REMEDIAL ACTION CLOSURE REPORT

VOLUME I TEXT, APPENDICES A & B

Property Location:

OWEGO FORMER MGP SITE
OWEGO, NEW YORK

Prepared For:

New York State Electric & Gas Corp.
P.O. Box 5224 • Corporate Drive
Kirkwood Industrial Park
Binghamton, NY 13902

Prepared By:

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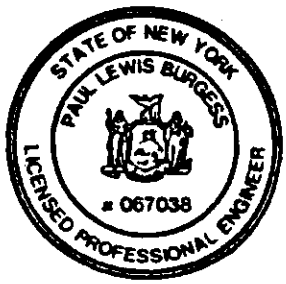

Atlantic Project No. 2023-01-15

October 1995

NYSEG

8 September 1997

Owego MGP Site

Mr. David A. Crosby, P.E.
Environmental Engineer
Central Field Services Section
Bureau of Construction Services
Division of Environmental Remediation
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, NY 12233-7010

Subject: **Addendum to the Remedial Action Closure Report for the Owego MGP Site, Operable Unit #1, prepared by Atlantic Environmental Services, dated October 1995**

Dear Mr. Crosby:

This letter will serve as an addendum to the subject document and submits the following information for inclusion in the report:

On 8 May 1996 the security chain link fence enclosing the perimeter of the site was removed by SLC Consultants/Constructors;

Between 13 May 1996 and 15 May 1996, 110 yd^3 of asbestos containing material in the former Inscho house (temporary field construction office) was removed by Marcor of NY and disposed of at Southern Alleghenies Landfill, RD #3, Box 310, Valley View Drive, Hollsopple, PA 15935;

On 16 May 1996 the former Inscho house was razed by SLC Consultants/Constructors. All demolition debris was disposed of at Seneca Meadows Landfill, 1786 Salcman Road, Waterloo, NY 13165.

Please feel free to call me at 607-762-8839 if you have any questions regarding this matter.

Sincerely,

Tracy L. Blazicek, CHMM
Project Environmental Specialist

cc: J.M. Simone

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CONTENTS

LIST OF FIGURES

CONTENTS (continued)

1.0 INTRODUCTION

1.1 Purpose

The purpose of this report is to summarize remedial activity conducted at the Owego former manufactured gas plant (MGP) site. The property, owned by New York State Electric and Gas Corporation, is located at 440 East Main Street, Owego, New York. Remedial activities were conducted from September 1994 to July 1995. Site remediation was conducted in accordance with the Work Plan developed for this site, titled *Work Plan and Remedial Design for Owego Former MGP Site Remediation, East Main Street, Owego, New York*, dated September 2, 1994 and prepared by Atlantic Environmental Services, Inc. (Atlantic) of Colchester, Connecticut. This Work Plan was approved by the New York State Department of Environmental Conservation (NYSDEC).

Section 2.0 of this report provides a brief site description and history. Section 3.0 provides an overall description of the remedial strategy, a brief chronological summary of remedial construction activities, and verification soil sampling results. Conclusions and recommendations are presented in Section 4.0. All soil, water, and air analytical results, shipping manifests, and certificates of disposal are provided as appendices.

Volume I includes the text of the report, as well as the tables, figures, exhibits, and Appendices A and B. The remainder of the appendices are bound separately as Volumes II through VII.

2.0 SITE BACKGROUND

2.1 Location

The Owego MGP site is located on a one-acre, triangular parcel of land located in the eastern portion of the village of Owego. The site is located at 440 East Main Street and is bounded by East Main Street to the north, the Consolidated railroad to the south, and the Cyganovich & Andrews Lumber Yard to the east. The site location is shown on Figure 2-1, Site Location.

2.2 Site History

The site was used to manufacture coal gas for 79 years, from 1856 to 1935. The main structure of the facility was a brick production house located in the western portion of the site. Approximately 40 feet to the east of the production building was a second structure which housed the gas purifying and regulating equipment. This building also housed the tar-storage vessel. Three separate gas holders, one below-grade holder, and two above-grade holders were utilized to store gas. The below-grade holder was the original gas relief holder and was a brick structure approximately 40 feet in diameter, with a foundation approximately 18 feet below grade.

A Remedial Investigation (RI) was conducted on the site, beginning in 1986. The purpose of the RI was to define the nature and extent of any contamination resulting from the previous activities at the site. The RI was conducted in the following four phases. The Preliminary Site Evaluation was completed in October 1986; the Initial Field Investigation Program was completed in January 1988. A Supplemental Field Investigation Program was completed in March 1991, and the Risk Assessment and Evaluation of Remedial Alternatives was completed in August 1988. A Remedial Investigation/Feasibility Study (RI/FS) was completed in January 1993, and a Record of Decision (ROD) was issued by NYSDEC on March 31, 1994.

