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FINAL REMEDIATION REPORT
NORTH FRANKLIN STREET SITE
WATKINS GLEN, NEW YORK

NYSDEC SITE NO. 8-49-002

Prepared For:

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
WORK ASSIGNMENT D003825-09

Prepared By:

URS CORPORATION
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202

SEPTEMBER 2002

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CONSTRUCTION CERTIFICATION

AT

NORTH FRANKLIN STREET SITE REMEDIAL ACTION

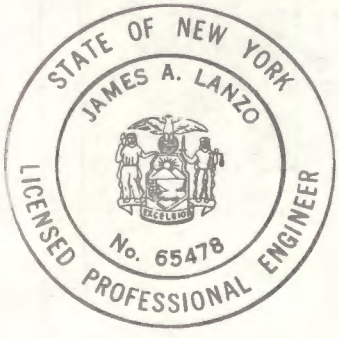
WATKINS GLEN, NEW YORK

URS Corporation Group Consultants personnel have inspected the remedial action construction at the North Franklin Street site according to generally accepted practices. Based on: field observations and inspections made by onsite personnel; field and laboratory test data; and data provided by the Contractor and its subcontractors, the remedial action construction at the site is considered to have been performed in substantial compliance with the NYSDEC Contract Documents, with the Record of Decision for the site issued January 18, 1994, and as stated in this report.

URS Corporation Group Consultants certifies that the construction was completed in accordance with the approved Contract Document Plans and Specifications (Titled: Specifications and Contract Documents for Remedial Action at North Franklin Street Site, Village of Watkins Glen, Schuyler County, New York, June 1995) and incorporating the modifications presented herein.

The work was inspected and documented by competent people under my direct supervision.

SEPTEMBER 2002



Signature: _____

James Lanzo, P.E.

Date: _____

1.0 INTRODUCTION

1.1 Purpose and Scope

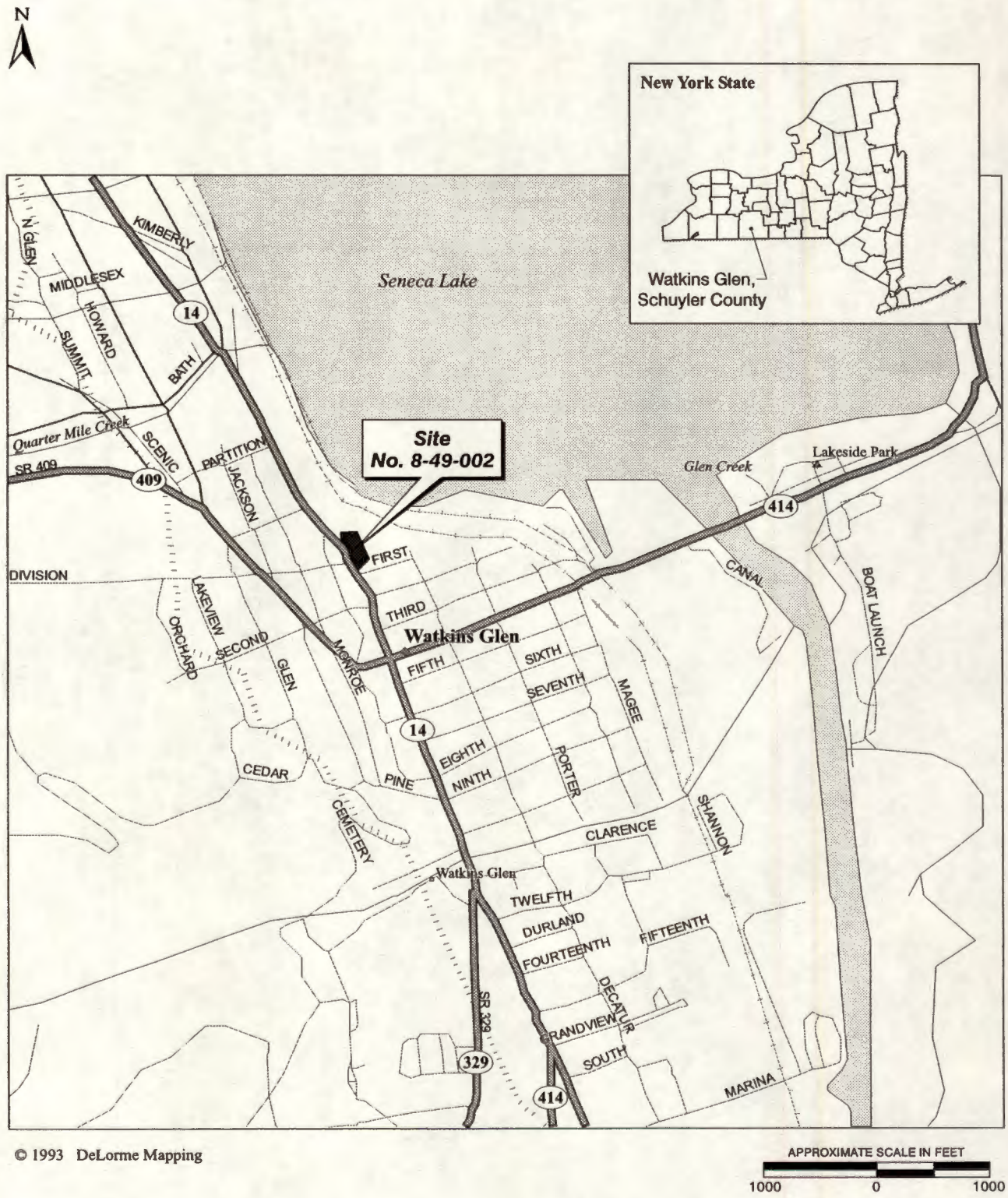
This Final Remediation Report has been prepared to document the construction phase of the remedial action at the North Franklin Street Site. URS prepared this report under Task 9 – Reporting, of Work Assignment D003825-09.1. This document covers only the construction of the original remedial action (as of late 1996), and does not include any of the subsequent activities at the site. These subsequent activities are documented in the reports titled *Evaluation and Conceptual Design for Additional Remedial Action* (URS, 1999) and *Evaluation of Site Remediation by In-Situ Oxidation* (URS, 2001).

Only approved methods, materials, and equipment, as required by the Contract Documents, were used on this project unless otherwise described in the following sections on variances and change orders. Provided within this document are:

- Certification by a Professional Engineer licensed to practice in New York State
- Record Drawings (attached separately)
- Discussion of any variances and change orders to the original contract

1.2 Site Description

The North Franklin Street Class 2 inactive hazardous waste site is an approximately 0.3-acre parcel of land situated in the Village of Watkins Glen, Schuyler County, New York. The site is located in an urban area approximately 400 feet south of Seneca Lake, as shown on Figure 1-1. Two structures currently exist on site (shown on Figure 1-2). The building referred to as the "Former Auto Museum" is a single-story metal building on a concrete slab. The second structure is referred to as the "Former Dry Cleaning Building." This is a two-story brick building that also includes two unoccupied single-story brick sheds to the east. Both of these buildings have housed a variety of businesses in the past, including a machine shop and dry cleaning operations.



URS

NORTH FRANKLIN STREET
SITE LOCATION MAP

FIGURE 1-1

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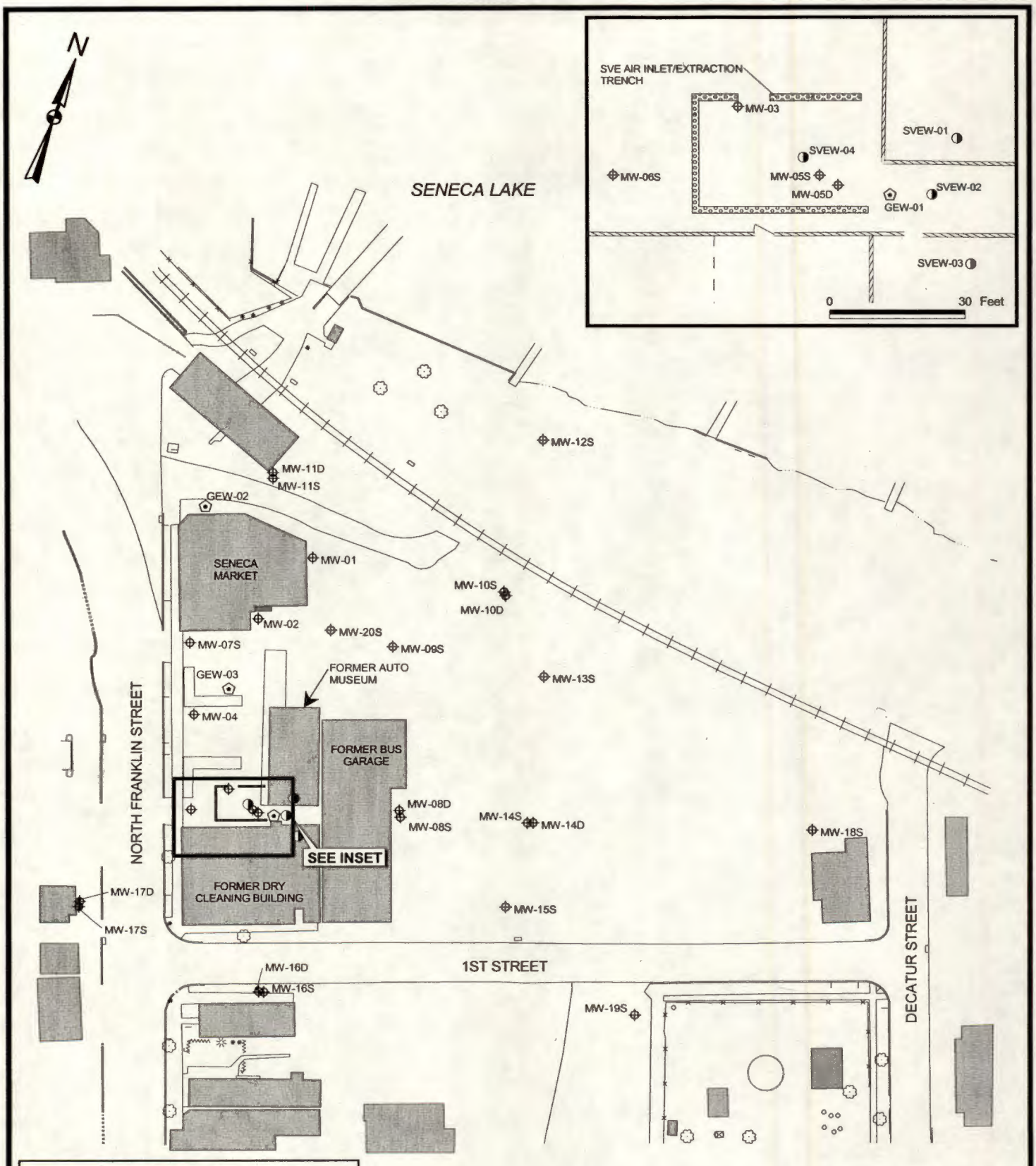

J:\35388\GIS\DEC2000\n_franklin.apr SITE LAYOUT
6/24/2002

URS

NORTH FRANKLIN STREET
SITE LAYOUT

FIGURE 1-2

1.3 Site History

URS completed a state funded Remedial Investigation (RI) in April 1993, concluding that both groundwater and soil in the vicinity of the site had been contaminated by volatile organic compounds associated with the former dry cleaning operations. Dumping of tetrachloroethylene (PCE) contaminated water in an alley between the auto museum and the dry cleaners was identified as the major source of contamination.

After URS completed a Feasibility Study (FS) in November 1993, the NYSDEC prepared and signed a Record of Decision (ROD) on January 18, 1994. In accordance with the requirements of the ROD, URS designed a Soil Vapor Extraction (SVE) system to treat shallow soil (above the clay layer) and a groundwater treatment system (GWET) to extract and treat groundwater. The ROD called for the SVET system to operate until soil cleanup objectives were achieved, and for the GWET system to operate for five years or until asymptotic contaminant concentrations were detected in monitoring wells.

URS completed the remedial design and preparation of contract documents for the site in June 1995. The remediation contract (Contract No. D03363) for construction and operation of the SVE and groundwater treatment systems was subsequently awarded to Terra Vac, Inc. Terra Vac completed construction of the treatment systems and began operations in the fall of 1996.

2.0 SUMMARY OF REMEDIAL WORK

2.1 Summary of Remedial Construction Work

The main work items completed by the Contractor under this Contract included:

- Installation of site utilities
- Mobilization of office trailers
- Installation of a chain link fence around the active areas of the site
- Excavation and removal of a perforated storm water drain pipe, and replacement with a solid PVC drain pipe
- Treatment and removal of drummed soil cuttings from previous investigations
- Installation soil vapor extraction wells
- Installation of groundwater extraction wells
- Construction of a stone-filled air inlet trench
- Mobilization of the treatment trailers, including separate Soil Vapor Extraction and Treatment (SVET) and Groundwater Extraction and Treatment (GWET) systems.
- Mobilization of a catalytic oxidizer system for off-gas treatment
- Sealing of all ground surfaces including the paved areas, and the floor of the auto museum.
- Site grading and restoration

2.2 General Requirements

2.2.1 On-site Inspection

Inspection of the construction activities was performed by URS throughout the construction phase of the Contract. URS prepared daily inspection reports to document the work performed by Terra Vac and their subcontractors, to record the equipment and labor used, and to verify that the requirements of the Contract Documents were satisfied. Daily inspection reports are on file at the NYSDEC.

2.2.2 Record Drawings

Terra Vac submitted red-line drawings to show the "as-built" condition of the work completed. URS verified these drawings based on our site inspections, and used the information to prepare record drawings, included with this report as Appendix A (attached separately).

2.2.3 Construction Photographs

Both digital and regular photos were taken throughout construction. Photographs representing major work items are included in Appendix B. Additional construction photographs are on file at the NYSDEC.

2.2.4 Subcontractors

Terra Vac utilized the following subcontractors on the North Franklin Street Site:

- American Auger and Ditching Co. – Well installation
- Baker Tanks, Inc. – Tank rental
- Bisco – Treatment system design and construction
- Bouille Electric – Electrical contractor
- Friend Laboratory – Samples Analysis
- Jeff's Septic Service – Sanitary facilities
- Lifestyles Construction – Construction staff
- Manpower, Inc. – Construction staff
- Narde Paving Co. – Asphalt Paving
- Performance Analytical – Sample Analysis
- R&L Perry Construction – Supplied stone and building materials, waste disposal
- Rogers Fence Co. – Fence installation and modifications
- Scotsman Group – Office trailer rental
- Siewert Equipment – Blower repairs

2.3 Variances

Variances are modifications to the Contract Documents that do not involve changes to the contract cost or the contract time. Variances were implemented following approval by URS of a request from Terra Vac, or as initiated by URS. Specific variances to the contract are discussed in Section 3.0.

2.4 Change Orders

2.4.1 Description

Modifications to the Contract Documents that change either the contract price or the contract time are processed through change orders. A total of five change orders, each consisting of multiple work items, were prepared for this contract. Appendix C contains a copy of the five executed change orders for this contract.

Change Order Nos. 1, 2, and 3 were for numerous items associated with additional site work, modifications to the systems, credits for work not performed, and credits for liquidated damages. Change Order No. 4 included items associated with extended operation of the treatment systems, system repairs, and collection of additional soil samples. Change Order No. 5 was issued only for extended rental of the SVE trailer and equipment. Further discussion of specific change order items is included in Section 3.0.

2.4.2 Cost Adjustments

Table 2-1 summarizes the original contract bid prices and quantities for the project. Over the course of the project, there were numerous adjustments to the original contract amounts for work items that were either added to or deleted from the scope of work. These change order costs are also summarized on Table 2-1. Additional information on each of the change order items is included in Appendix C.

Table 2-1
SUMMARY OF CONTRACT COSTS
North Franklin Street Site
NYSDEC Site No. 8-49-002

Item No.	Description	Unit	Contract		
			Quantity	Unit Price	Total
1	General	LS	1	$ 36,200.00	$ 36,200.00
2	Site Preparation	LS	1	$ 10,043.00	$ 10,043.00
3	Site Facilities and Services	Per Month	6	$ 4,552.00	$ 27,312.00
4A	SVET System Installation	LS	1	$ 109,740.00	$ 109,740.00
4B	SVET System O&M	Per Month	5	$ 9,111.62	$ 45,558.10
4C	SVET System O&M	Per Month	6	$ 7,560.00	$ 45,360.00
4D	Confirmatory Soil	LS	1	$ 7,900.00	$ 7,900.00
5	Contaminated Soil Disposal	CY	5	$ 165.00	$ 825.00
6	Contaminated Water Disposal	Gallon	1000	$ 4.40	$ 4,400.00
7	Disposal of Pre-Existing Staged Drill Cuttings	Per Drum	57	$ 85.44	$ 4,870.08
8	Earthwork	LS	1	$ 24,650.00	$ 24,650.00
9	Existing Monitoring Well Decommissioning	Each	16	$ 583.00	$ 9,328.00
10	SVET System Decommissioning	LS	1	$ 10,712.00	$ 10,712.00
11A	GWET Systems / Wells GEW-1 and GEW-2	LS	1	$ 235,200.00	$ 235,200.00
11B	GWET System O&M (Mos. 1-5)	Per Month	5	$ 8,090.00	$ 40,450.00
11C	GWET System O&M (Mos. 6-12)	Per Month	6	$ 7,186.00	$ 43,116.00
12A	GW Extraction Well GEW-3	Each	1	$ 6,810.00	$ 6,810.00
12B	GW Extraction Well GEW-4	Each	1	$ 6,860.00	$ 6,860.00
13	Soil Vapor Extraction Wells	Each	4	$ 1,180.00	$ 4,720.00
14	Soil Vapor Monitoring Probes	Each	6	$ 1,410.00	$ 8,460.00
15	SVET System Air Inlet Wells	Each	15	$ 510.00	$ 7,650.00
16	SVET System Air Inlet Trenches	Linear Foot	140	$ 82.41	$ 11,537.00
17	Electrical	LS	1	$ 16,500.00	$ 16,500.00
18	Discharge Forcemain Construction	LS	1	$ 7,050.00	$ 7,050.00
19	Storm Water Drainage Pipe Construction	LS	1	$ 12,040.00	$ 12,040.00
20	Health and Safety	Per Manday	100	$ 55.00	$ 5,500.00
PLI	Pollution Liability Insurance	LS	1	$ 8,000.00	$ 8,000.00
	SUBTOTAL ORIGINAL CONTRACT				**$ 750,791.18**

Table 2-1
SUMMARY OF CONTRACT COSTS
North Franklin Street Site
NYSDEC Site No. 8-49-002

