1 - GAC Change Outs - Non-hazardous Waste

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Description	Manufacturer / Vender	Events	Quantity	Unit Price	Total Price
1	GAC Change Out Services - Non-Hazardous Waste	Calgon Carbon Corp	2	5000	$ 1.30	$ 13,000.00
2	Forklift	Pride Rental	2	1	$ 500.00	$ 1,000.00
		Total GAC Quantity (lbs):		10,000	Subtotal:	$ 14,000.00
					10% Markup:	$ 1,400.00
					Material Total:	$ 15,400.00

Labor

Task	Description	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Change Out Coordination & Oversight*									
		Forman	4	2	$ 56.00	$ 448.00	$ 8.40	$ 67.20	$ 64.40	$ 515.20
		Laborer	8	2	$ 45.29	$ 724.64	$ 6.79	$ 108.70	$ 52.08	$ 833.34
		Vehicle	2	2	$ 15.00	$ 60.00			$ 15.00	$ 60.00
					Labor Subtotal:	$ 1,232.64	Total MU (15%):	$ 108.70	Labor Total:	$ 1,408.54

Total Cost: $ 16,808.54

Cost ($)/Change Out Event: $ 8,404.27

*Based on an estimate of a maximum of two (2) GAC change outs per 7 month period.

ATTACHMENT E

Task #2.5 & #2.6: IRM #2 - Indoor Air Quality Sampling & Vapor Point Monitoring
100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Description	Vender	Quantity	Unit Price	Total Price
1	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	9	$ 150.00	$ 1,350.00
				Subtotal:	**$ 1,350.00**
				10% Markup:	**$ 135.00**
				Material Total:	**$ 1,485.00**

Labor

Task	Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Coordination/Preparing Results*								
	Site Forman	10	3	$ 56.00	$ 1,680.00	$ 8.40	$ 252.00	$ 64.40	$ 1,932.00
#2	*On Site Indoor Air Quality (IAQ) Testing*								
	Site Forman	5	3	$ 56.00	$ 840.00	$ 8.40	$ 126.00	$ 64.40	$ 966.00
	Laborer	10	3	$ 45.29	$ 1,358.70	$ 6.79	$ 203.81	$ 52.08	$ 1,562.51
	Vehicle	10	3	$ 15.00	$ 450.00			$ 15.00	$ 450.00
#3	*Vapor Point Monitoring*								
	Site Forman	2	7	$ 56.00	$ 784.00	$ 8.40	$ 117.60	$ 64.40	$ 901.60
	Laobor	2	7	$ 45.29	$ 634.06	$ 6.79	$ 95.11	$ 52.08	$ 729.17
				Labor Subtotal:	**$ 5,746.76**	**Total MU (15%):**	**$ 794.51**	**Labor Total:**	**$ 6,541.27**

Total Cost: $ 8,026.27

Cost per IAQ Event: $ 3,197.75
Cost per Vapor Monitoring Event: $ 271.79

*Costs are based on a total of three (3) samples collected per event

ATTACHMENT E

Task #2.5 & #2.6: IRM #2 - Indoor Air Quality Sampling & Vapor Point Monitoring

100 & 110 Oser Ave, Hauppauge, NY

Equipment

Item #	Description	Vender	Quantity	Unit Price	Total Price
1	Laboratory Analysis Of Suma Canisters	GeoLabs, Inc	9	$ 150.00	$ 1,350.00
				Subtotal:	**$ 1,350.00**
				10% Markup:	**$ 135.00**
				Material Total:	**$ 1,485.00**

Labor

Task		Title	Hours	Events	Rate	Labor Subtotal	ET MU (15%)	Total ET MU	Ext Rate	Total
#1	*Coordination/Preparing Results*									
		Site Forman	10	3	$ 56.00	$ 1,680.00	$ 8.40	$ 252.00	$ 64.40	$ 1,932.00
#2	*On Site Indoor Air Quality (IAQ) Testing*									
		Site Forman	5	3	$ 56.00	$ 840.00	$ 8.40	$ 126.00	$ 64.40	$ 966.00
		Laborer	10	3	$ 45.29	$ 1,358.70	$ 6.79	$ 203.81	$ 52.08	$ 1,562.51
		Vehicle	10	3	$ 15.00	$ 450.00			$ 15.00	$ 450.00
#3	*Vapor Point Monitoring*									
		Site Forman	2	7	$ 56.00	$ 784.00	$ 8.40	$ 117.60	$ 64.40	$ 901.60
		Laobor	2	7	$ 45.29	$ 634.06	$ 6.79	$ 95.11	$ 52.08	$ 729.17
					Labor Subtotal:	**$ 5,746.76**	**Total MU (15%):**	**$ 794.51**	**Labor Total:**	**$ 6,541.27**

Total Cost: $ 8,026.27

Cost per IAQ Event: $ 3,197.75

*Costs are based on a total of three (3) samples collected per event

Cost per Vapor Monitoring Event: $ 271.79