The Remedial Design (RD) was completed in September 1994 and construction started on September 12, 1994. Site remediation was completed in July 1995.

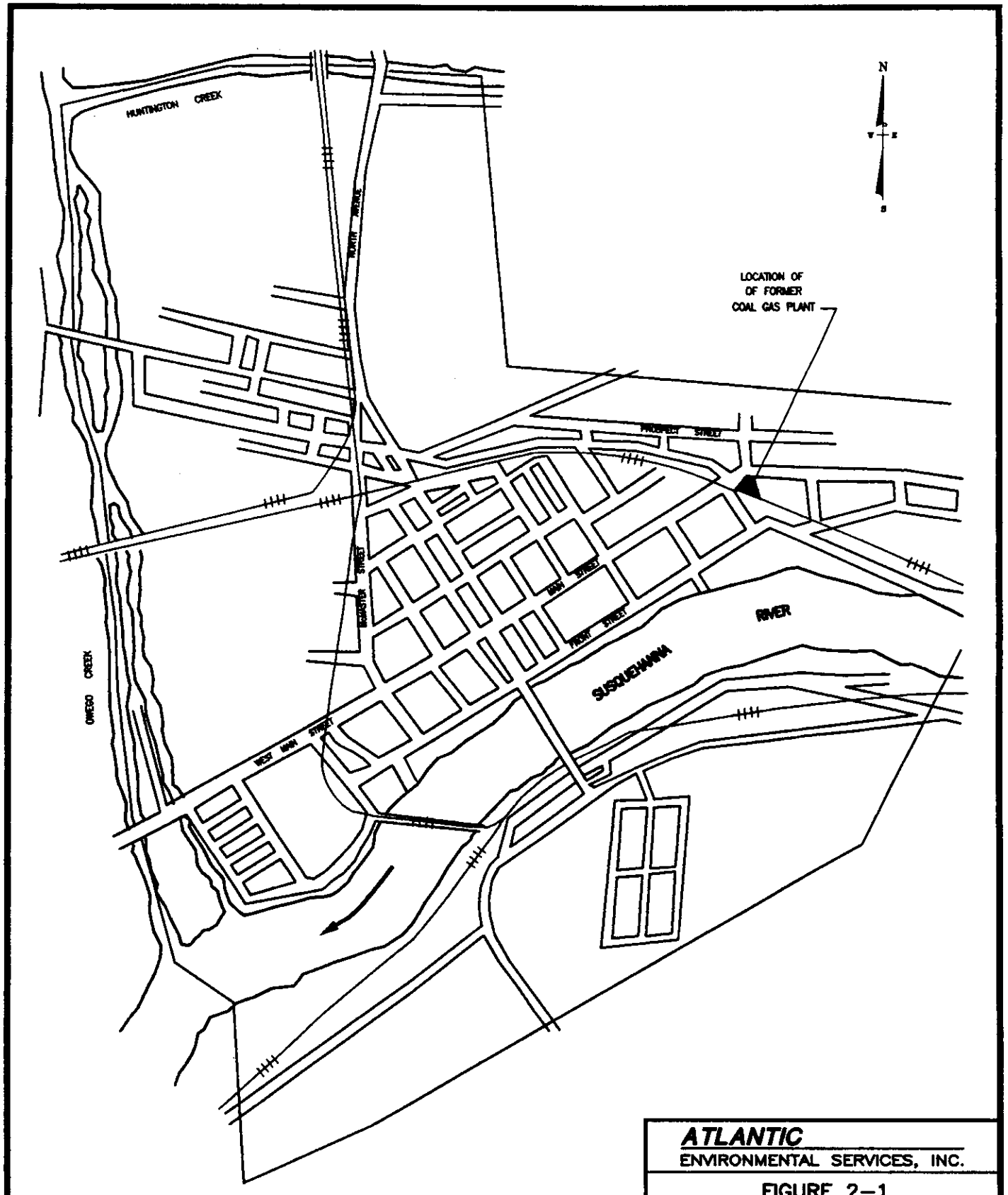

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FIGURE 2–1
SITE VICINITY

NEW YORK STATE ELECTRIC & GAS CORP.
OWEGO FORMER MGP SITE
OWEGO, NEW YORK

3.0 SUMMARY OF REMEDIAL WORK

3.1 General Overview

The remedial program for the Owego former MGP site encompassed the excavation and off-site thermal destruction of impacted soils located throughout the site. The remedial action incorporated the excavation of a below-grade holder, removal of impacted subsurface soils adjacent to the holder to the depth of groundwater, and the removal of surface soils (0 to 2 feet in depth), all as shown on the "record" drawings in Appendix A, Record Drawings. Construction photographs depicting construction techniques and equipment utilized are presented in Appendix B, Construction Photographs.