Item No.	Description	Unit	Contract		
			Quantity	Unit Price	Total
2	Fence Height Extension	LS	1	$ 4,987.55	$ 4,987.55
2	Awning Removal	LS	1	$ 1,437.77	$ 1,437.77
4A	Temperature Transmitters	LS	1	$ (2,000.00)	$ (2,000.00)
11A	Pull Boxes	LS	1	$ (500.00)	$ (500.00)
11A	Catalytic Oxidizer Rental	LS	1	$ (41,021.00)	$ (41,021.00)
11A	Flow Control Valves	LS	1	$ 105.00	$ 105.00
11A	Prepacked Well Screens	LS	1	$ 3,250.00	$ 3,250.00
12A	Prepacked Well Screens	LS	1	$ 1,240.00	$ 1,240.00
14	Pressure Transmitters	Each	6	$ (825.60)	$ (4,953.60)
21	Liquidated Damages	Per Day	76	$ (146.00)	$ (11,096.00)
	SUBTOTAL CHANGE ORDER No. 1				**$ (48,550.28)**
11A	GEW Flowmeters	LS	1	$ 3,675.14	$ 3,675.14
11A	Reduction in Startup O&M	LS	1	$ (4,045.00)	$ (4,045.00)
4A	Relocation of Flow Elements	LS	1	$ 650.61	$ 650.61
4A	Perched Groundwater Removal	LS	1	$ 140.84	$ 140.84
5	Disposal of C&D Material	LS	1	$ 7,017.69	$ 7,017.69
7	Disposal of PPE	LS	1	$ 1,795.50	$ 1,795.50
2	Relocation of Project Sign	LS	1	$ 160.61	$ 160.61
11B	Modification of Sampling Requirements	LS	1	$ (504.00)	$ (504.00)
11C	Modification of Sampling Requirements	LS	1	$ (1,008.00)	$ (1,008.00)
20	Documentation Monitoring	Each	2	$ 1,800.00	$ 3,600.00
21	Liquidated Damages	Per Day	19	$ (146.00)	$ (2,774.00)
11B	Reduction in O&M Costs	LS	1	$ (1,011.25)	$ (1,011.25)
11B	Water Level Measurements	LS	1	$ 470.70	$ 470.70
11B	Additional Catox Rental	Per Week	13	$ 900.00	$ 11,700.00
	SUBTOTAL CHANGE ORDER No. 2				**$ 19,868.84**

Table 2-1
SUMMARY OF CONTRACT COSTS
North Franklin Street Site
NYSDEC Site No. 8-49-002

Item No.	Description	Unit	Contract		
			Quantity	Unit Price	Total
11C	Additional Catox Rental	Per Week	13	$ 900.00	$ 11,700.00
4A	Modify Level Sensor in Moisture Separator	LS	1	$ 165.61	$ 165.61
11A	Replace Level Sensor in GEW-2	Each	2	$ 123.74	$ 247.48
11A	Add Desiccant Bulbs to Level Sensors	LS	1	$ 710.92	$ 710.92
11C	Water Level Measurements	Each	2	$ 323.22	$ 646.44
11C	Coliform Sample	LS	1	$ 20.00	$ 20.00
11C	Well Cleaning Procedure	Each	2	$ 903.05	$ 1,806.10
6	Additional Contaminated Water	LS	1	$ 6,222.66	$ 6,222.66
4A	Modification of SVET for DVE	LS	1	$ 24,968.00	$ 24,968.00
17	Credit for Stepdown Transformer	LS	1	$ (2,195.00)	$ (2,195.00)
4C	Monitoring of Extraction Well Flow Rates	LS	1	$ 2,120.21	$ 2,120.21
11C	Operation Credit for Removal of Catox	Per Week	13	$ (694.74)	$ (9,031.62)
7	Drill Cuttings - Change to Quantity	Per Drum	6	$ (85.44)	$ (512.64)
9	Well Decommissioning - Change to Quantity	Each	2	$ (583.00)	$ (1,166.00)
12B	GEW-4 - Change to Quantity	Each	1	$ (6,860.00)	$ (6,860.00)
16	Air Inlet Trench - Change to Quantity	Linear Foot	42	$ (82.41)	$ (3,460.82)
20	Health & Safety - Change to Quantity	Per Manday	29	$ (55.00)	$ (1,595.00)
2	Fence Modification	LS	1	$ 6,436.05	$ 6,436.05
	SUBTOTAL CHANGE ORDER No. 3				**$ 30,222.39**

Table 2-1
SUMMARY OF CONTRACT COSTS
North Franklin Street Site
NYSDEC Site No. 8-49-002

Item No.	Description	Unit	Contract		
			Quantity	Unit Price	Total
11C	Extended SVET Operation	LS	1	$ 48,561.60	$ 48,561.60
4C	Extended GWET Operation	LS	1	$ 37,380.50	$ 37,380.50
4A	Blower Silencer & Insulation	LS	1	$ 989.61	$ 989.61
4A	Repair of Blower Seizure	LS	1	$ 3,081.79	$ 3,081.79
4D	Additional Soil Sample	LS	1	$ 1,925.67	$ 1,925.67
4D	16 Additional Soil Samples	LS	1	$ 8,310.72	$ 8,310.72
11A	Repair of Eq. Tank Pump	LS	1	$ 73.74	$ 73.74
	SUBTOTAL CHANGE ORDER No. 4				**$ 100,323.63**
4C	SVET Trailer Rental	LS	1	$ 12,556.00	$ 12,556.00
	SUBTOTAL CHANGE ORDER No. 5				**$ 12,556.00**
	TOTAL CHANGE ORDERS				**$ 114,420.58**
	TOTAL CONTRACT				**$ 865,211.76**

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2.4.3 Schedule Modifications

The schedule for the project consisted of three parts:

Part 1: Construction of a fully operational SVET and GWET systems, including 4 weeks of successful operation.

Part 2: Operation and maintenance of the GWET and SVET systems for a period of 5 months. Achievement of soil cleanup goals and decommissioning of the SVET system.

Part 3: Operation and maintenance of the GWET system for a period of up to 6 additional months. Turn over to the State a fully operational GWET system.

Table 2-2 summarizes the original contract time for the project. Over the course of the project, there were numerous adjustments to the contract time to account for delays by the contractor in constructing the system, and for delays in meeting the remediation objectives for the site. Table 2-2 summarizes the changes to the contract times. Additional information on the contract extensions is outlined below, as well as in the actual change orders (Appendix C).

Part 1

Terra Vac received Notice-to-Proceed (NTP) from the Department on January 2, 1996. The original contract specified a period of 120 days or May 1, 1996 for Part 1 Substantial Completion (construction of the treatment systems with 4 weeks of operation). In total, the time for Part 1 Substantial Completion was extended by 127 days, for a Substantial Completion date of September 5, 1996. Change Order No. 1 extended the contract time by 2 days due to severe winter weather conditions, and by 106 days to account for delays by the Contractor in completing the work at the site. Change Order No. 2 extended the contract by an additional 19 days to account for additional delays by the Contractor in providing a complete system that met the requirements of the Contract Documents.

Table 2-2
SUMMARY OF CONTRACT TIMES
North Franklin Street Site
NYSDEC Site No. 8-49-002

Part 1				
Change in Contract Time	**Substantial Completion**		**Final Completion**	
	Calendar Days	**Date**	**Calendar Days**	**Date**
Original	120	May 1, 1996	180	June 30, 1996
After Change Order No. 1	228	August 17, 1996	288	October 16, 1996
After Change Order No. 2	247	September 5, 1996	307	November 4, 1996
After Change Order No. 3	247	September 5, 1996	307	November 4, 1996
After Change Order No. 4	247	September 5, 1996	307	November 4, 1996
After Change Order No. 5	247	September 5, 1996	307	November 4, 1996

Part 2A				
Change in Contract Time	**Substantial Completion**		**Final Completion**	
	Calendar Days	**Date**	**Calendar Days**	**Date**
Original	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 1	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 2	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 3	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 4	804	March 16, 1998	864	May 15, 1998
After Change Order No. 5	804	March 16, 1998	864	May 15, 1998

Part 2B				
Change in Contract Time	**Substantial Completion**		**Final Completion**	
	Calendar Days	**Date**	**Calendar Days**	**Date**
Original	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 1	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 2	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 3	Achievement of Soil Cleanup		60 Days After Substantial	
After Change Order No. 4	881	June 1, 1998	941	July 31, 1998
After Change Order No. 5	881	June 1, 1998	941	July 31, 1998

Part 3				
Change in Contract Time	**Substantial Completion**		**Final Completion**	
	Calendar Days	**Date**	**Calendar Days**	**Date**
Original	480	April 26, 1997	540	June 25, 1997
After Change Order No. 1	588	August 12, 1997	648	October 11, 1997
After Change Order No. 2	607	August 31, 1997	667	October 30, 1997
After Change Order No. 3	607	August 31, 1997	667	October 30, 1997
After Change Order No. 4	836	April 17, 1998	896	June 16, 1998
After Change Order No. 5	836	April 17, 1998	896	June 16, 1998

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Part 2

Part 2 Substantial Completion as defined by the Contract Documents included operation of the SVET and GWET systems for a 5 month period, as well as the shut down and decommissioning of the SVET system. However, because the cleanup objectives for the soil were not achieved during the initial 5-month period, Part 2 Substantial Completion was divided into Part 2a for SVET system shutdown, and Part 2b for decommissioning and removal of the SVET system. Change Order No. 4 set a date of March 16, 1998 for Part 2a Substantial Completion, 804 days following issuance of the Notice to Proceed for the site. Although the soil cleanup objectives were not achieved in all areas of the site, March 16, 1998 is the date that the SVET system was shut down. Final Completion for Part 2a was dated May 15, 1998.

After deciding that the SVET system would not be further utilized at the site, Part 2b Substantial Completion (decommissioning and removal of the SVET system, including decommissioning of several SVE wells), was issued on May 21, 1998, prior to the June 1, 1998 deadline.

Part 3

The originally specified period for Part 3 Substantial Completion (turnover of the GWET system) was 480 days. Based on the 127-day delay to Part 1 Substantial Completion (construction of the system), the time for Part 3 also was extended for a period of 127 days.

In addition to the 127-day extension, Change Order No. 4 further extended Part 3 Substantial Completion by 229 days. This extension was due to the continued operation of the SVET system as described under Part 2 Substantial Completion. Because costs for operation of the GWET system were interconnected with the costs to operate the SVET system (e.g., one electric meter for both systems), it was decided that Terra Vac would continue to operate both systems while the SVET system was running. Based on meetings with NYSDEC, URS, and Terra Vac, a date of April 17, 1998 was determined for Part 3 Substantial Completion, a total of 836 days after Notice to Proceed. The date for Part 3 Final Completion was 60 days later, on June 16, 1998.

2.5 Final Inspection

Part 3 Substantial Completion for the project was issued on April 14, 1998, based on an inspection of the site conducted on that date. Representatives from NYSDEC, URS, and Terra Vac attended this inspection. Based on the inspection, it was determined that Terra Vac's construction and operation of the project was complete, with the exception of the general punchlist items noted below:

- Demobilizing the Catox unit
- Cleaning of miscellaneous materials and debris from the site and the trailer
- Identification of all wells using fluorescent paint
- Transfer of all utility bills
- Resecuring the cover on the chain link fence
- Acid washing and cleaning the air stripers
- Repairing the air stripper blower
- Cleaning the extraction well level transmitters
- Submitting a final O&M manual

Most of the field work items were completed by Terra Vac on May 21 and 22, 1998. Based on the completion of all punch list items on August 25, 1998, Part 3 Final Completion, dated June 16, 1998, was issued to Terra Vac.

3.0 DETAILED DESCRIPTION OF VARIANCES AND CHANGE ORDERS

A total of five change orders were executed during the construction and operation of the remedial action at the North Franklin Street site. The following sections summarize the various items that were included in these change orders as they specifically relate to the site work, SVET system construction, GWET system construction, and the systems operation and maintenance. Change order items dealing solely with time extensions, liquidated damages, and changes to contract quantities are not included. Appendix C contains complete copies of all executed change orders.

3.1 Site Work and Site Facilities

Many of the variances and change orders associated with the site work and facilities were to accommodate concerns of local residents in regards to the appearance of the remediation activities. Because the site is on the main thoroughfare, highly visible, and located in a village that relies largely on tourism, the local residents and business people were concerned with the appearance of the site. Variances and change orders included the following:

- The contract documents originally required, and the Contractor initially installed, a 6-foot high chain link fence around the perimeter of the work area. However, the local business community was concerned that the site was highly visible to tourists, and may have an adverse effect on the image of the town. Therefore, the fence height was extended to 10 feet, and a black barrier fabric was installed over the entire fence. *(Change Order No. 1)* As construction progressed and the intrusive work completed, the fence was moved to minimize the amount of the site included within the fenced area. *(Change Order No. 3)*

- When the Contractor arrived at the site, it was discovered that the site owner had not removed the awnings, concrete benches/planters, and other miscellaneous items from a plant nursery operating in the area proposed for construction. To avoid any potential delays, the Contractor was directed to dismantle and move the items to another area of the site. *(Change Order No. 1)*

- The Contract Drawings showed a total of four electrical pull boxers installed at the site. However, based on the Contractor's routing of electrical lines, only two boxes were required to meet the National Electric Code. Therefore, only two boxes were installed. *(Change Order No. 1)*

- The original bid quantity for disposal of contaminated soil was 5 cubic yards. The actual quantity of material disposed from the site was approximately 80.5 tons. A lump sum change for the additional quantity of material was executed. *(Change Order No. 2)*

- The Contract Documents indicated that the 57 drums left at the site from previous investigations all contained drill cuttings. In actuality, 6 of the drums contained personal protective equipment (PPE). A change order was issued to account for the additional cost for disposal of the PPE. *(Change Order No. 2)*

- Once barrier fabric was installed over the chain-link fence, the NYSDEC project sign was no longer visible. The Department directed the Contractor to relocate the sign to the outside of the fence. *(Change Order No. 2)*

- At the request of the NYSDOH, the Contractor was requested to conduct two rounds of air monitoring. Each round consisted of the collection of three 8-hour weighted time average air samples from around the perimeter of the site. These samples were analyzed for VOCs. *(Change Order No. 2)*

- One sample was collected from groundwater extraction well GEW-1 and analyzed for coliform to determine whether biological growth in the well was possibly associated with leakage from an unknown sanitary sewer in the area. *(Change Order No. 3)*

- The original bid quantity for disposal of contaminated water was 1,000 gallons. The actual quantity of water collected was 13,703 gallons, primarily from the installation and development of the groundwater extraction wells. A lump sum change for the

handling/disposal of the additional quantity of water was executed. *(Change Order No. 3)*

- The Contract Documents indicated that the Contractor would be required to install a 4160-volt to 480-volt transformer at the site. However, during construction, the Village of Watkins Glen provided the Contractor with a 480-volt supply. Therefore, it was not necessary for the Contractor to install the transformer. *(Change Order No. 3)*

3.2 Soil Vapor Extraction and Treatment (SVET) System

Variances and change orders to the Contract Documents for the construction and installation of the SVET system are summarized below:

- The original contract documents specified that one temperature transmitter be installed on the pipe from each extraction well, for a total of four. Instead of transmitters, which generate an electronic signal, it was decided that less expensive temperature indicators (gauges) would provide an adequate level of information for operation of the system. *(Change Order No. 1)*

- The original contract documents specified that pressure transmitters be installed on each of the 6 pressure monitoring piezometers. Instead of transmitters, which generate an electronic signal, it was decided that less expensive pressure indicators (gauges) would provide an adequate level of information for operation of the system. *(Change Order No. 1)*

- Each of the four extraction wells of the SVET system included a dedicated flow transmitter to indicate the vapor flow rate from the well. The Contract Documents originally called for the transmitters to be located on the discharge of the extraction blowers. However, the blower discharge also includes air inlet for dilution and/or air from the vacuum release valve. The flow sensors were therefore relocated to the inlet side of the blower so that only vapor from the wells would be measured. *(Change Order No. 2)*

- Perched water from the SVE area, specifically at extraction well SVE-2, was manually removed to increase the effectiveness of the SVET system. *(Change Order No. 2)*

- The liquid level sensor in the moisture separator reads the liquid level in the tank as a pressure, and was giving false readings due to the vacuum applied by the blowers. The level sensor was modified so that it would give correct readings, and thus control the condensate transfer pump correctly. *(Change Order No. 3)*

- Based on the first round of confirmatory soil samples that were collected, it was determined that several areas of the site still contained elevated contaminant concentrations, even though the system was not collecting an appreciable quantity of contaminants from the soil. It was determined that high groundwater elevations in the area of soil vapor extraction were decreasing the effectiveness of the SVE efforts. A change order was issued for the Contractor to convert several of the existing extraction wells, and several of the air inlet wells, into dual vapor extraction wells. Dual vapor extraction wells are designed to remove both groundwater and soil vapor from a single well. *(Change Order No. 3)*

- After the site fence was reduced, several local business and residential neighbors notified the Department that the treatment system was much louder. A change order was issued for the Contractor to install a silencer on the system discharge, as well as to line the system housing with additional foam insulation to attenuate the noise. *(Change Order No. 4)*

- After seizing, one of the SVET blowers was sent to the manufacturer for repair. It was determined that mineral deposits were building up on the blower lobes. The manufacturer repaired this blower, while the Contractor cleaned and repaired two of the other blowers at the site. *(Change Order No. 4)*

- It was necessary to increase the quantity of confirmatory samples collected due to the results of the first sampling events and due to the extended operation of the SVET system. A total of 17 additional soil samples were collected and analyzed. *(Change Order No. 4)*

3.3 Groundwater Extraction and Treatment (GWET) System

Variances and change orders to the Contract Documents for the construction and installation of the GWET system are summarized below:

- The Contract Documents originally required that a Catalytic Oxidation (Catox) unit be purchased to treat the emissions from the GWET system. The primary reason for using Catox for treatment was the possible presence of vinyl chloride in the groundwater. Vinyl chloride has very low allowable air emissions as compared to other contaminants present at the site. It was determined that it would be more cost effective to rent the unit, which could then be returned once monitoring showed that there was no significant threat from vinyl chloride. *(Change Order Nos. 1, 2, and 3)*

- Valves were installed on each of the three influent lines from the extraction wells, allowing the operator to better control the flow rate from each well. *(Change Order No. 1)*

- Due to the site specific geologic conditions, it was anticipated that standard installation of the well screens and filter would be difficult and would lead to poor performance and yield. To address these concerns, prepacked, stainless steel well screens were used for installation of the three groundwater extraction wells instead of standard construction methods. *(Change Order No. 1)*

- Individual flow meters were installed on each of the three influent lines from the extraction wells. These meters allow the operator to better monitor and control the flow rate from each well. *(Change Order No. 2)*

- Due to excess rainwater in the area of the extraction well GEW-2, the level sensor was damaged and had to be replaced. *(Change Order No. 3)*

- Desiccant tubes were added to the air vent lines on each of the three level sensors in the groundwater extraction wells. The desiccant tubes prevent moisture from getting into the vent line and corroding the unit. *(Change Order No. 3)*

3.4 Operation and Maintenance

Variances and change orders related to the operation and maintenance of the remediation systems are summarized below.

- Based on the initial monitoring events, the sampling requirements for the GWET system discharge were modified to eliminate analysis for total dissolved solids (TDS), biological oxygen demand (BOD), cadmium, metals, and PCBs. The only parameters analyzed were total suspended solids (TSS), volatile organic compounds (VOCs), and iron. *(Change Order No. 2)*

- The Contractor was requested to collect a round of groundwater elevations from the monitoring wells across the site, and to determine whether any mineral deposits and/or biological growth was occurring on the screens of the extraction wells. Two additional rounds of water level collection were later included as a separate change order item. *(Change Order Nos. 2 and 3)*

- To combat biological growth occurring in the groundwater extraction wells, the Contractor was requested to implement a well cleaning procedure. The procedure consisted of scrubbing the screens and then treating them with a hydrochloric acid solution to kill the biological growth. Two rounds of well cleaning were included under this change order item. *(Change Order No. 3)*

- For operation of the SVET system, the Contractor was requested to provide weekly measurement of the air flow rate from the newly installed DVE wells, as well as from the previous SVE wells at the site. *(Change Order No. 3)*

- The original contract cost for operation of the GWET system included costs for operation of the Catox unit. However, since the Catox unit was rented and not purchased (described in Section 3.3), once the unit was no longer in use, the Contractor owed a credit for the decreased cost of operation. *(Change Order No. 3)*

- The original period for operation of the SVET system included in the Contract Documents was one year, after which the Contractor would remove the system from the site. However, because the cleanup objectives were not achieved within the one-year period, the duration of the SVET operation was extended by a total of 221 days. *(Change Order No. 4)*

- The original period for operation of the GWET system included in the Contract Documents was one year. After the one-year period, the entire GWET system would be turned over to the Department for continued operation. However, because the operation of the SVET system was extended beyond the one year period, and since the costs for operation of the two units were combined, it was decided that operation of the GWET system also would be extended. The Contractor's operation of the GWET system was extended by a total of 267 days. *(Change Order No. 4)*

APPENDIX A

RECORD DRAWINGS

BOUND SEPARATELY

APPENDIX B

CONSTRUCTION PHOTOGRAPHS

Photographs of Major Site Construction

1. Overview of site, facing northwest. GWET trailer shown in the front, SVET trailer behind. Fence with black tarp surrounds the site.

2. View down into a groundwater extraction well. Discharge pipe and electronics to the right of the photo.

3. Inside the GWET trailer, showing the two air strippers. Air stripper blower shown to the front of the photo.

4. Inside the GWET trailer, showing the two automatic filters. The backwash receiving tank is shown in the background of the photo.

5. Inside the SVET trailer, showing the condensate knockout tank.

6. Inside the SVET trailer, showing three of the four blowers. Discharge silencers are located on the top of the units are partially shown.

7. Facing west inside of the treatment area. The GWET trailer is shown to the right, and the catalytic oxidation unit is on the left (behind the people). The open well in the center of the photo is MW-3, located directly in the air inlet trench. An air inlet well for the trench is visible in the front of the catalytic oxidizer. The lighter mound to the left of MW-3 is an pressure monitoring point.

8. Facing north, showing the side of the catalytic oxidation unit.

PHOTO 1

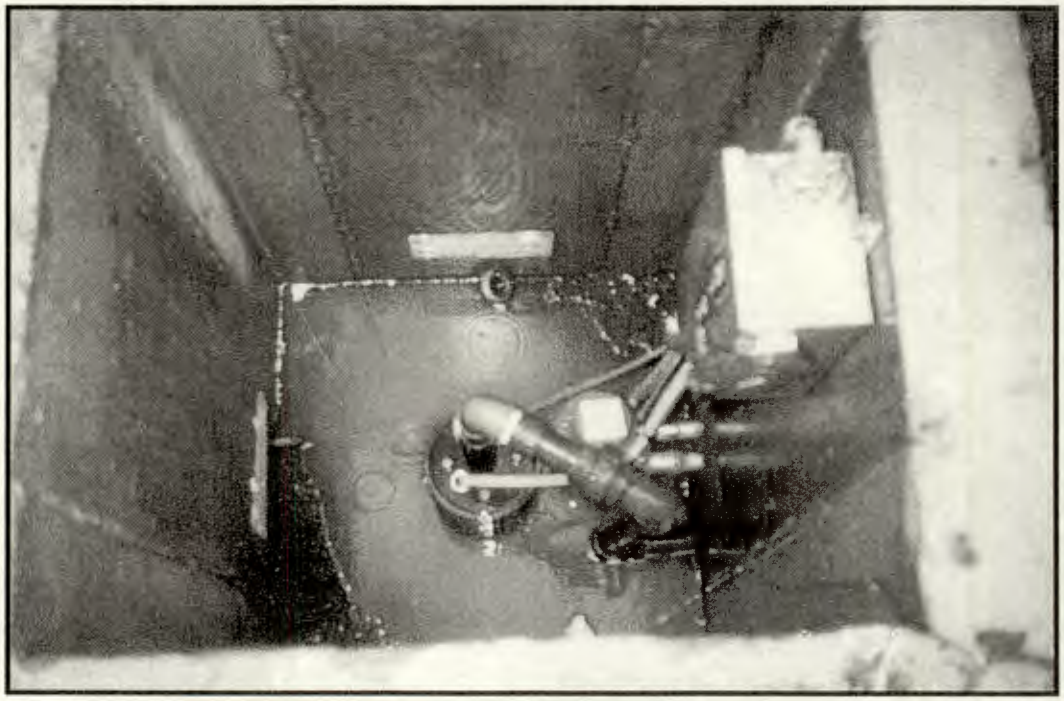

PHOTO 2

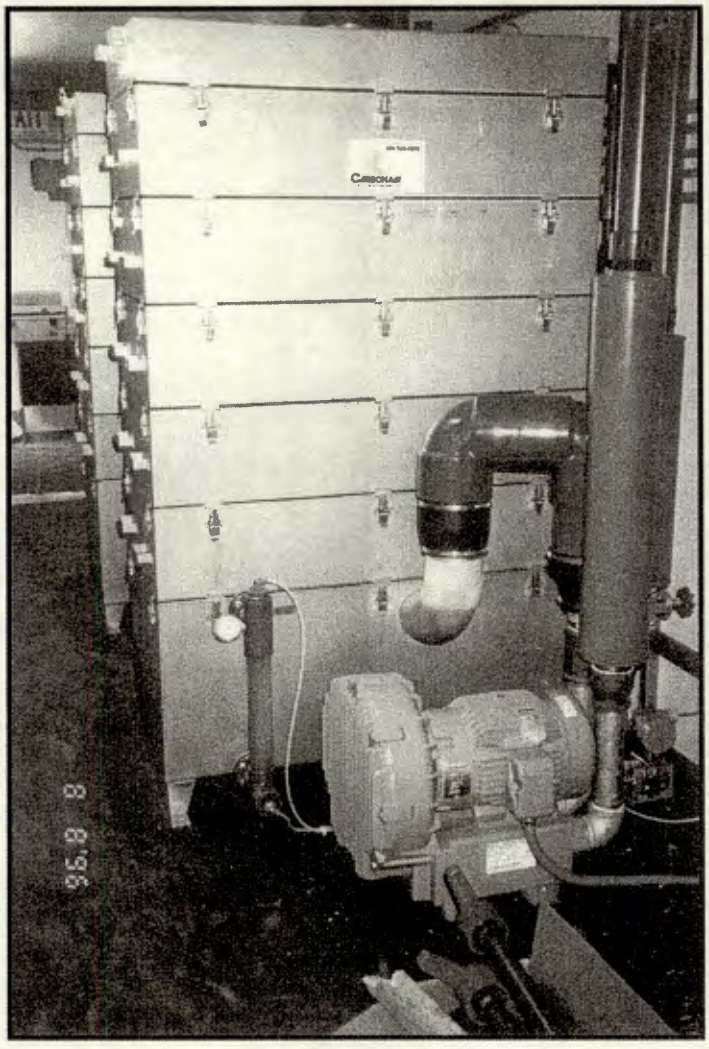

PHOTO 3

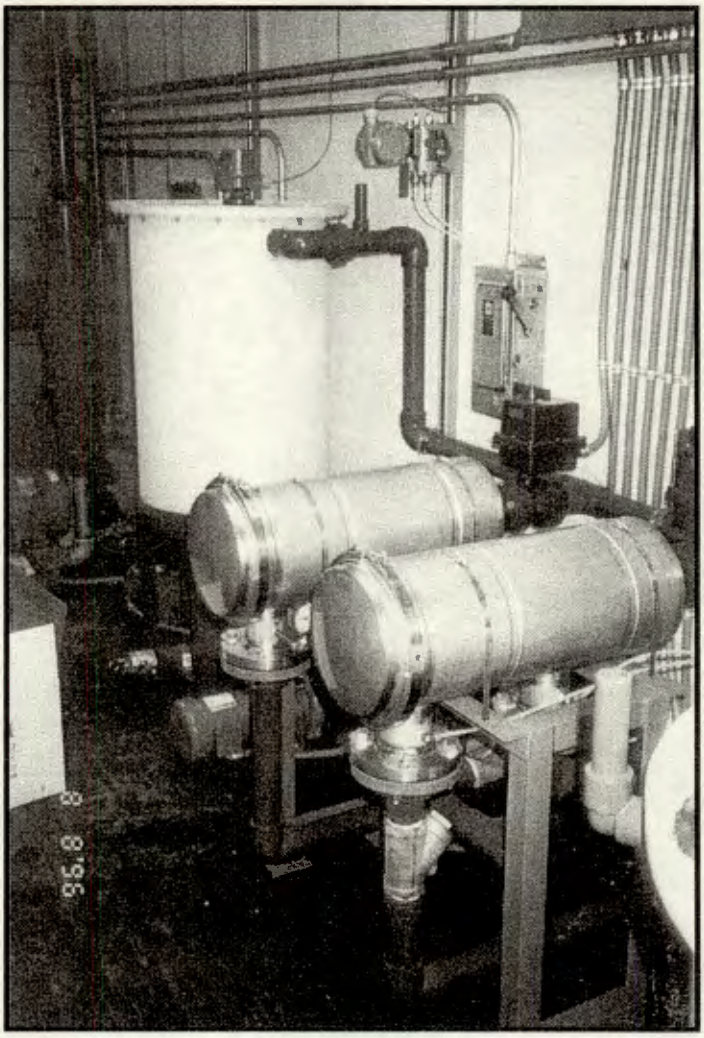

PHOTO 4

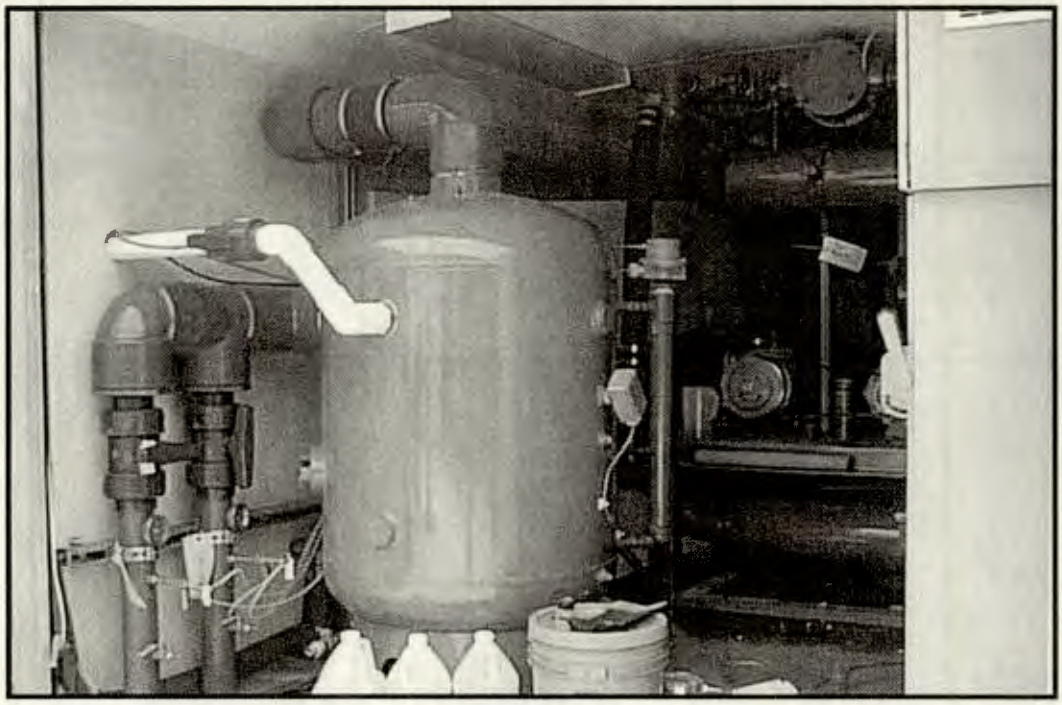

PHOTO 5

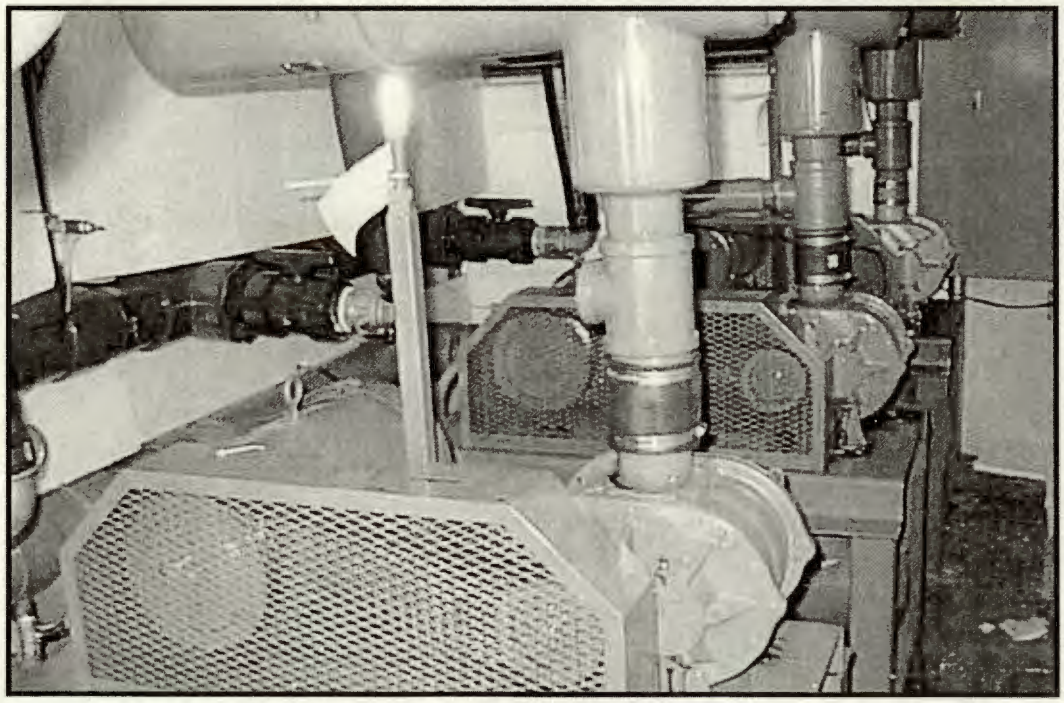

PHOTO 6

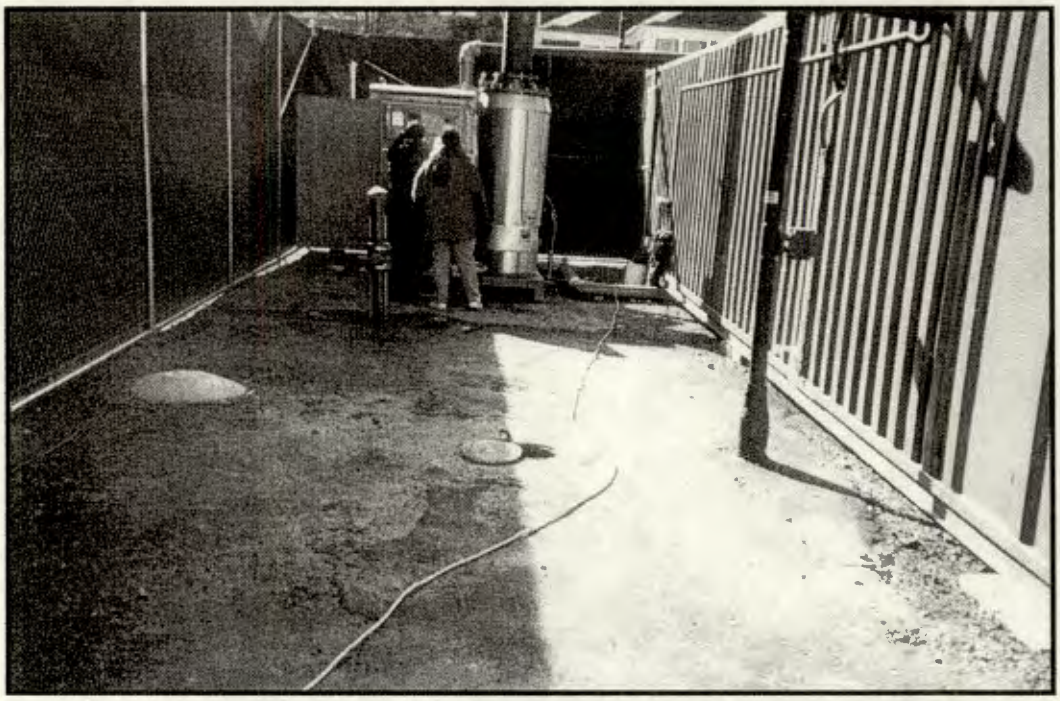

PHOTO 7

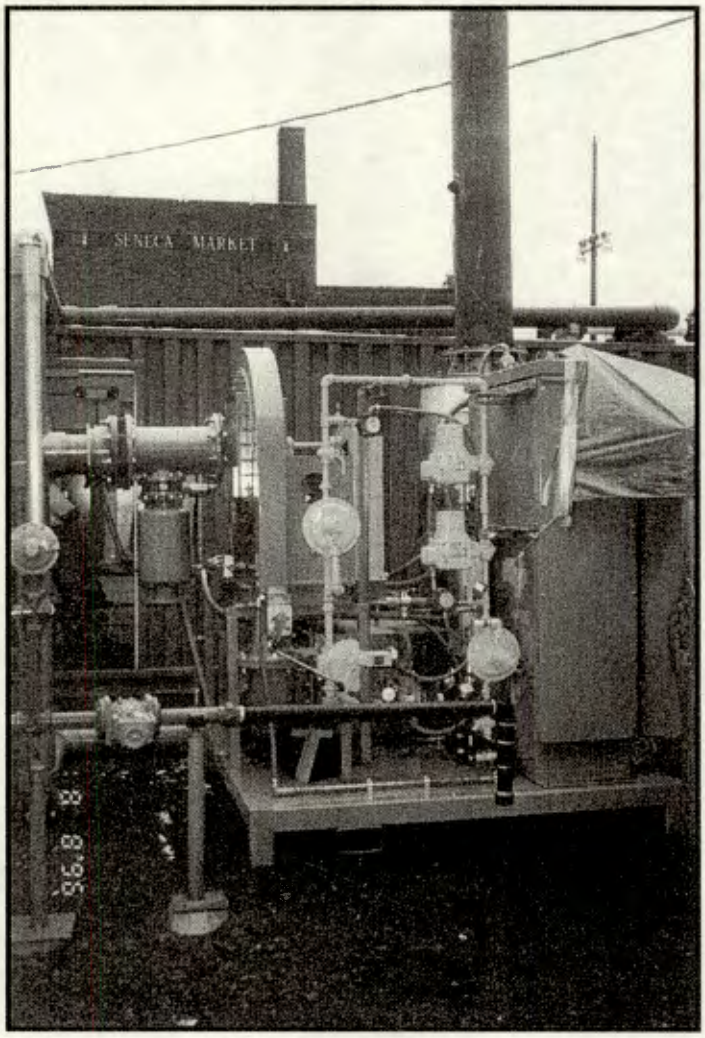

PHOTO 8

APPENDIX C

CHANGE ORDERS

North Franklin Street Site Remedial Action
Contract No. D003363
Site No. 8-49-002
Change Order No. 1

Change Order Amount: **($48,550.28)** Date of Issue: August 5, 1996

Contractor's Name: Terra Vac

Engineer's Name: URS Consultants, Inc.

Change Order Items: This Change Order comprises eleven (12) items as discussed below.

I. CHANGE ORDER ITEMS

A. This change in the original contract is for Item #2 - Site Preparation

DESCRIPTION OF CHANGE:

The height of the chain link fence surrounding the site was raised from 6 feet to 10 feet, and a barrier fabric to decrease visibility was added to cover the fence.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00501.7 - Fencing

CONTRACT PAY ITEM NO.: 2 - " Site Preparation "

REASON FOR CHANGE:

This change order is necessary for:

To address the Village of Watkins Glen's concerns the Department requested that the Contractor extend the height of the existing fence to 10-feet, and install a barrier fabric to decrease the visibility of the remedial activities from the adjacent North Franklin Street.

COST:

The Department and the Contractor negotiated a lump sum cost of $4,987.55 for the work involved with the fence height extension and barrier fabric.

Total **INCREASE** in Contract Price = $4,987.55

B. This change in the original contract is for Item #2 - Site Preparation

DESCRIPTION OF CHANGE:

As per the Department's request the Contractor was required to dismantle, remove, and relocate awnings and tree nursery planters from the site prior to the start of work at the site.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: N/A

CONTRACT PAY ITEM NO.: 2 - " Site Preparation "

REASON FOR CHANGE:

This change order is necessary for:

The original design of the project assumed that the awnings and nursery planters at the site would be removed by the owner of the site prior to the start work. Upon mobilization, the Contractor discovered that the awnings and planters had not been removed. At the direction of the Department the awnings and planters were removed by the Contractor.

COST:

The Department and the Contractor negotiated a lump sum cost of $1,437.77 for the work involved with the removal of the awnings and the nursery planters from the work area.

Total **INCREASE** in Contract Price = $1,437.77

C. This change in the original contract is for Item #4A - Soil Vapor Extraction Treatment (SVET) System Installation and Start-up

DESCRIPTION OF CHANGE:

The four (4) Temperature Transmitters (T.I.Ts) for continual recording of the air temperature on the SVE wells have been replaced with four Temperature Indicators (T.Is).

DRAWING REFERENCE: Dwg. Nos. 3 and 5

SPECIFICATION REFERENCE: Section 00513.11 - Temperature Indication Transmitter

CONTRACT PAY ITEM NO.: 4A - " SVET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

This change was requested by the Contractor to reduce the complexity of the design. Instead of automatic recording of the temperature of the air being withdrawn from the extraction wells via temperature transmitters, the Contractor proposed to use personnel already on site to perform this monitoring with less expensive temperature indicators.

COST:

The cost per T.I.T unit is $4,400/8 units = $550 per unit. Because the four T.I.Ts located in the wells are deleted from the design, the change in price would be 4 x $550 = ($2,200.00)

The cost for the addition of four T.Is is $50 each. The change in price for the addition of the T.I.s would be 4 x $50 = $200.00

Total **DECREASE** in Contract Price = ($2,200) + $200.00 = ($2,000.00)

D. This change in the original contract is for Item #11A - Groundwater Extraction Treatment (GWET) System Installation /Start-up

DESCRIPTION OF CHANGE:

Two (2) of the electrical pull boxes as shown on the Contract Drawings were not installed.

DRAWING REFERENCE: Dwg No. 6

SPECIFICATION REFERENCE: Section 00510.6 - Conduits, Boxes, and Cabinets

CONTRACTOR PAY ITEM NO.: 11A - " GWET System / Wells GEW-1 and GEW-2 Installation/Start-up (4 Weeks) "

REASON FOR CHANGE:

This change order is necessary for:

The Contract Drawings indicated that four (4) electrical pull boxes were to be installed. The Contractor did not install two of these pull boxes because they were not required by the National Electric Code. Therefore, the Department is due a credit equal to the cost of the two electrical pull boxes not installed.

COST:

The cost per electrical pull box not installed is $250.00. Because two boxes were not installed, the change in the contract price would be $250 x 2 = $500.00.

Total **DECREASE** in Contract Price = ($500.00)

E. This change in the original contract is for Item #11A - GWET System Installation /Start-up

DESCRIPTION OF CHANGE:

The requirement for the purchase of a Catalytic Oxidation Unit (Catox Unit) for this project is deleted from Bid Item #11A. Instead, a Catox unit will be rented from the Contractor for a thirteen (13) week period.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508.10 - Minimum Requirements of the GWET System

CONTRACT PAY ITEM NO.: #11A

REASON FOR CHANGE:

This change order is necessary for:

Based on an economic evaluation a cost effective decision was made by the Department to rent the Catox unit as from the Contractor as opposed to purchase. This alternative assumes that the Catox unit will initially be rented for a period of 13 weeks.

COST:

The cost for this change item is summarized below:

Less Purchase of Catox Unit (Dedert 2000)	($99,000)
Reimbursement of Contractor Preparation Costs	$22,744
Catalyst, 4 cubic feet	$18,700
5% Handling Fee	$935
Rental, 13 weeks @ $1,200 per week (unit cost)	$15,600
Total **DECREASE** in Contract Price =	($41,021)

F. This change in the original contract is for Item #11A - GWET System Installation /Start-up

DESCRIPTION OF CHANGE:

Individual valves for flow control will be installed on the three lines influent from the groundwater wells.

DRAWING REFERENCE: Dwg. No. 4

SPECIFICATION REFERENCE: N/A

CONTRACTOR PAY ITEM NO.: 11A - " GEWT System Installation / Start-up"

REASON FOR CHANGE:

This change order is necessary for:

Based on the fact that a third groundwater extraction well was required by the Engineer and subsequently installed, it was determined that additional operational flexibility would be beneficial to the operation of the GWET system and for control of the overall remediation of the site. It was also determined that individual valves on the three influent lines from the groundwater wells would allow the operator to control the desired flow from each of the three wells.

COST:

The installed cost for each valve is $35.00. Therefore, the total cost for this change would be $35.00 x 3 = $105.00

Total **INCREASE** in Contract Price = $105.00.

G. This change in the original contract is for Item #11A - GWET System Installation /Start-up

DESCRIPTION OF CHANGE:

The original engineering design required that the well screens/filter pack be installed using standard methods wherein the well screen is installed and then the well filter material is installed around the outside of the well. Prepacked stainless steel well screens were installed for the wells GEW-1 and GEW-2 instead of well installation using standard methods.

DRAWING REFERENCE: Dwg. No. 3

SPECIFICATION REFERENCE: Section 00509 - Well Drilling and Placement

CONTRACT PAY ITEM NO.: 11A

REASON FOR CHANGE:

This change order is necessary for:

Due to the site specific geologic conditions, it was determined that standard installation of the well screens and associated filter pack could be very difficult and could lead to poor performance and yield from the extraction wells. To address the installation and yield concerns it was determined that the design for the wells should be changed to require pre-pack, stainless steel well screens.

COST:

Two 10 foot section of 6"ID stainless steel prepack screen @ $1,440.00 each	$2,880.00
Shipping	$400.00
Mobilization	$920.00
Credit for installation of well screen/filter pack as originally specified	($950.00)
Total **INCREASE** in Contract Price =	$3,250.00

H. This change in the original contract is for Item #12A - GEW-3

DESCRIPTION OF CHANGE:

A prepacked stainless steel well screen was installed for this well instead of using standard methods.

DRAWING REFERENCE: Dwg. No. 3

SPECIFICATION REFERENCE: Section 00509.2D - Filter Material; Section 00509.3E - Filter Pack Material

CONTRACT PAY ITEM NO.: 12A - " Groundwater Extraction Well, GEW-3 "

REASON FOR CHANGE:

This change order is necessary for:

Due to the site specific geologic conditions, it was determined that standard installation of the well screens and associated filter pack could be very difficult and could lead to poor performance and yield from the well. To address the installation and yield concerns it was determined that the design for the well should be changed to require a pre-pack, stainless steel well screen.

COST:

One 10 foot section of 6" ID stainless steel prepack screen	$1,440.00
Shipping	$400.00
Credit for installation of PVC screen/filter pack as originally specified	($600.00)
Total INCREASE in Contract Price =	$1,240.00

I. This change in the original contract is for Item #14 - Soil Vapor Monitoring Probes

DESCRIPTION OF CHANGE:

The six (6) Pressure Indicating Transmitters (P.I.Ts) for continual recording of subsurface pressure in the pressure piezometer are replaced with six Pressure Indicators (P.Is).

DRAWING REFERENCE: Dwg. Nos. 2 and 5

SPECIFICATION REFERENCE: Section 00513.9 - Pressure Indicating Transmitter

CONTRACTOR PAY ITEM NO.: 14 - " Soil Vapor Monitoring Probes "

REASON FOR CHANGE:

This change order is necessary for:

This change was requested by the Contractor to reduce the complexity of the design. Instead of automatic recording of the pressure of the air from the pressure piezometer via pressure transmitters, the Contractor proposed to use personnel already on site to perform pressure monitoring using pressure indicators. The Contractor proposed that because subsurface pressure is not specifically linked to any control parameters in the system, pressure indicators (P.Is) at each of the piezometer would provide sufficient information for the operation of the system.

The use of pressure indicators at the piezometer will also eliminate the need for conduit and wiring to each of the piezometer.

COST:

The total change in cost for the six (6) P.I.Ts deleted from the design = ($4,400.00)

The total change in cost for conduit and wiring to the six (6) piezometer deleted from the design = ($853.60)

The cost for the addition of six (6) P.Is proposed by the Contractor is $50 each. The change in price for the addition of the P.Is would be 6 x $50 = $300.00.

Total **DECREASE** in Contract Price = ($4,400.00) + ($853.60) + $300.00 = ($4,953.60)

J. This change in the original contract is for Section VI - Agreement, Addendum #1, Attachment A - Substantial Completion Schedule (page VI-14).

DESCRIPTION OF CHANGE:

The number of days for Substantial and Final Completion for Parts 1 and 3 are extended by two (2) days.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Addendum #1, Section VI, Attachment A

CONTRACT PAY ITEM NO.: N/A

REASON FOR CHANGE:

This change order is necessary for:

The Contractor requested a two (2) day extension to the Contract time to account for two days of work that were lost due to adverse weather conditions resulting from significant snowfall accumulation in the northeast during January 1996.

COST:

N/A

K. This change in the original contract is for Addendum #1, Section VI - Agreement, Attachment A - Substantial Completion Schedule.

DESCRIPTION OF CHANGE:

The number of days for Substantial and Final Completion for Parts 1 and 3 are extended by one-hundred and six (106) days.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Addendum #1-Attachment A (Substantial Completion Schedule, page VI-14)

CONTRACT PAY ITEM NO.: N/A

REASON FOR CHANGE:

This change order is necessary for:

The Contractor was not able to meet the part 1 substantial completion date of May 1, 1996 as identified in the substantial completion schedule within Addendum #1 to the Contract Documents. Based on a negotiated agreement with the Department, the date of Substantial Completion was extended by one-hundred and six (106) days, to August 17, 1996. The Department and the Engineer accepted a combined responsibility for thirty (30) days of the extension. The Contractor agreed to accept responsibility for seventy-six days.

COST:

See change order Item L below.

L. This change in for *new* payment Item #21 - Liquidated Damages

DESCRIPTION OF CHANGE:

The number of days for Substantial and Final Completion for Parts 1 and 3 have been extended by one-hundred and six (106) days. Liquidated damages are associated with this change item. *(See attachment #1 to the change order).*

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section VI- Article 6 and Addendum #1- Attachment A

NEW CONTRACT PAY ITEM NO.: 21 - Liquidated Damages

REASON FOR CHANGE:

This change order is necessary for:

The Contractor was not able to meet the part 1 substantial completion date of May 1, 1996 as identified in the substantial completion schedule within Addendum #1 to the Contract Documents. Based on a negotiated agreement with the Department, the date of Substantial Completion is being extended by one-hundred and six (106) days, to August 17, 1996. The Department and the Engineer accepted a combined responsibility for thirty (30) days of the extension. The Contractor agreed to accept responsibility for seventy-six days of liquidated damages at a rate of $146.00 per day.

COST:

The cost per day for liquidated damages was $146.00 per day. The Department and the contractor negotiated a total of 76 days for which the Contractor was responsible. The total quantity of liquidated damages would be $146.00/day x 76 days = $11,096.00

The DECREASE in Contract Price = ($11,096)

II. CHANGE ORDER No. 1 SUMMARY

A.	Item #2 - Site Preparation *(Fence Height Extension)*	$4,987.55
B.	Item #2 - Site Preparation *(Awning Removal)*	$1,437.77
C.	Item #4A - SVET System Installation and Start-up *(Temperature Transmitters)*	($2,000.00)
D.	Item #11A - GWET System Installation and Start-up *(Pull Boxes)*	($500,00)
E.	Item #11A - GWET System Installation and Start-up *(Catalytic Oxidizer)*	($41,021.00)
F.	Item #11A - GWET System Installation and Start-up *(Flow Control Valves)*	$105.00
G.	Item #11A - GWET System Installation and Start-up *(Prepacked Well Screens)*	$3,250.00
H.	Item #12A - GEW-3 (Prepacked Well Screen)	$1,240.00
I.	Item #14 - Soil Vapor Monitoring Probes *(Pressure Transmitters)*	($4,953.60)
J.	Addendum #1, Attachment A *(Weather Related Time Extension)*	N/A
K.	Addendum #1, Attachment A *(Negotiated Time Extension)*	N/A
L.	Item 21 - Liquidated Damages	($11,096.00)
	TOTAL	($48,550.28)

III. CHANGE IN CONTRACT PRICE

Original Contract Price:	$750,791.18
Contract Price after previous submitted Change Order:	$750,791.18
Net DECREASE due to this Change Order:	($48,550.28)
New Contract Price including this Change Order:	$702,240.90

IV. CHANGE IN CONTRACT TIME	CALENDAR DAYS	COMPLETION DATE
Original Contract Time:	540	June 25, 1997
Contract Time after previous Change Order:	540	June 25, 1997
Net INCREASE due to this Change Order:	108	
New Contract Time including this Change Order:	648	October 11, 1997

V. CHANGE IN CONTRACT

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.

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:

By: _____

Title: DIR DEC

Date: 9/20/96

FOR NYSDEC ENGINEER

By: _____

Title: Project Managers

Date: 9/6/96

Approved as to Form:

By: _____

Attorney General

Date: _____

FOR DEPARTMENT

By: _____

Title: Supv of Claims

Date: 10/15/96

FOR CONTRACTOR

By: _____

Title: Secretary Treasurer

Date: 29 August 1996

Approved:

By _____

State Comptroller

Date: OCT 16 1996

~~STATE~~ Commonwealth OF Puerto Rico

) SS:

COUNTY OF) San Juan

AFFIDAVIT #373

On the 29th day of August, 19 96, before me personally came Richard C. Wolet Jr., to me known, who being duly sworn, did depose and say that (s)he resides in Santurce, PR, ~~New York~~; that (s)he is Secretary Treasurer of TERRA VAC Inc., 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 instrument 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

ROBERTO MARQUEZ SANCHEZ
ABOGADO - NOTARIO

STATE OF NY
) S:
COUNTY OF Erie

On the 6th day of September 1996, before me personally came Dharmarajan Iyer, to me known, who being duly sworn, did depose and say that (s)he resides in Orchard Park, New York; that (s)he is Project Manager of URS Consultants Inc 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 instrument 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.

DEBORAH S. ROOT
Notary Public, State of New York
Qualified in Erie County
My Commission Expires Jan. 31, 1997

Deborah S. Root
Notary Public

STATE OF)
) S:
COUNTY OF)
STATE OF)
) S:
COUNTY OF)

On the ____ day of _____, 19___, before me personally came _____, to me known and, being duly sworn, stated that (s)he is a member or 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

STATE OF)
) S:
COUNTY OF)

On the ____ day of _____, 19___, before me personally came _____, to me known and, being duly sworn, stated that (s)he is a member or 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

CONTRACT NUMBER D003363

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-7010

Michael D. Zagata
Commissioner

MAY 0 6 1996

David Ott, P.E.
Division Manager
Terra Vac
2 Park Drive, Suite 5
Westford, Massachusetts 01886-3528

Dear Mr. Ott:

Re: Project Schedule
North Franklin Street Site
Contract #D003363

I would like to thank you and Ed Malmanis for meeting with us on May 2, 1996. The professional manner and problem solving approach taken by your firm allowed us to resolve major issues of concern and identify areas where all parties can improve efforts to insure the important work at this site is completed in a timely manner.

As we discussed, the revised schedule faxed to David Chiusano's attention on May 3, 1996 which indicates a substantial completion date of August 17, 1996, is being approved by the Department as noted. A change order is being prepared by URS that includes a time extension of one-hundred and six (106) days. That change order, among other cost items we discussed, will include liquidated damages for seventy-six (76) days in the amount of $146.00 a day as originally estimated by URS for a total of $11,096. As part of our Agreement, the State is accepting responsibility on our part, and our consultant's, for thirty (30) days. Due to the fact fourteen (14) of the seventy-six (76) days reflects an extension beyond your original procurement duration, if you are able to recover that time you will subsequently be issued a change recovering the charges for those fourteen (14) days at the same per day rate.

This agreement resolves all pending issues regarding contract schedule requirements and time extension requests. Dave and I anticipate that the cooperation and dedication exhibited at our meeting will continue, and we look forward to completing the important work at this site with Terra Vac.

ATTACHMENT #1

Should you have any further questions on this issue, please do not hesitate to contact me or Dave at (518) 457-7878.

Sincerely,

George W. Harris, P.E.
Chief, Western Field Services Section
Bureau of Construction Services
Div. of Hazardous Waste Remediation

cc: E. Malmanis - Terra Vac (Georgia Office)
J. Gorton - URS Consultants, Inc.
D. Iyer - URS Consultants, Inc.
J. O'Brien - Terra Vac (Massachusetts Office)

DJC/ts
bcc: A. Rockmore
G. Harris
D. Chiusano (2)
Dayfile

North Franklin Street Site Remedial Action
Contract No. D003363
Site No. 8-49-002
Change Order No. 2

Change Order #2 Amount: **$19,868.84** Date of Issue: December 6, 1996

Contractor's Name: Terra Vac Corp.

Engineer's Name: URS Consultants, Inc.

Change Order Items: This Change Order comprises fourteen (14) items as discussed below.

I. CHANGE ORDER ITEMS

A. This change in the original contract is for Item #11A - Groundwater Extraction Treatment System (GWET) System Installation /Start-up

DESCRIPTION OF CHANGE:

Individual flow elements were installed on the influent lines from each of the three extraction wells. Software modifications for the control panel screens were also required.

DRAWING REFERENCE: Dwg No. 4

SPECIFICATION REFERENCE: Section 00513.13 - Flowmeters

CONTRACTOR PAY ITEM NO.: 11A - "GWET System Installation/ Start-up"

REASON FOR CHANGE:

This change order is necessary for:

The purpose of this modification is to provide individual flow measurement from each of the three groundwater extraction wells. Individual flow monitoring will allow the system operator to control the operation of the system and to target more contaminated areas of the site. This modification became necessary when it was decided to install the third groundwater extraction well. Therefore, the Department directed the Contractor to make this modification to the system.

COST:

The Department and the Contractor negotiated a lump sum cost of $3,675.14 for the work involved with the installation of the individual flow sensors and the associated reprogramming of the control panels broken down as follows:

(3) Flow measurement elements, transmitters, and tees:		$ 2,250.00
Piping modifications:	Materials	$ 100.00
	Labor 8 hrs @ $36.87/hr.	$ 294.96
Wiring and conduit:	Materials	$ 200.00
	Labor 4 hrs @ $44.10/hr.	$ 176.40
Software modifications:		$ 450.00
Mobilization costs:		$ 203.78
Total **INCREASE** in Contract Price =		**$ 3,675.14**

B. This change in the original contract is for Item #11A - GWET System Installation /Start-up

DESCRIPTION OF CHANGE:

Based on the operating data provided by Terra Vac, an average of 13.5 g.p.m. and 14.9 g.p.m. was extracted and treated through the groundwater treatment system through the months of August 1996 and September 1996, respectively. However, the Contract Documents require that the GWET system be capable of pumping and treating at a design maximum flow rate of 50 g.p.m..

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508.6B - Performance Objective

CONTRACTOR PAY ITEM NO.: 11A - "GWET System Installation/ Start-up"

REASON FOR CHANGE:

This change order is necessary for:

The purpose of this modification is to provide a reduction of payment for this item to account for the fact that the GWET system as originally provided did not meet the required 50 g.p.m. treatment and extraction rate.

COST:

The Department and the Contractor agreed to a 50% reduction in operation & maintenance costs associated with the first month of GWET start-up. Utilizing an estimated $8,090.00/month for O&M as the basis, the credit due to the Department for this payment item is $4,045.00.

Total **DECREASE** in Contract Price = **($4,045.00)**

C. This change in the original contract is for Item #4A - SVET System Installation and Start-up

DESCRIPTION OF CHANGE:

The air flow elements for the SVE system were relocated from the discharge of each SVET blower to the individual intake lines from the four SVE wells. Software modifications for the control panel screens were also required.

DRAWING REFERENCE: Drawing No. 5

SPECIFICATION REFERENCE: Section 00513.13 - Flow Meters

CONTRACT PAY ITEM NO.: 4A - "SVET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

The Department requested this modification to provide more accurate measurement of the air flow from the individual SVE wells. As the flow elements were originally installed after the blowers, any dilution air or air from the vacuum release valve was included in the air flow measurement. Relocating the flow meters to a location prior to these inlets allows the system to record and totalize the actual flow from each of the four extraction wells.

COST:

The Department and the Contractor negotiated a lump sum cost of $650.61 for the work involved with the relocation of the flow sensors and reprogramming of the control panels.

Total **INCREASE** in Contract Price = **$650.61**

D. This change in the original contract is for Item #4A - SVET System Installation and Start-up

DESCRIPTION OF CHANGE:

A temporary pumping system was installed to remove perched groundwater from extraction well SVE-2 and from the line leading to the SVET system. Minor modifications to the wellhead were also required to accommodate the pump and associated hose.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: N/A

CONTRACT PAY ITEM NO.: 4A - "SVET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

No vacuum from the extraction system could be applied to well SVE-2 because the level of perched water in this well was high enough to cover then entire length of screen, thus rendering the well unusable for extracting vapor from the surrounding area. The Department/Engineer requested this change to dewater this extraction well so that the soil remediation activities in this area could continue.

COST:

Costs associated with this change are for rental of a pump and two(2) hours of technician time. The total cost of the change is $140.84

Total INCREASE in Contract Price = **$ 140.84.**

E. This change in the original contract is for Item #5 - Contaminated Soil Handling/ Disposal.

DESCRIPTION OF CHANGE:

Eighty and one-half (80.5) tons of Construction and Demolition (C&D) material was generated during mobilization and from the excavation for the installation of the drainage main. The original bid quantity for this item was only 5 cubic yards.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00504.2 - Management of Soil

CONTRACT PAY ITEM NO.: #5 - "Contaminated Soil Handling/ Disposal"

REASON FOR CHANGE:

This change order is necessary for:

The original quantity for the bid item was 5 cubic yards (approximately 5 ton). The actual quantity of material that had to be taken offsite was 80.5 tons.

Additionally, the Contract Documents require that all excess soil that was excavated and could not be replaced back on site had to be disposed off-site in a Part 360 Solid Waste Management Facility. The material that was excavated for the installation of the drainage main contained a significant portion of bricks and other fill materials. Therefore, the Department/Engineer directed the Contractor to dispose of the material as Construction and Demolition (C&D) material.

COST:

The Department and the Contractor negotiated a time and materials cost the work involved with the disposal of the C&D material. The cost for disposal, based on the actual quantities is as follows:

1.	Lump Sum for Backhoe	$300.00
	Transportation 4 hours @ $70/hr	$280.00
2.	Dumping Fees, 80.5 ton @ $65 per ton	$5,232.50
3.	Trucking Fees, 14 hours @ $55 per hour	$770.00
4.	Total ODC cost	$6,582.50
	Handling Fee (5%)	$329.13
5.	Labor	
	Operator, 0.5 hr/load, 20 tons per load = 2 hours labor	
	2 hours @ $53.03 per hour =	$106.06
6.	**TOTAL COST**	$7,017.69

Total INCREASE in Contract Price = **$7,017.69**

F. This change in the original contract is for Item #7 - Disposal of Pre-existing Staged Drill Cuttings

DESCRIPTION OF CHANGE:

Disposal of 6 drums of Personal Protective Equipment (PPE) from previous investigations will be included under this item.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00504.4 - Disposal of Drill Cuttings from Previous Investigations

CONTRACT PAY ITEM NO.: 7 - "Disposal of Pre-existing Staged Drill Cuttings"

REASON FOR CHANGE:

This change order is necessary for:

The Contract Documents indicated that the fifty-seven (57) drums at the site contained drummed drill cuttings from previous investigations. However, six of the drums actually contained PPE from previous investigations instead of soil. Because the PPE cannot be treated by the SVET system, the Department directed the Contractor to dispose of the PPE in an approved offsite location.

COST:

The Department and the Contractor negotiated a lump sum cost for the work involved with the disposal of the drummed PPE. The cost for disposal, based on the actual quantities is as follows:

1.	Disposal (per 55 gallon drum) six @ $150.00	$900.00
2.	Transportation (per 55 gallon drum) six @ $60	$360.00
3.	Waste characterization analysis fee	$450.00
4.	Subtotal	$1,710.00
	Handling Fee (5%)	$85.50
5.	TOTAL COST	$1,795.50

Total INCREASE in Contract Price = **$1,795.50**

G. This change in the original contract is for Item #2 - Site Preparation

DESCRIPTION OF CHANGE:

As per the Village of Watkins Glen request, the Department requested the Contractor to remove the project sign from it's first location, and to remount the sign on the chain-link fence that surrounds the site.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00501.6 - Project Sign

CONTRACT PAY ITEM NO.: 2 - "Site Preparation"

REASON FOR CHANGE:

This change order is necessary for:

The original project sign was installed inside of the chain-link fence surrounding the site. However, once the Village raised concerns on potential negative impacts to tourism and the barrier fabric was added to the fence to decrease the visibility of the remedial activities, the project sign was no longer visible. Therefore, the Department requested that the Contractor remount the sign on the outside of the fence.

COST:

The Department and the Contractor negotiated a lump sum cost of $160.61 for the work involved with the relocation of the project sign.

Total INCREASE in Contract Price = **$160.61**

H. This change in the original contract is for Items #11B - GWET System O&M (First 5 months)

DESCRIPTION OF CHANGE:

This change is to modify the samples that will be collected and analyzed for the operation and monitoring of the GWET system. The only analyses will be for VOCs, Iron, and TSS. A sample of the influent groundwater will be collected on a monthly basis. Table 1 (attached) shows the previously required sampling and the modifications made to the sampling and analysis requirements.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: 00508.13 - Progress Monitoring

CONTRACTOR PAY ITEM NO.: 11B - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

The Department/Engineer requested this modification to eliminate analytical parameters that were considered to be unnecessary based on the results of the analyses to date. These parameters were either not detected, were at consistently low concentrations, or were not affected by the treatment system. The addition of an influent sample to the air stripper will allow the Department/Engineer to follow the progress of the system in remediating the contaminated groundwater.

COST:

The change in cost for this change is shown on Table 1.

Total **DECREASE** in Contract Price = **($504.00).**

I. This change in the original contract is for Item #11C - GWET System O&M (Next 6 months)

DESCRIPTION OF CHANGE:

This change is identical to Item H. above. Only the quantities and the Contract Pay Item are different.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: 00508.13 - Progress Monitoring

CONTRACTOR PAY ITEM NO.: 11C - "GWET System O&M"

REASON FOR CHANGE:

See " REASON FOR CHANGE " description under Item H above.

COST:

The change in cost for this change is shown on Table 1.

Total **DECREASE** in Contract Price = **($1,008.00).**

J. This change in the original contract is for Item #20 - Health and Safety

DESCRIPTION OF CHANGE:

Performance of two rounds of documentation monitoring to confirm the effectiveness of volatile organics air treatment at the site will be included in this item. The Contractor was requested to conduct two sampling events and collect samples from three locations around the perimeter of the site. Samples will be collected by the Contractor using SUMMA canisters to take 8-hour Time Weighted Averages.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: 01392.15.3-Documentation Monitoring

CONTRACTOR PAY ITEM NO.: 20 - "Health and Safety"

REASON FOR CHANGE:

This change order is necessary for:

The Department and the New York State Department of Health (NYSDOH) requested these sampling events to document whether there are any detectable concentrations of contaminants being discharged by remedial activities at the site. This information will be used to alleviate any potential concerns raised from local residents or the NYSDOH.

COST:

The Department and the Contractor negotiated a lump sum cost of $1,800.00 per sampling event (including the sampling and analysis of 3 samples and one QA analysis per event). The total cost for two of the sampling events would then be $3,600.00.

Total INCREASE in Contract Price = **$3,600.00**

K. This change in the original contract is for Item #21 - Liquidated Damages

DESCRIPTION OF CHANGE:

The number of days for Substantial and Final Completion for Parts 1 and 3 are extended by nineteen (19) days. Liquidated damages are also included.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section VI, Attachment A - Substantial Completion Schedule

CONTRACT PAY ITEM NO.: 21 - "Liquidated Damages"

REASON FOR CHANGE:

This change order is necessary for:

The Contractor was not able to meet the Part 1 Substantial Completion date of August 17, 1996 that was negotiated as part of the Change Order No. 1. Based on a subsequent agreement with the Department, the revised date of Part 1 Substantial Completion was extended by nineteen (19) days, to September 5, 1996.

COST:

Based on the costs from Change Order No.1, the cost per day for liquidated damages was $146.00 per day. The total quantity of liquidated damages would be $2,774.00.

Total **DECREASE** in Contract Price = **($2,774.00)**.

L. This change in the original contract is for Items #11B - GWET System O&M (First 5 months)

DESCRIPTION OF CHANGE:

This change is to modify costs associated with the first month of O&M under payment Item No.11B. A credit is due to the Department for the amount of time the GWET system was not operating at the Contract required design rate of 50 g.p.m. during the first month of O&M (from September 5, 1996 thru October 5, 1996).

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: 00508.12 - Routine Operations Phase

CONTRACTOR PAY ITEM NO.: 11B - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

A review of Terra Vac's operating records for the first month of O&M indicated that the GWET system was not operating at the maximum design extraction and treatment rate of 50 gpm. Operating records indicated that the system actually operated at approximately 30% of the required rate during the first month.

COST:

As a result of negotiations with Terra Vac 12.5% of the costs associated with the first month of GWET system O&M will be paid by the Department. Specifically, $8,090.00 x (0.125) = $1,011.25.

Total DECREASE in Contract Price = **($1,011.25)**.

M. This change in the original contract is for Item #11B - GWET System O&M (First 5 months)

DESCRIPTION OF CHANGE:

This change is to modify costs associated with of O&M of the GWET system under payment Item No.11B. In order to assess recent decreases in pumping capacities within extraction wells EW-1 and EW-2, Terra Vac was requested by the Department and URS to collect and record a round of groundwater levels from the existing monitoring wells at the site, pull and visually observe the condition of the extraction pumps, and collect a jar of water from each of the extraction wells for visual observation.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: 00508.13 - Progress Monitoring

CONTRACTOR PAY ITEM NO.: 11B - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

The Department and URS requested this monitoring event to document the current groundwater table elevation beneath the site, and to determine whether or not there are indications of mineral deposits and/or biological growth on the well screens or packing of the extraction wells.

COST:

The Department and the Contractor negotiated a time and materials cost of $470.70 for the groundwater monitoring event broken down as follows:

Rental of water level gage, 1 day @ $25/day	$ 25.00
Labor, 10 hours @ $36.87/ hour	$ 368.70
Shipping of gage (2 @ $35/shipment)	$ 70.00
Handling Fee	$ 7.00
Total INCREASE in Contract Price =	**$ 470.70**

N. This change in the original contract is for Items #11B - GWET System O&M (First 5 months)

DESCRIPTION OF CHANGE:

This change is to modify the time required for rental of catox unit as originally identified within Change Order 1, Item E. Under this payment item the unit will need to be rented for an additional thirteen (13) weeks beginning from November 5, 1996 - February 4, 1997.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: 00508.13 - Progress Monitoring

CONTRACTOR PAY ITEM NO.: 11B - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

Until the operation of the treatment systems is optimized the actual concentration of vinyl chloride in the subsurface is unknown. As a result, it is technically necessary and more cost effective at this point in time to continue operation and rental of the cat-ox unit rather than incur capital costs associated with conversion to carbon treatment which can not treat vinyl chloride.

COST:

Costs associated with this change are for rental of the cat-ox unit for a period of thirteen (13) weeks at a rate of $900/week.

Total INCREASE in Contract Price = $900 x 13 wks. = $11,700.00

II. CHANGE ORDER No. 2 SUMMARY

A.	Item #11A - GWET System Installation and Start-up *(Installation of GEW Flowmeters)*	$3,675.14
B.	Item #11A - GWET System Installation and Start-up *(Credit for Reduction in GWET System Start-up O&M costs)*	*($4,045.00)*
C.	Item #4A - SVET System Installation and Start-up *(Relocation of Flow Elements)*	$650.61
D.	Item #4A - SVET System Installation and Start-up *(Perched Groundwater Removal from SVE-2)*	$140.84
E.	Item #5 - Contaminated Soil Handling/Disposal *(Disposal of C&D Material)*	$7,017.69
F.	Item #7 - Disposal of Pre-existing Staged Drill Cuttings *(Disposal of PPE)*	$1,795.50
G.	Item #2 - Site Preparation *(Relocation of Project Sign)*	$160.61
H.	Item #11B - GWET System O&M *(Credit for Modification of Sampling Requirements)*	*($504.00)*
I.	Item #11C - GWET System O&M *(Credit for Modification of Sampling Requirements)*	*($1,008.00)*
J.	Item #20 - Health and Safety *(Documentation Monitoring)*	$3,600.00
K.	Item #21 - Liquidated Damages	*($2,774.00)*
L.	Item #11B - GWET System O&M *(Credit for Reduction in first month of GWET O&M costs)*	*($1,011.25)*
M.	Item #11B - GWET System O&M *(Groundwater Elevation Measurement)*	$470.70
N.	Item #11B - GWET System O&M *(Additional Cat-Ox Rental)*	$11,700.00
TOTAL:		**$19,868.84**

III. CHANGE IN CONTRACT PRICE

Original Contract Price:	$750,791.18
Contract Price after previous submitted Change Order 1:	$702,240.90
Net INCREASE due to this Change Order 2:	19,868.84
New Contract Price including this Change Order 2:	**$722,109.74**

IV. CHANGE IN CONTRACT TIME

	CALENDAR DAYS	COMPLETION DATA
Original Contract Time:	540	June 25, 1997
Contract Time after previous Change Order:	648	October 11, 1997
Net INCREASE due to this Change Order:	19	October 30, 1997
New Contract Time including this Change Order:	667	October 30, 1997

V. CHANGE IN CONTRACT

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.

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, 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 instrument 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)
) S:
COUNTY OF)
STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, before me personally came _____, to me known and, being duly sworn, stated 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

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, before me personally came _____, to me known and, being duly sworn, stated 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

CONTRACT NUMBER___D003363___

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 NYSDEC ENGINEER	FOR CONTRACTOR
By: Ramaraja Iyer (R.R. Iyer)	By: E. Malmanis (E. MALMANIS)
Title: Project Manager	Title: AUTHORIZED REPRESENTATIVE
Date: Dec. 16, 1996	Date: DEC. 10, 1996
Approved as to Form:	Approved:
By: _____ Attorney General	By: _____ State Comptroller
Date: _____	Date: _____

STATE OF) Massachusetts
) SS:
COUNTY OF) Middlesex

On the 10th day of December, 1996, before me personally came E. Malmanis, to me known, who being duly sworn, did depose and say that (s)he resides in Atlanta Georgia, ~~New York~~; that (s)he is Authorized Representative of Terra Vac, Inc., 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 instrument 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.

Maria Kenney
MCE 5-8-98 Notary Public

TABLE 1

MODIFICATIONS TO GWET SAMPLING FREQUENCY AND ANALYSIS ASSOCIATED WITH CHANGE ORDER #2 ITEM H AND ITEM I

Parameter	Contract Required Frequency		Modified Frequency		Change in Quantity per Month	Unit Price[3]	Change in Unit Price	Net Change in Contract Amount	
	Air Stripper Inlet	Sandfilter Outlet	Air Stripper Inlet	Sandfilter Outlet				Bid Item 11B[1]	Bid Item 11C[2]
TSS		Biweekly		Biweekly	0	$10.00	$0.00	$0.00	$0.00
TDS		Biweekly			-2	$10.00	-$20.00	-$60.00	-$120.00
BOD		Quarterly			-⅓	$5.00	-$1.67	-$5.00	-$10.00
VOCs		Biweekly	Monthly	Monthly	+X0	$180.00	$0.00	$0.00	$0.00
Fe		Monthly		Monthly	0	$10.00	$0.00	$0.00	$0.00
Cd		Monthly			-1	$10.00	-$10.00	-$30.00	-$60.00
Metals		Quarterly			-⅓	$160.00	-$53.33	-$160.00	-$320.00
Arochlor 1016		Monthly			-1	$83.00	-$83.00	-$249.00	-$498.00
TOTAL							0.00	-$504.00	-$1,008.00

NOTES:

1. Change in Quantity only affects months 3, 4 and 5 of this item.
2. Net Change affects all 6 months of this item.
3. Based either on information submitted by Contractor or an estimate by URS.

D. Tyler/D. McCall
URS-Greiner

DRAFT

North Franklin Street Site Remedial Action
Contract No. D003363
Site No. 8-49-002
Change Order No. 3

Change Order Amount: **$30,222.39** Date of Issue: **June 19, 1997 (Draft)**

Contractor's Name: **Terra Vac Corp.**

Engineer's Name: **URS Consultants, Inc.**

Change Order Items: This Change Order comprises eighteen (18) items as discussed below.

I. CHANGE ORDER ITEMS

A. This change in the original contract is for Item #11C - Groundwater Extraction Treatment System (GWET) Operation and Maintenance (O&M) - Second 6 Months.

DESCRIPTION OF CHANGE:

This change is to modify the time required for rental of the Catox unit as originally identified within Change Order No. 1, Item E. Under this payment item the unit will need to be rented for an additional thirteen (13) weeks beginning from February 5, 1997 through May 7, 1997.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508.10 - Minimum Requirements of the GWET System

CONTRACTOR PAY ITEM NO.: 11C - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

First round confirmatory soil sampling indicated significant concentrations of contaminants remaining in the subsurface soil. Until the operation of the soil vapor extraction treatment system (SVET) was optimized, the actual concentration of vinyl chloride remaining in the subsurface was unknown. As such, there existed significant concerns associated with the potential for emission of vinyl chloride.

As a result, it was technically necessary and more cost effective to continue operation and rental of the Catox unit rather than incur capital costs associated with conversion to carbon treatment which cannot treat vinyl chloride.

COST:

Costs associated with this change are for rental of the Catox unit for a period of thirteen (13) weeks at a rate of $900 per week.

Total **INCREASE** in Contract Price = $900 x 13 weeks = $11,700.

B. This change in the original contract is for Item #4A - SVET System Installation and Start-up

DESCRIPTION OF CHANGE:

This change is to modify the level control device on the SVET system moisture separator to compensate the device for the applied vacuum of the system.

DRAWING REFERENCE: Drawing No. 5

SPECIFICATION REFERENCE: Section 00513.7- Level Sensors

CONTRACT PAY ITEM NO.: 4A - "SVET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

The purpose of the level sensor was to control the automatic pumping of condensate from the moisture separator. However, due to the vacuum applied to the moisture separator by the SVET system, the level sensor gave incorrect readings and was not usable. The conduit box containing the diaphragm vent tube from the sensor was connected to the vacuum to compensate the level readings and allow the automatic pumping operation to be functional.

COST:

The Department and the Contractor negotiated a lump sum cost of $165.61 for the work involved with the modification of the level sensor as follows:

Lump Sum Materials:	$55.00
Labor Costs - Technician 3 hours @ $36.87 /hr:	$110.61
Total **INCREASE** in Contract Price =	$165.61

C. This change in the original contract is for Item #11A - GWET System Installation and Start-up

DESCRIPTION OF CHANGE:

The pressure transducer in groundwater extraction well GEW-2 was damaged twice due to water damage and had to be replaced. The cost for the repairs to the unit itself were covered by the manufacturer. The additional cost in this change order item is only for shipping and labor to replace the unit.

DRAWING REFERENCE: Drawing No. 3

SPECIFICATION REFERENCE: Section 00513.7 - Level Sensors

CONTRACT PAY ITEM NO.: 11A - "GWET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

Due to heavy rains, there was flooding in the area between Seneca Lake and the Seneca Market where extraction well GEW-2 is located. This area of the site was under approximately two feet of water for several days. The pressure transducer that controls operation of the pump was damaged due to being submerged under water. Once the unit was replaced the first time, it was again damaged due to water that had gotten into the capillary tube used by the sensor.

COST:

The cost for repair/replacement of the level transducer was covered under the manufacturer's one year warranty. However, costs for shipping and for removal and replacement of the unit were incurred each time that the unit had to be replaced as follows:

Shipping:	$50.00
Labor Costs - Technician 2 hours @ $36.87 /hr:	$73.74
	$123.74

Therefore, the total increase in the Contract Price would be twice this amount:

Total **INCREASE** in Contract Price = $247.48

D. This change in the original contract is for Item #11A - GWET System Installation and Start-up

DESCRIPTION OF CHANGE:

Desiccant tubes to prevent the infiltration of moisture were installed by the contractor on the capillary lines of the level transducers for the three groundwater extraction wells.

DRAWING REFERENCE: Drawing No. 3

SPECIFICATION REFERENCE: Section 00513.7 - Level Sensors

CONTRACT PAY ITEM NO.: 11A - "GWET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

The desiccant tubes will protect the pressure transducers that control the operation of the three groundwater extraction wells during future operation and maintenance (O&M). The desiccant minimizes or prevents the infiltration of moisture. Because the groundwater vaults are not completely waterproof, rain and moisture can potentially get into the well vaults and plug the capillary lines for the transducers. The cost to install the desiccant is relatively small in comparison to the cost to replace the entire pressure transducer.

COST:

The Department and the Contractor negotiated a lump sum cost for the installation of desiccant tubes on the pressure transducers as follows:

Desiccant bulbs - 3 @ $165.00 each:	$495.00
Shipping:	$50.00
Labor Costs - Technician 4.5 hours @ $36.87 /hr:	$165.92
Total **INCREASE** in Contract Price =	$710.92

E. This change in the original contract is for Item #11C - GWET System O&M (Second 6 months)

DESCRIPTION OF CHANGE:

This change is to modify costs associated with the O&M of the GWET system for the second six months. To assess the effectiveness of the GWET system and to determine the drawdown due to the pumping effort, the contractor has been requested by the Department and the Engineer to collect and record a round of

groundwater levels from the existing monitoring wells and from the three groundwater extraction wells. Two events of monitoring the groundwater levels are included.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508.13 - Progress Monitoring

CONTRACT PAY ITEM NO.: 11C - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

The Department and the Engineer requested these monitoring events to document the groundwater table beneath the site and to determine the effectiveness of the pumping effort during operation and maintenance.

COST:

The Department and the Contractor negotiated a lump sum cost for each of the two proposed groundwater level monitoring events as follows:

Rental of Water Level Gauge - 1 day @ $25 / day:	$25.00
Shipping - 2 shipments @ $35 per shipment:	$70.00
Handling Fee @ 10%:	$7.00
Labor Costs - Technician 6 hours @ $36.87 /hr:	$221.22
Total cost for each event:	$323.22
Total **INCREASE** in Contract Price =	$646.44

F. This change in the original contract is for Item #11C - GWET System O&M (Second 6 months)

DESCRIPTION OF CHANGE:

The collection of one coliform sample from GEW-1 was requested by the Engineer to determine whether the problem of biological growth on the well screen is due to the presence bacteria possibly associated with leakage from an unknown sanitary sewer system in the area.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508.13 - Progress Monitoring

CONTRACT PAY ITEM NO.: 11C - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

During routine operation and maintenance it was determined that the well screen on groundwater extraction well GEW-1 has become blinded with a biological growth. The biological solids do not appear to be iron bacteria that typically causes such problems. Therefore, it was speculated due to all of the unknown lines and drains in the area surrounding GEW-1, that there may be a leaking sanitary sewer in the vicinity. The collection of the coliform sample was to confirm whether the growth was sewage related or not.

COST:

The Department and the Contractor negotiated a lump sum cost for the collection of a coliform sample as follows:

Total **INCREASE** in Contract Price = $20.00

G. This change in the original contract is for Item #11C - GWET System O&M (Second 6 months)

DESCRIPTION OF CHANGE:

This change is to modify costs associated with the O&M of the GWET system for the second six months. A well cleaning procedure was implemented to periodically scrub the well screens and then to treat them with a hydrochloric acid solution to kill biological growth. Two events of cleaning by the contractor for all three of the groundwater extraction wells are included.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508.11 - Routine Maintenance

CONTRACT PAY ITEM NO.: 11C - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

The Department and the Engineer requested the well cleaning procedure because the pumping capacity of the wells has diminished due to the buildup of solids on the screens. To meet remedial objectives, the system must be able to withdraw sufficient groundwater to affect the gradient of the groundwater in the contaminated area.

COST:

The Department and the Contractor negotiated a lump sum cost for each of the two well cleaning events as follows:

Labor Costs - Technician, 5 hours per well (3 wells) @ $36.87 /hr:	$553.05
Equipment and Materials (HCl Acid, acid trap, brushes, etc.)	$350.00
Total cost for each well cleaning event:	$903.05
Total **INCREASE** in Contract Price =	$1,806.10

H. This change in the original contract is for Item #6 - Contaminated Water Handling/Disposal

DESCRIPTION OF CHANGE:

This change is for additional costs for water handling/disposal due to an increase in the quantity of water that was generated during the installation and development of the groundwater extraction wells.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: 00504.3 - Management of Liquid Wastes

CONTRACTOR PAY ITEM NO.: 6 - "Contaminated Water Handling/Disposal"

REASON FOR CHANGE:

This change order is necessary for:

The total quantity of water that was generated during the installation and development of the 3 groundwater extraction wells was 13,703 gallons. The original bid quantity estimated for this item was 1,000 gallons. In accordance with the Contract Documents, 1,150 gallons will be paid at the original unit price. A lump sum price for the additional 12,553 gallons of water was negotiated as required by Section VIII, Article 11 of the Contract Documents.

COST:

Materials & Equipment (Including 10% Markup):

Tank Rental (1½ months)	$2,475.00
Purchase & Shipment of Drums	$341.00
Disposal of Drums	$55.00
Disposal of Solids	$850.00
Sump Pump Rental	$206.25
Additional Electric	$50.00

Labor:

Purchase & Unload Drums (1 hr @ $36.87/hr)	$36.87
Pumping water into drums (4 hr @ $36.87/hr)	$147.48
Pump water from drums into GWET system (8 hr @ $36.87/hr)	$294.96
Decon drums (4 hr @ $36.87/hr)	$147.48
Arrange disposal of drums (6 hr @ $36.87/hr)	$221.22
Additional frac tank cleaning (4 hr @ $36.87/hr)	$147.48
Additional time to empty the frac tank (16 hr @ $36.87/hr)	$589.92

Additional gallons at original price:

150 gallons x $4.40/gallon	$660.00

Total **INCREASE** in Contract Price = $6,222.66

I. This change in the original contract is for Item #4A - SVET System Installation and Start-up

DESCRIPTION OF CHANGE:

This change is to modify the SVET system to convert 4 existing air inlet wells and the air inlet trench to Dual Vacuum Extraction (DVE) in order to improve the effectiveness of the SVET system.

DRAWING REFERENCE: Drawing No. 5

SPECIFICATION REFERENCE: 00503 - Soil Vapor Extraction and Treatment (SVET) System

CONTRACTOR PAY ITEM NO.: 4A- "SVET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

Based on the results of the first round of confirmatory soil samples analysis, it was determined that several areas of the site still contained elevated concentrations of contaminants above remedial action objectives. Additionally, the operations and monitoring information for the SVET system indicated that the system was not collecting a significant quantity of contaminants from the soil. The problem was attributed to high groundwater levels in the area that reduce the effective area of treatment for the system. Therefore, the Department requested that the system be modified to address this problem.

COST:

The Department, the Engineer and the Contractor negotiated a total lump sum cost of $24,968 for the work involved with the modification of the SVET system. The cost for each of three tasks involved with the modification are summarized below:

Task 1 - System Preparation:	
Labor	$2,600
Task 2 - System Installation	
Equipment and Supplies	$6,500
Expenses	$1,820
Labor	$5,138
Task 3 - System Start-up and Reporting	
Equipment and Supplies	$825
Expenses	$1,820
Labor	$6,265
Total INCREASE in Contract Price =	$24,968

J. This change in the original contract is for Item #17 - Electric to Site

DESCRIPTION OF CHANGE:

This change is a credit to the Department for a step-down transformer that was included as part of the Contract Documents, but which was not installed during mobilization by the contractor.

DRAWING REFERENCE: Drawing No. 6 (as modified by Addendum No. 1)

SPECIFICATION REFERENCE: N/A

CONTRACTOR PAY ITEM NO.: 17 - "Electrical"

REASON FOR CHANGE:

This change order is necessary for:

During remedial design the Village of Watkins Glen had indicated to the Department and Engineer that 480-volt power was not available at the site, and that it would be necessary to install a transformer to step-down the power from a nearby 4160-volt power supply. However, when the contractor contacted the Village Electric Department prior to electric installation at the site, the Village indicated that Terra Vac could use an existing 480-volt power supply at the site,

and that the installation of the 4160-volt step-down transformer would not be necessary. Therefore, a credit was due to the Department for the cost to supply and install the transformer.

COST:

The Department and the Contractor negotiated a lump sum cost of $2,195.00 as a credit for the cost of the transformer that was not installed at the site.

Total **DECREASE** in Contract Price = ($2,195.00)

K. This change in the original contract is for Item #4C - SVET System O&M (Second 6 months)

DESCRIPTION OF CHANGE:

This change is to modify the costs associated with the O&M of the SVET system for the second six months. The purchase of two Magnehelic gauges and accessories required for flow measurement, in addition to the labor costs to determine manual flow rates from the extraction wells are included. This change includes weekly measurements until August 7, 1997 for a total of 26 weeks.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00503.13 - Progress Monitoring

CONTRACT PAY ITEM NO.: 4C - "SVET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

Weekly measurement of the flow rates from the newly installed DVE wells, as well as more accurate measurement of the flow from the existing SVE wells is required to allow for efficient operation of the system and to monitor the cleanup efforts across the various sections of the site.

COST:

Costs for the monitoring of the flow rates were determined as follows:

Magnehelic Gauges - 2 @ $220.00 each:	$440.00
Protective Cases - 2 @ $19.90 each:	$39.80
2-inch Annubar	$95.00

Subtotal:	$574.80
10% Markup on Material:	$57.48
Subtotal Materials:	$632.28
Shipping	$50.00
Labor - 1.5 hr/week, 26 weeks @ $36.87/hr	$1,437.93
Total INCREASE in Contract Price =	$2,120.21

L. This change in the original contract is for Item #11C - GWET System O&M (Second 6 months)

DESCRIPTION OF CHANGE:

This change is to modify the costs associated with the O&M of the GWET system for the second six months. Because rental of the Catox system at the site was discontinued, a reduction is made for the cost to operate and maintain the system.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508.10 - Minimum Requirements of the GWET System

CONTRACT PAY ITEM NO.: 11C - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

Based on monitoring of the emissions from the GWET and the SVET systems, it was determined by the Department and Engineer that treatment of the exhaust air from the systems is no longer required. Therefore, rental of the Catox system is discontinued as of May 7, 1997. Contract Pay Item #11C included the cost to operate and maintain the Catox system for the duration of the Contract. Therefore, this pay item is reduced by the cost for operation of the Catox (natural gas and electric) for the remainder of the contract.

COST:

Costs associated with the operation of the Catox system were originally submitted by the Contractor as being $830 per week. However, the Contractor later claimed that warmer weather conditions during the months for which the system will not be operating would have led to decreased costs during these months. The Contractor's proposed credit was $559.48 per week. Therefore, the Department and the Contractor negotiated a credit of $694.74 per week.

The remaining portion of the Contract is from May 7, 1997 through August 7, 1997, a period of thirteen weeks.

Total **DECREASE** in Contract Price = $694.74/wk x 13 weeks = ($9,031.62)

M. This change in the original contract is for Item #7 - Disposal of Pre-Existing Staged Drill Cuttings

DESCRIPTION OF CHANGE:

This change is to modify the estimated quantity of drums of drill cuttings for the actual quantity.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00504.4 - Disposal of Drill Cuttings from Previous Investigations

CONTRACT PAY ITEM NO.: 7 - "Disposal of Pre-Existing Staged Drill Cuttings"

REASON FOR CHANGE:

This change order is necessary for:

The actual quantity of drums containing drill cuttings was 51 instead of the 57 that had been estimated during remedial design.

COST:

Based on the Contract Amounts:

Total **DECREASE** in Contract Price = $85.44/drum x 6 drums = ($512.64)

N. This change in the original contract is for Item #9 - Existing Monitoring Well Decommissioning

DESCRIPTION OF CHANGE:

This change is to modify the estimated quantity of wells to be decommissioned for the actual quantity.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00507.1 - Groundwater Monitoring Well Decommissioning

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CONTRACT PAY ITEM NO.: 9 - "Existing Monitoring Well Decommissioning"

REASON FOR CHANGE:

This change order is necessary for:

The actual quantity of monitoring wells that were decommissioned was 14 instead of the 16 that had been estimated.

COST:

Based on the Contract Amounts:

Total **DECREASE** in Contract Price = $583/well x 2 = ($1,166.00)

O. This change in the original contract is for Item #12B - GEW-4

DESCRIPTION OF CHANGE:

This change is to modify the contract for an extraction well that is not required to be installed.

DRAWING REFERENCE: Drawing No. 2

SPECIFICATION REFERENCE: Section 00508.10 - Minimum Requirements of the GWET System

CONTRACT PAY ITEM NO.: 12B - GEW-4

REASON FOR CHANGE:

This change order is necessary for:

This well was a contingency item in the event that the system was not able to meet a 50 gpm groundwater withdrawal rate with the existing wells. However, the existing wells are adequate and the installation of GEW-4 was deemed not necessary by the Department and Engineer.

COST:

Based on the Contract Amounts:

Total **DECREASE** in Contract Price = ($6,860.00)

P. This change in the original contract is for Item #16 - SVET System Air Inlet Trenches

DESCRIPTION OF CHANGE:

This change is to modify the estimated length of the air inlet trench for the actual quantity that was installed.

DRAWING REFERENCE: Drawing No. 2

SPECIFICATION REFERENCE: Section 00503.10 - Minimum Requirements of the Soil Vapor Extraction/Treatment System

CONTRACT PAY ITEM NO.: 16 - "SVET System Air Inlet Trenches"

REASON FOR CHANGE:

This change order is necessary for:

The actual length of the air inlet trench that was installed was 98 feet instead of the original 140 feet that had originally been estimated.

COST:

Based on the Contract Amounts:

Total **DECREASE** in Contract Price = $82.41/LF x 42 LF = ($3,460.82)

Q. This change in the original contract is for Item #20 - Health and Safety

DESCRIPTION OF CHANGE:

This change is to modify the estimated number of mandays of Health and Safety for the actual quantity.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 01392 - Health and Safety

CONTRACT PAY ITEM NO.: 20 - "Health and Safety"

REASON FOR CHANGE:

This change order is necessary for:

The actual quantity mandays for which Health and Safety as required was 71 instead of 100 as had originally been estimated during remedial design.

COST:

Based on the Contract Amounts:

Total **DECREASE** in Contract Price = $55/manday x 29 manday = ($1,595)

R. This change in the original contract is for Item #2 - Site Preparation

DESCRIPTION OF CHANGE:

This change is to move the northern side of the fence at the site so that a smaller area of the site is controlled.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00507.1 - Fencing

CONTRACT PAY ITEM NO.: 2 - "Site Preparation"

REASON FOR CHANGE:

This change order is necessary for:

A large portion of the site is fenced but is no longer being used (due to the removal of all office trailers, the decon pad, etc.). To address concerns from the Village of Watkins Glen and from adjacent property owners, the area of the site that is fenced will be reduced to contain only the two treatment trailers. The fence will be reconstructed consistent with the fence that is currently located at the site. This change order item also includes all additional costs for the Contractor to decommission the site that will be incurred due to the new location of the fence.

COST:

The Department and the Contractor negotiated a lump sum cost for the modifications to the fence as follows:

Contractor Mobilization & Travel:	$1,484.00
Contractor Labor, Materials, and Disposal:	$1,667.00
Subtotal Contractor:	$3,151.00
Fencing Subcontractor	$3,128.62
Contractor Markup @ 5%:	$156.43
Total:	$6,436.05
Total **INCREASE** in Contract Price =	$6,436.05

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II. CHANGE ORDER No. 3 SUMMARY

A.	Item #11C - GWET System O&M (Second 6 months) *(Extended Rental of Catox)*	$11,700.00
B.	Item #4A - SVET System Installation and Start-up *(Modification of Level Sensor in Moisture Separator)*	$165.61
C.	Item #11A - GWET System Installation and Start-up *(Replacement of Level Sensor in GEW-2 - twice)*	$247.48
D.	Item #11A - GWET System Installation and Start-up *(Addition of Desiccant Bulbs on the Level Sensors)*	$710.92
E.	Item #11C - GWET System O&M *(2 Additional Rounds of Monitoring Well Levels)*	$646.44
F.	Item #11C - GWET System O&M *(Collection of a Coliform sample)*	$20.00
G.	Item #11C - GWET System O&M *(Well Cleaning Procedure - 2 events)*	$1,806.10
H.	Item #6 - Contaminated Water Handling/Disposal *(Additional Quantity of Contaminated Water)*	$6,222.66
I.	Item #4A - SVET System Installation and Start-up *(Modification of SVET System for DVE)*	$24,968.00
J.	Item #17 - Electrical *(Credit for Step-Down Transformer)*	($2,195.00)
K.	Item #4C - SVET System O&M (Second 6 months) *(Monitoring of Extraction Well Flow Rates)*	$2,120.21
L.	Item #11C - GWET System O&M *(Credit for Removal of Catox)*	($9,031.62)
M.	Item #7 - Disposal of Pre-Existing Staged Drill Cuttings *(Change to Actual Quantity)*	($512.64)
N.	Item #9 - Existing Monitoring Well Decommissioning *(Change to Actual Quantity)*	($1,166.00)
O.	Item #12B - GEW-4 *(Change to Actual Quantity)*	($6,860.00)
P.	Item #16 - SVET System Air Inlet Trenches *(Change to Actual Quantity)*	($3,460.82)
Q.	Item #20 - Health and Safety *(Change to Actual Quantity)*	($1,595.00)
R.	Item #2 - Site Preparation *(Fence Modification)*	$6,436.05
	TOTAL	**$30,222.39**

III. CHANGE IN CONTRACT PRICE

Original Contract Price:	$750,791.18
Contract Price after Change Order 1:	$702,240.90
Contract Price after Change Order 2:	$722,109.74
Net INCREASE due to this Change Order 3:	$30,222.39
New Contract Price including this Change Order 3:	$752,332.13

IV. CHANGE IN CONTRACT TIME	CALENDAR DAYS	COMPLETION DATE
Original Contract Time:	540	June 25, 1997
Contract Time after Change Order 1:	648	October 11, 1997
Contract Time after Change Order 2:	667	October 30, 1997
Net change due to this Change Order:	0	October 30, 1997
New Contract Time including this Change Order:	667	October 30, 1997

V. CHANGE IN CONTRACT

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.

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19___, 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 instrument 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)
) S:
COUNTY OF)
STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19___, before me personally came _____, to me known and, being duly sworn, stated 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

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19___, before me personally came _____, to me known and, being duly sworn, stated 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

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CONTRACT NUMBER D003363

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:

By: _____

Title: _____

Date: _____

FOR NYSDEC ENGINEER

By: _____

Title: _____

Date: _____

Approved as to Form:

By: _____
Attorney General

Date: _____

FOR DEPARTMENT

By: _____

Title: _____

Date: _____

FOR CONTRACTOR

By: _____

Title: _____

Date: _____

Approved:

By: _____
State Comptroller

Date: _____

STATE OF)
) SS:
COUNTY OF)

On the _____ day of _____, 19___, 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 instrument 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

North Franklin Street Site Remedial Action
Contract No. D003363
Site No. 8-49-002
Change Order No. 4

Change Order Amount:$100,323.63 Date of Issue: April 3, 1998

Contractor's Name: Terra Vac Corp.

Engineer's Name: URS Greiner Consultants, Inc.

Change Order Items: This Change Order comprises seven (7) items as discussed below.

I. CHANGE ORDER ITEMS

A. This change in the original contract is for Item #4C - Soil Vapor Extraction and Treatment (SVET) System Operation and Maintenance (O&M) - Second 6 Months.

DESCRIPTION OF CHANGE:

Operation of the SVET system is extended by a period of approximately 7.3 months (221 days), from August 8, 1997 to March 16, 1998. The date of Part 2 Substantial Completion for the SVET system is adjusted to March 16, 1998 for system shutdown (Part 2a), and June 1, 1998 for system decommissioning (Part 2b), in accordance with the updated and amended Substantial Completion Schedule attached as part of this Change Order #4. The unit price and scope of work for the SVET system does not include rental costs claimed for the extended operation period. These rental costs may be separately appealed by the Contractor.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00503 - Soil Vapor Extraction and Treatment (SVET) System

CONTRACT PAY ITEM NO.: 4C - "SVET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

Based on the analytical results of soil samples collected by the Contractor from the area of the site undergoing remediation, it was determined that the cleanup objectives for the soil have not yet been achieved. Therefore, the duration of the SVET system operation was extended.

COST:

Extended operation of the SVET system was separated into two operating periods: a) August 8, 1997 to October 30, 1997 (from the end of the one year operation period to the end of the original Contract time as amended through executed Change Orders 1, 2, and 3), and b) October 31, 1997 to March 16, 1998 (extended operation of the system under a negotiated change order).

The same costs apply to both periods, i.e., the original contract unit price as amended through executed Change Orders 1, 2, and 3, less the amount of any work that was either not requested by the Department and/or not performed by the Contractor during the period:

1.	Original Bid Price for Item #4C	$7,560.00
2.	Increase in Operating Costs to include the measurement of air flow rates from the various vapor extraction wells (Change Order No. 3, Item K).	$239.47
	Subtotal Contract Unit Price (as of Change Order No. 3)	$7,799.47
3.	Reduction in labor for soil vapor samples not collected (8 hours / mo. @ $36.75 / hr, based on April 1, 1998 conference call with Terra Vac)	- $294.00
4.	Reduction in sample collection and analytical costs (8 samples per month @ $110 per sample, based on April 1, 1998 conference call with Terra Vac)	- $880.00
	Subtotal Extended Monthly O&M Cost for SVET	$6,625.47
	Total Extended O&M for SVET (7.3 months @ $6,625.47 / mo.)	$48,365.93
5.	Lump sum increase in cost to account for a partial round of air samples collected in October	$195.67

Total **INCREASE** in Contract Price = ($48,365.93 + $195.67) = $48,561.60.

Note: The unit price is based on submittal of air flow rate measurements and monthly operating reports by Terra Vac for July 1997 through March 1998.

B. This change in the original contract is for Item #11C - Groundwater Extraction & Treatment (GWET) System Operation and Maintenance (O&M) - Second 6 Months.

DESCRIPTION OF CHANGE:

Operation of the GWET system is extended by a period of approximately 8.78 months (267 days), from August 8, 1997 to May 1, 1998. The date of Substantial Completion for the GWET system is adjusted to April 17, 1998 in accordance with the updated and amended Substantial Completion Schedule attached as part of this Change Order #4.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00508 - Groundwater Extraction and Treatment (GWET) System

CONTRACTOR PAY ITEM NO.: 11C - "GWET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

As described in Item A, the SVET System has not yet achieved the cleanup objectives for the soil, requiring that operation of this system be extended. However, operation of the SVET system is interconnected with the GWET system, using the same operator, electric bills, etc. Therefore, it was determined that the most practical course of action would be to have the Contractor operate both systems while continued operation of the SVET system is required.

COST:

Extended operation of the GWET system was separated into two operating periods: a) August 8 to October 30, 1997 (from the end of the one year operation period to the end of the original Contract time as amended through executed Change Orders 1, 2, and 3), and b) October 31, 1997 to May 1, 1998 (extended operation of the system under a negotiated change order).

The same costs apply to both periods, i.e., the original contract unit price as amended through executed Change Orders 1, 2, and 3, less the amount of any work that was either not requested by the Department and/or not performed by the Contractor during the period.

Items requiring repair or replacement for the substantial completion inspection punchlist will be subject to negotiation between the Contractor, the Engineer, and the Department.

1.	Original Bid Price for Bid Item #11C	$7,186.00
2.	Modified sampling to collect two additional influent groundwater samples and to delete the requirement for full ASP deliverable packages for groundwater analyses (based on April 1, 1998 conference call with Terra Vac). Net difference in cost per month:	$82.00
3.	Reduction in operating costs (gas and electric) due to removal of the Catox system (previously negotiated in Change Order No. 3, Item L).	- $3,010.54
	Subtotal Extended Monthly O&M Cost for GWET	$4,257.46
	Total Extended O&M for GWET (8.78 months @ $4,257.46/mo.)	$37,380.50

Total **INCREASE** in Contract Price = $37,380.50.

Note: The unit price is based on submittal of all analytical data and monthly operating reports by Terra Vac for July 1997 through March 1998.

C. This change in the original contract is for Item #4A - SVET System Installation and Start-up

DESCRIPTION OF CHANGE:

A discharge silencer was installed on the exhaust line from the SVET system blowers. The SVET system treatment trailer was also insulated with Styrofoam soundboard to dampen the sound of the blowers.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00503.9 - Noise Abatement

CONTRACT PAY ITEM NO.: 4A - "SVET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

After the fence surrounding the treatment systems at the site was modified to contain only the two treatment systems, there were notifications to the Department by local business and residential neighbors that the sound from the systems was much louder. As a result, the Engineer measured the noise levels and confirmed that they were unacceptable.

COST:

The Department and the Contractor negotiated a lump sum cost for the work involved with the installation of the silencer and insulation. Although the Contract Documents require the Contractor to attenuate the sound from the system, there were no complaints until the fencing was modified. Therefore it was agreed to split the cost of the modifications between the Department and the Contractor:

1.	Remediation Specialist (16 hrs @ $55 / hr)	$880.00
2.	Laborer (6 hrs @ $36.87 / hr)	$221.22
3.	Mileage (768 miles @ $0.31 / mile)	$238.00
4.	Per Diem (1 @ $110 / day)	$110.00
Subtotal Labor		$1,449.22
5.	Silencer Rental (13 weeks @ $35 / wk)*	$455.00
6.	Foam board Insulation (10 @ $5 ea)	$50.00
7.	Glue & Hangers	$25.00
Subtotal Materials		$530.00
Total		$1,979.22
½ Cost to be paid by Department		$989.61

Total **INCREASE** in Contract Price = $989.61

* - The approximate purchase price for the silencer was $450. Per the Contract Documents, Section VIII, Article 10.4.7, rental costs are limited to the original purchase price of the equipment. Therefore, although the operation period extended beyond the 13 week period, there is no additional rental for the silencer.

D. This change in the original contract is for Item #4A - SVET System Installation and Start-up

DESCRIPTION OF CHANGE:

One of the SVET blowers was returned to the supplier for repairs not covered by the manufacturer's warranty. The three remaining blowers were repaired by the Contractor.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: N/A

CONTRACT PAY ITEM NO.: 4A - "SVET System Installation and Start-up"

REASON FOR CHANGE:

This change order is necessary for:

Over a short period of time, all of the SVET system blowers seized and stopped operating due to unknown causes. After one of the blowers was sent to the supplier for repair, it was determined that mineral deposits such as calcium carbonate were building up on the blower components. The Contractor cleaned the three remaining blowers using acetic acid solution. Because this was a very unusual circumstance and could not reasonably have been anticipated, it was agreed that the cost for the repair of the blowers would be considered a change order item.

COST:

The Department and the Contractor negotiated a lump sum cost for the work involved as follows:

1.	Repair of Blower No. 1 by Supplier	$1,423.61
2.	Handling Fee (5%)	$71.18
3.	Repair of Blowers 2 & 3 (24 hrs @ $63 / hr)	$1,512.00
4.	Parts & Equipment	$75.00
	Total	$3,081.79

Total **INCREASE** in Contract Price = $3,081.79

E. This change in the original contract is for Item #4D - Confirmatory Soil Sampling and Analysis

DESCRIPTION OF CHANGE:

The total quantity of confirmatory soil samples collected was increased by 1 additional sample. Three additional borings were installed, but only 1 sample was collected and analyzed.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00503.17 - Confirmatory Soil Sampling and Analysis

CONTRACT PAY ITEM NO.: 4D - "Confirmatory Soil Sampling and Analysis"

REASON FOR CHANGE:

This change order is necessary for:

All but one of the samples from the second round of confirmatory soil samples collected by the Contractor met the cleanup requirements for the soil. The additional sample was collected several months later to confirm that the area of the previously high sample had been remediated.

COST:

The Department and the Contractor negotiated a lump sum cost for the work involved based on costs previously negotiated when the confirmatory soil samples were collected in separate events:

1.	Mobilization (Contractor & Sub, including manhours, travel, per diem, etc.)	$1,500.00
2.	1 sample @ $425.67 per sample	$425.67
Total		$1,925.67

Total **INCREASE** in Contract Price = $1,925.67

F. This change in the original contract is for Item #4D - Confirmatory Soil Sampling and Analysis

DESCRIPTION OF CHANGE:

The total quantity of confirmatory soil samples collected was increased by 16 samples.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00503.17 - Confirmatory Soil Sampling and Analysis

CONTRACT PAY ITEM NO.: 4D - "Confirmatory Soil Sampling and Analysis"

REASON FOR CHANGE:

This change order is necessary for:

Based on the previous confirmatory soil samples collected, the site was believed to have been remediated. Therefore, the Contractor was requested to collect a round of 16 samples as confirmation of the remedial progress at the site.

COST:

The Department and the Contractor negotiated a lump sum cost for the work involved based on costs previously negotiated when the confirmatory soil samples were collected in separate events.

1.	Mobilization (Contractor & Sub, including manhours, travel, per diem, etc.)	$1,500.00
2.	16 samples @ $425.67 per sample	$6,810.72
Total		$8,310.72

Total **INCREASE** in Contract Price = $8,310.72

G. This change in the original contract is for Item #11A - GWET System Wells GEW-1,2 Installation / Startup

DESCRIPTION OF CHANGE:

The pump connection to the equalization tank was repaired.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: N/A

CONTRACT PAY ITEM NO.: 11A - "GWET System Wells GEW-1,2 Installation / Startup"

REASON FOR CHANGE:

This change order is necessary for:

The pump connection to the tank was leaking and had to be repaired in order to keep the system in operation.

COST:

The Department and the Contractor negotiated a lump sum cost of for the work involved as follows:

1.	Laborer (2 hours @ $36.87 / hr)	$73.74

Total **INCREASE** in Contract Price = $73.74

II. CHANGE ORDER No. 4 SUMMARY

A.	Item #11C - SVET System O&M *(Extended Operation)*	$48,561.60
B.	Item #4C - GWET System O&M *(Extended Operation)*	$37,380.50
C.	Item #4A - SVET System Installation and Start-up *(Blower Silencer & Insulation)*	$989.61
D.	Item #4A - SVET System Installation and Start-up *(Repair of Blower Seizure)*	$3,081.79
E.	Item #4D - Confirmatory Soil Sampling & Analysis *(1 Additional Sample)*	$1,925.67
F.	Item #4D - Confirmatory Soil Sampling & Analysis *(16 Additional Samples)*	$8,310.72
G.	Item #11A - GWET System Installation *(Repair of Eq. Tank Pump)*	$73.74
TOTAL		$100,323.63

III. CHANGE IN CONTRACT PRICE

Original Contract Price:	$750,791.18
Contract Price after previous submitted/executed Change Orders:	$752,332.13
Net INCREASE due to this Change Order:	$100,323.63
New Contract Price including this Change Order:	$852,655.76

IV. CHANGE IN CONTRACT TIME (also refer to the updated and amended Substantial Completion Schedule attached)

a)	CHANGE IN CONTRACT TIME	PART 1 SUBSTANTIAL CALENDAR DAYS (DATE)	PART 1 FINAL CALENDAR DAYS(DATE)
	Original	120 (May 1, 1996)	180 (June 30, 1996)
	After Change Order No. 1	228 (August 17, 1996)	288 (October 16, 1996)
	After Change Order No. 2	247 (September 5, 1996)	307 (Nov. 4, 1996)
	After Change Order No. 3	247 (September 5, 1996)	307 (Nov. 4, 1996)
	Net INCREASE due to Change Order No. 4	0	0
	New Contract Time due to Change Order No. 4	247 (September 5, 1996)	307 (Nov. 4, 1996)

b)	CHANGE IN CONTRACT TIME	PART 2a SUBSTANTIAL CALENDAR DAYS (DATE)	PART 2a FINAL CALENDAR DAYS(DATE)
	Original	Achievement of soil cleanup	60 days after Substantial
	After Change Order No. 1	Achievement of soil cleanup	60 days after Substantial
	After Change Order No. 2	Achievement of soil cleanup	60 days after Substantial
	After Change Order No. 3	Achievement of soil cleanup	60 days after Substantial
	Net INCREASE due to Change Order No. 4	N/A	N/A
	New Contract Time due to Change Order No. 4	804 (March 16, 1998)	864 (May 15, 1998)

c)	CHANGE IN CONTRACT TIME	PART 2b SUBSTANTIAL CALENDAR DAYS (DATE)	PART 2b FINAL CALENDAR DAYS(DATE)
	Original	Achievement of soil cleanup	60 days after Substantial
	After Change Order No. 1	Achievement of soil cleanup	60 days after Substantial
	After Change Order No. 2	Achievement of soil cleanup	60 days after Substantial
	After Change Order No. 3	Achievement of soil cleanup	60 days after Substantial
	Net INCREASE due to Change Order No. 4	N/A	N/A
	New Contract Time due to Change Order No. 4	881 (June 1, 1998)	941 (July 31, 1998)

d)	CHANGE IN CONTRACT TIME	PART 3 SUBSTANTIAL CALENDAR DAYS (DATE)	PART 3 FINAL CALENDAR DAYS(DATE)
	Original	480 (April 26, 1997)	540 (June 25, 1997)
	After Change Order No. 1	588 (August 12, 1997)	648 (October 11, 1997)
	After Change Order No. 2	607 (August 31, 1997)	667 (October 30, 1997)
	After Change Order No. 3	607 (August 31, 1997)	667 (October 30, 1997)
	Net INCREASE due to Change Order No. 4	229	229
	New Contract Time due to Change Order No. 4	836 (April 17, 1998)	896 (June 16, 1998)

V. CHANGE IN CONTRACT

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.

STATE OF) New Jersey
) S:
COUNTY OF) Mercer

On the 8th day of April, 1998, before me personally came Joseph Pezzullo, to me known, who being duly sworn, did depose and say that (s)he resides in Langhorne PA ~~New York~~; that (s)he is Vice President of Terra Vac Corp., 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 instrument 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.

TERRA VAC CORPORATION
CORPORATE SEAL
1987
DELAWARE

Elaine Bowker
Notary Public of New Jersey
Commission Exp 3/18/2003

ELAINE M. BOWKER
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 3/18/2003

STATE OF)
) S:
COUNTY OF)

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, before me personally came _____, to me known and, being duly sworn, stated 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

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, before me personally came _____, to me known and, being duly sworn, stated 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

CONTRACT NUMBER D003363

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 NYSDEC ENGINEER	FOR CONTRACTOR
By: _____	By: Joseph Rezzullo
Title: _____	Title: Vice President
Date: _____	Date: 4-8-98
Approved as to Form:	Approved:
By: _____	By: _____
Attorney General	State Comptroller
Date: _____	Date: _____

STATE OF) New Jersey
) SS:
COUNTY OF) mercer

On the 8th day of April, 1998, before me personally came Joseph Rezzullo, to me known, who being duly sworn, did depose and say that (s)he resides in Langhorne PA, ~~New York~~; that (s)he is Vice President of Terra Vac Corp 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 instrument 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.

Elaine Bowker
Notary Public of New Jersey
Commission Exp 3/18/2003

CONTRACT NUMBER D003363

ELAINE M. BOWKER
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 3/18/2003

SECTION VI
ATTACHMENT A (Page VI-14)
UPDATED AND AMENDED SUBSTANTIAL COMPLETION SCHEDULE

Remedial work at the North Franklin Street Inactive Hazardous Waste Site will be substantially complete according to the following table:

PART	WORK DESCRIPTION	SUBSTANTIAL COMPLETION (No. of days from January 2, 1996 - Notice to Proceed)	FINAL COMPLETION (No. of days from January 2, 1996 - Notice to Proceed)
2a	SVET System shut down	804 days March 16, 1998	864 days May 15, 1998
2b	Decommissioning and removal of SVET System off-site (pipes, equipment, etc.)	881 days June 1, 1998	941 days July 31, 1998
3	Contractor turns over to the NYSDEC a fully operational GWET System which is achieving required performance objectives	836 April 17, 1998	896 days June 16, 1998

The liquidated damages for items 2a and 2b will be $650.00 for each day beyond the Substantial Completion time the requirements of Sections 00503, 00507, and 00508 of the Contract Documents have not been met by the Contractor.

The liquidated damages for item 3 will be $325.00 for each day beyond the Substantial Completion time the requirements of Section 00508 of the Contract Documents have not been met by the Contractor.

North Franklin Street Site Remedial Action
Contract No. D003363
Site No. 8-49-002
Change Order No. 5

Change Order Amount:$12,556.00 Date of Issue: September 9, 1998

Contractor's Name: Terra Vac Corp.

Engineer's Name: URS Greiner Consultants, Inc.

Change Order Items: This Change Order is comprised of one (1) item as discussed below.

I. CHANGE ORDER ITEMS

A. This change in the original contract is for Item #4C - Soil Vapor Extraction and Treatment (SVET) System Operation and Maintenance (O&M) - Second 6 Months.

DESCRIPTION OF CHANGE:

Operation of the SVET system was extended by a period of approximately 7.3 months (221 days), from August 8, 1997 to March 16, 1998, and the date of Part 2 Substantial Completion for the SVET system was adjusted to March 16, 1998 for system shutdown (Part 2a), and June 1, 1998 for system decommissioning (Part 2b), in accordance with executed Change Order #4. Costs associated with rental of the SVE treatment equipment and treatment trailer associated with the extended operation period were claimed by the Contractor.

DRAWING REFERENCE: N/A

SPECIFICATION REFERENCE: Section 00503 - Soil Vapor Extraction and Treatment (SVET) System

CONTRACT PAY ITEM NO.: 4C - "SVET System O&M"

REASON FOR CHANGE:

This change order is necessary for:

Based on the analytical results of soil samples collected by the Contractor and the Engineer from the area of the site undergoing remediation, it was determined that the cleanup objectives for the soil have not yet been achieved. Therefore, the duration of the SVET system operation was extended.

COST:

Extended operation of the SVET system was separated into two operating periods: a) August 8, 1997 to October 30, 1997 (from the end of the one year operation period to the end of the original Contract time as amended through executed Change Orders 1, 2, and 3), and b) October 31, 1997 to March 16, 1998 (extended operation of the system as amended by Change Order #4).

The Department and the Contractor negotiated a unit cost for the extended rental of SVE equipment and the SVE trailer based on review of prices listed in ***R.S. Means Environmental Unit Cost Book, 1998***. For comparison purposes a similar treatment unit was determined to be a 30HP, 580 scfm unit.

1.	Monthly Equipment Rental: $1,625/mth. x 7.3 mths.	$11,862.50
2.	Monthly Temporary Storage Trailer Rental: $ 95 / mth. x 7.3 mths.	693.50
	Total Rental Cost for SVE Trailer and Equipment During 7.3 Month Extended O&M Period:	$12,556.00

Total **INCREASE** in Contract Price = $12,556.00.

II. CHANGE ORDER No. 5 SUMMARY

A.	Item #4C - SVET System O&M *(SVE Equipment and Trailer Rental Costs for Extended Operation)*	$12,556.00
	TOTAL	$12,556.00

III. CHANGE IN CONTRACT PRICE

Original Contract Price:	$750,791.18
Contract Price after previous submitted/executed Change Orders:	$852,655.76
Net INCREASE due to this Change Order:	$12,556.00
New Contract Price including this Change Order:	$865,211.76

IV. CHANGE IN CONTRACT TIME:

a)

CHANGE IN CONTRACT TIME	PART 1 SUBSTANTIAL CALENDAR DAYS (DATE)	PART 1 FINAL CALENDAR DAYS(DATE)
Original	120 (May 1, 1996)	180 (June 30, 1996)
After Change Order No. 1	228 (August 17, 1996)	288 (October 16, 1996)
After Change Order No. 2	247 (September 5, 1996)	307 (Nov. 4, 1996)
After Change Order No. 3	247 (September 5, 1996)	307 (Nov. 4, 1996)
After Change Order No. 4	247 (September 5, 1996)	307 (Nov. 4, 1996)
Net INCREASE due to Change Order No. 5	0	0
New Contract Time due to Change Order No. 5	247 (September 5, 1996)	307 (Nov. 4, 1996)

b)

CHANGE IN CONTRACT TIME	PART 2a SUBSTANTIAL CALENDAR DAYS (DATE)	PART 2a FINAL CALENDAR DAYS(DATE)
Original	Achievement of soil cleanup	60 days after Substantial
After Change Order No. 1	Achievement of soil cleanup	60 days after Substantial
After Change Order No. 2	Achievement of soil cleanup	60 days after Substantial
After Change Order No. 3	Achievement of soil cleanup	60 days after Substantial
After Change Order No.4	804 (March 16, 1998)	864 (May 15, 1998)
Net INCREASE due to Change Order No. 5	N/A	N/A
New Contract Time due to Change Order No. 5	804 (March 16, 1998)	864 (May 15, 1998)

c)

CHANGE IN CONTRACT TIME	PART 2b SUBSTANTIAL CALENDAR DAYS (DATE)	PART 2b FINAL CALENDAR DAYS(DATE)
Original	Achievement of soil cleanup	60 days after Substantial
After Change Order No. 1	Achievement of soil cleanup	60 days after Substantial
After Change Order No. 2	Achievement of soil cleanup	60 days after Substantial
After Change Order No. 3	Achievement of soil cleanup	60 days after Substantial
After Change Order No.4	881 (June 1, 1998)	941 (July 31, 1998)
Net INCREASE due to Change Order No. 5	N/A	N/A
New Contract Time due to Change Order No. 5	881 (June 1, 1998)	941 (July 31, 1998)

d)

CHANGE IN CONTRACT TIME	PART 3 SUBSTANTIAL CALENDAR DAYS (DATE)	PART 3 FINAL CALENDAR DAYS(DATE)
Original	480 (April 26, 1997)	540 (June 25, 1997)
After Change Order No. 1	588 (August 12, 1997)	648 (October 11, 1997)
After Change Order No. 2	607 (August 31, 1997)	667 (October 30, 1997)
After Change Order No. 3	607 (August 31, 1997)	667 (October 30, 1997)
After Change Order No. 4	836 (April 17, 1998)	896 (June 16, 1998)
Net INCREASE due to Change Order No. 5	0	0
New Contract Time due to Change Order No. 5	April 17, 1998 836 (~~September 5, 1996~~)	June 16, 1998 896 (~~Nov. 4, 1996~~)

V. CHANGE IN CONTRACT

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.

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:

By: _____

Title: _____

Date: _____

FOR NYSDEC ENGINEER

By: _____

Title: _____

Date: _____

Approved as to Form:

By: _____
Attorney General

Date: _____

FOR DEPARTMENT

By: _____

Title: _____

Date: _____

FOR CONTRACTOR

By: _____

Title: _____

Date: _____

Approved:

By: _____
State Comptroller

Date: _____

STATE OF)
) SS:
COUNTY OF)

On the _____ day of _____, 19___, 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 instrument 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

CONTRACT NUMBER D003363

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, 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 instrument 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)
) S:
COUNTY OF)
STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, before me personally came _____, to me known and, being duly sworn, stated 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

STATE OF)
) S:
COUNTY OF)

On the _____ day of _____, 19____, before me personally came _____, to me known and, being duly sworn, stated 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

CONTRACT NUMBER D003363

APPENDIX D

CERTIFICATES OF COMPLETION

D. IMER
URS - GREINER

CERTIFICATE OF PART 2b SUBSTANTIAL COMPLETION

DEPARTMENT: New York State Department of Environmental Conservation

PROJECT: North Franklin Street Site, Village of Watkins Glen, Schuyler County, New York

ENGINEER: URS - Greiner, Inc.
282 Delaware Avenue
Buffalo, New York 14202-1805

CONTRACTOR: Terra Vac
213R Broadway
Methuen, MA 01844

RECEIVED
URS CONSULTANTS
JUN 05 1998
JOB # 35388.00 (C-1)

CONTRACT NO.: D003363

SITE NO.: 8-49-002

cc: DRS
SCG
DMc

Project or Specified Part shall include:

Part 2b Substantial Completion of the North Franklin Street Site as defined in Change Order No. 4.

Definition of Substantial Completion:

The Work, or a specified part thereof, has progressed to the point where in the opinion of the Engineer as evidenced by Engineer's definitive Certificate of Substantial Completion, it is sufficiently complete, in accordance with Change Order No. 4 and the Contract Documents (with the exception of the minor items identified during inspection described in paragraph 13.6 of the General Conditions), so that it can be utilized continuously for the purposes for which it is intended.

Date of Part 2b Substantial Completion: May 21, 1998

Written mutual agreements upon which the date of Substantial Completion has been mutually agreed to are as follows:

1. Agreement to Substantial Completion by the Department will in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to uncompleted work.

2. The Contractor shall subsequently satisfactorily complete or correct all unfinished items in the work accepted by the Department as Substantially Satisfactorily complete.

3. The Engineer and the Contractor made an inspection of the work on May 21, 1998 and, following this inspection, the Engineer, on behalf of the Department, advised the Contractor of remaining items to be completed or corrected and provided the Contractor with the following Estimate of Work Remaining. The Contractor shall endorse said estimate of Work Remaining as evidence of agreement and provide the Department with a mutually agreeable schedule with an estimate of Work Remaining which has been specified in the attached estimate of work remaining.

CERTIFICATE OF PART 2b SUBSTANTIAL COMPLETION
CONTRACT NO.: D003363
SITE NO.: 8-49-002

ESTIMATE OF WORK REMAINING

Attached

COMPLETION OF PART 2b SUBSTANTIAL COMPLETION

For the Contractor: Terra Vac:

By: John McEaly

Title: Operations Manager

Date: 6-3-98

For the Engineer: URS Greiner, Inc.:

By: Shanmarajan R. Iyer

Title: Project Manager

Date: 6/5/98

For New York State Department of Environmental Conservation:

By: David J. Chiusano

Title: PROJECT MANAGER

Date: 6/8/98

North Franklin Street Site

NYSDEC Site No. 8-49-002

ESTIMATE OF WORK REMAINING FOR PART 2b FINAL COMPLETION

May 21, 1998

Item	Date Completed	Check	Estimated Cost
Remove as much as possible of the black plastic tarp from the former auto museum (currently the Professor's Place). Cut the plastic at the edges where boxes and other items are stored. Note: Removal of this plastic is at the request of Mrs. Narde. Mr. Birch stated that he would be responsible for repairing the hole through the wall that was used for the SVET piping into the building.	5-21-98		$ 100.00
Identify the wells SVE-2 and SVE-4. Also paint an arrow from the well to show the location of the lateral piping to the former SVET system.	5-21-98		$ 100.00
		TOTAL	$ 200.00

Dharma Iyer
URS-Greiner

CERTIFICATE OF PART 3 SUBSTANTIAL COMPLETION

DEPARTMENT: New York State Department of Environmental Conservation

PROJECT: North Franklin Street Site, Village of Watkins Glen, Schuyler County, New York

ENGINEER: URS - Greiner, Inc.
282 Delaware Avenue
Buffalo, New York 14202-1805

CONTRACTOR: Terra Vac
213R Broadway
Methuen, MA 01844

CONTRACT NO.: D003363

SITE NO.: 8-49-002

Project or Specified Part shall include:

Part 3 Substantial Completion of the North Franklin Street Site as defined in Contract No. D003363 and Change Order No. 4.

Definition of Substantial Completion:

The Work, or a specified part thereof, has progressed to the point where in the opinion of the Engineer as evidenced by Engineer's definitive Certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents (with the exception of the minor items identified during inspection described in paragraph 13.6 of the General Conditions), so that it can be utilized continuously for the purposes for which it is intended.

Date of Part 3 Substantial Completion: April 14, 1998

Written mutual agreements upon which the date of Substantial Completion has been mutually agreed to are as follows:

1. Agreement to Substantial Completion by the Department will in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to uncompleted work.

2. The Contractor shall subsequently satisfactorily complete or correct all unfinished items in the work accepted by the Department as Substantially Satisfactorily complete.

3. The Department, Engineer, and the Contractor made an inspection of the work on April 14, 1998 and, following this inspection, the Engineer, on behalf of the Department, advised the Contractor of remaining items to be completed ~~of~~ or fully corrected and provided the Contractor with the following Estimate of Work Remaining. The Contractor shall endorse said estimate of Work Remaining as evidence of agreement and provide the Department with a mutually agreeable schedule with an estimate of Work Remaining, which has been specified in the attached Estimate of work remaining. Work is fully

CERTIFICATE OF PART 3 SUBSTANTIAL COMPLETION
CONTRACT NO.: D003363
SITE NO.: 8-49-002

ESTIMATE OF WORK REMAINING

Attached

COMPLETION OF PART 3 SUBSTANTIAL COMPLETION

For the Contractor: Terra Vac:

By: John M. Kealy John M Kealy

Title: Operations Manager - New England

Date: 4-27-98

For the Engineer: URS Greiner, Inc.:

By: DHARMARAJAN R. IYER Ramarajan Iyer

Title: Project Manager

Date: 4-29-98

For New York State Department of Environmental Conservation:

By: DAVID J. CHIUSANO

Title: PROJECT MANAGER

Date: 4-30-98

North Franklin Street Site

NYSDEC Site No. 8-49-002

ESTIMATE OF WORK REMAINING

April 14, 1998

Item	Date Completed	Check	Estimated Cost
Demobilize and remove Catox from site			$ 500.00
Clean GWET Trailer (remove jars of Terra Vac confirmatory soil samples and clean out desk)			$ 100.00
Identify all GWET wells w/flourescent paint			$ 100.00
Transfer Utility Bills			N.C.
Remove and properly dispose off-site various debris from inside fence including, but not limited to: scrap orange fencing, hoses, sump pump, ladder, wheel barrow, scrap wood, pallets, PVC piping, cinder blocks, black plastic, 55-gallon drum lids, 4 55-gallon drums w/contents			$ 500.00
Resecure black chain-link fence tarp in areas where appropriate			$ 500.00
Remove, evaluate & repair (in house) the air stripper blower (400-B)			$2,000.00
Acid wash both shallow tray air strippers			$1,000.00
Remove, clean and evaluate extraction well level transducers. Evaluate condition of desiccant tubes			$ 600.00
Clean the extraction wells (Change Order #3)			$ 900.00
Install clean air filters for the air stripper blowers			$ 250.00
Submit a final revised GWET O&M Manual per comments discussed on 4/14/98			$1,000.00
Verify that PLC can function without SVET system components and Catox unit			N.C.
Final round of groundwater levels (Change Order #3)			$ 300.00
Repair leak at the 50 micron filter			$ 100.00
Provide operating reports (Including all analytical and monitoring data)			$ 500.00
		TOTAL	$9,350.00

NOTE: N.C. = No Cost

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Construction Services, Room 267
50 Wolf Road, Albany, New York 12233-7010
Phone: (518) 457-9280 FAX: (518) 457-7743

John P. Cahill
Commissioner

MAY 2 8 1998

RECEIVED
URS CONSULTANTS
JUN 0 1 1998
JOB # 25388.00(C-1)

Ms. Joleen M. Kealey
Project Manager
Terra Vac
213R Broadway
Methuen, Massachusetts 01844

cc: DR/ DMc JCR

Dear Ms. Kealey:

Re: North Franklin Street Site Remedial Action
NYSDEC Contract No. D003363
Part 3 Final Completion - Punchlist Items

Change Order No. 4 includes a deadline of June 16, 1998 for Part 3 Final Completion at the subject site. In anticipation of this date, it is my understanding that URSG and Terra Vac performed an inspection of the GWET system punchlist items on May 21, 1998. During this inspection, URSG assessed Terra Vac's progress in completing the punchlist items identified in the Department's April 21, 1998 letter to Terra Vac (see Estimate of Work Remaining enclosed). URS Greiner's list of the outstanding items with notes or additional information from Terra Vac is included as Attachment A to this letter.

If you have any questions or require additional information, please do not hesitate to contact me at (518) 457-7878.

Sincerely,

David J. Chiusano
Project Manager
Western Field Services Section
Bureau of Construction Services
Division of Environmental Remediation

Enclosure

cc: D. Iyer - URS Greiner
J. Malot - Terra Vac, Puerto Rico
D. Napier - NYSDOH, Rochester

North Franklin Street Site

NYSDEC Site No. 8-49-002

ESTIMATE OF WORK REMAINING

~~April 14, 1998~~ AS of 5/21/98

Item	Date Completed	Complete	Estimated Cost
Demobilize and remove Catox from site	5-21-98	✓	~~$ 500.00~~
Clean GWET Trailer (remove jars of Terra Vac confirmatory soil samples and clean out desk)	STILL NEED TO REMOVE DESK		$ 100.00
Identify all GWET wells w/flourescent paint	5-21-98	✓	~~$ 100.00~~
Transfer Utility Bills	5-21-98	✓	~~N.C.~~
Remove and properly dispose off-site various debris from inside fence including, but not limited to: scrap orange fencing, hoses, sump pump, ladder, wheel barrow, scrap wood, pallets, PVC piping, cinder blocks, black plastic, 55-gallon drum lids, 4 55-gallon drums w/contents	NEED TO REMOVE ROLLOFF CONTAINING SITE DEBRIS		$ 500.00
Resecure black chain-link fence tarp in areas where appropriate			$ 500.00
Remove, evaluate & repair (in house) the air stripper blower (400-B)	5-21-98	✓	~~$2,000.00~~
Acid wash both shallow tray air strippers	5-21-98	✓	~~$1,000.00~~
Remove, clean and evaluate extraction well level transducers. Evaluate condition of desiccant tubes	WILL SEND BACK TO MANUF.		$ 600.00
Clean the extraction wells (Change Order #3)	5-21-98	✓	~~$ 900.00~~
Install clean air filters for the air stripper blowers	5-21-98	✓	~~$ 250.00~~
Submit a final revised GWET O&M Manual per comments discussed on 4/14/98		*	$1,000.00
Verify that PLC can function without SVET system components and Catox unit	5-21-98	✓	~~N.C.~~
Final round of groundwater levels (Change Order #3)	NEED TO PROVIDE DATA		$ 300.00
Repair leak at the 50 micron filter	5-21-98	✓	~~$ 100.00~~
Provide operating reports (Including all analytical and monitoring data)			$ 500.00
		TOTAL	~~$9,350.00~~

NOTE: N.C. = No Cost

$3,500.00

ATTACHMENT A

North Franklin Street Site Remedial Action
Contract No. D003363

Outstanding Punchlist Items for Part 3 - Final Completion

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1. Remove desk and other miscellaneous Terra Vac items from the GWET trailer. Terra Vac stated that this should be completed on May 22, 1998.

2. Remove rolloff containing all site debris for disposal. ✓

3. Resecure the bottom of the black tarp covering the chain-link fence, especially along the southern leg. Terra Vac stated that this should be completed on May 22, 1998.

4. Return the level transducers and transmitters for wells GEW-1 and GEW-2 (as well as two of the SVET well level probes) to the manufacturer for testing and repair. Determine a cost for the repair of the GWET transmitters, possibly using parts from the SVET well level probes.

5. Submit a final GWET O&M Manual per comments discussed on 4/14/98.

6. Submit the data from the final round of groundwater levels.

7. Provide monthly operating reports (including all analytical data and monitoring data) from June 1997 to the system shutdown.