Approximately 13,155 tons of excavated soil and blending material were shipped to the New York State Electric & Gas (NYSEG) Hickling and/or Jennison power plants for thermal destruction. This material was processed to a minus 1-inch size and tested to NYSEG protocol before shipment. These NYSEG power plants are permitted by NYSDEC to thermally treat MGP-impacted soil. Another 141.58 tons of highly impacted soil classified as DO18 hazardous waste was shipped to the Chemical Waste Management, Inc. Model City Facility for disposal in a subtitle C Landfill.

A brief chronological summary of the remedial construction is presented in Table 3-1.

During the remedial activity phase of the project, an active public participation plan was undertaken which included press releases, mailing of a fact sheet describing the planned remedial activities to adjacent property occupants, and a "Hot Line" to address any concerns during the remediation.

3.2 Site Preparation

Before the initiation of site preparation activities a surface soil-sampling program was undertaken to provide data to support the alternative sampling plan to confirm acceptance for treatment at the NYSEG Hickling Station. Sampling was conducted as outlined in the Work Plan and Remedial Design dated September 2, 1994. The results of this sampling program are included in Appendix C, Pre-Remediation Sampling Results. The analytical data was submitted to NYSDEC on October 20, 1994 and the alternative stockpile sampling plan was approved on October 26, 1994. A copy of the approval letter is presented in Appendix C.

Initial site activities included the installation of security fencing and monitoring equipment and site clearing. Since surface-soil impacts were confirmed throughout the site, the first activity on the site was to excavate impacted soils in the support zone, the contamination reduction zone and the stockpile area. Soil excavated from these areas was stockpiled on the

TABLE 3-1
REMEDIATION CHRONOLOGY

September 12, 1994	Start of construction
September 12-19, 1994	Installed air monitoring equipment and security fence. Finished site clearing and grubbing.
September 19 to October 13, 1994	Completed contamination reduction zone, equipment decontamination pad and lined storage area.
October 26, 1994	Completed surface soil excavation,
October 26 to December 8, 1994	Subsurface soil excavation; sawdust used at times to control odor and to adsorb free liquids.
December 8, 1994 to January 3, 1995	Holder excavation; sawdust used as a blending agent to control odor.
January 3-13, 1995	Holder excavation stopped because structural stability of the brick holder walls questioned; 3-foot thick flowable fill compression ring used to reinforce holder walls.
January 15-27, 1995	Holder excavation continued; sawdust and coal used as a blending agent to control odor and to render the material non-hazardous. Holder excavation stopped on January 25, 1995 because of odor impacts. Holder covered with sawdust, HDPE liner and ConCover.
January 27 to March 31, 1995	Subsurface soil excavation and backfill.
April 3-11, 1995	Installation of enclosing structure and air purifying system over the holder.
April 12 to June 1, 1995	Continued holder excavation and holder backfilled. Holder contents were blended with coal and a proprietary coal base formulation to render the material non-hazardous.
June 2 to June 8, 1995	Enclosing structure decontaminated and taken down.
June 8 to July 13, 1995	Site cleanup, removal of lined stockpile area, decontamination area, final grading and seeding.

site. The support zone, the contamination reduction zone and the stockpile area were in place and operational on October 13, 1994.

3.3 Health and Safety

Procedures and guidelines established in the site Health and Safety Plan (HASP) were enforced throughout the construction period. Site safety meetings were held periodically throughout the construction, and HASP orientation was provided to all new site personnel.

Both time-averaged and real-time air quality monitoring were conducted during the construction period. The time-averaged air quality monitoring was conducted at three locations as shown in Figure 3-1, Air Monitoring Locations. Time-averaged sampling was conducted over a two-day period to establish background, then was continued throughout the duration of excavation and processing activities, with the exception of brief periods when sample pumps were inoperative. One set of daily samples per week were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX [TO-2 Method]), polycyclic aromatic hydrocarbons (PAHs [TO-13 Method]), and respirable particulate (PM10 Method). The daily sample selected to be analyzed was representative of the most severe condition for that week, as defined by real-time air monitoring, results of perimeter odor monitoring, level of construction activity, and the judgment of the air monitoring technician. Results of the time-averaged sampling are included in Appendix D, Air Monitoring Data. None of the samples showed results which exceeded the OSHA time-weighted average (TWA) standards for volatile or semivolatile parameters. Three daily samples exceeded the PM-10 action level for respirable particulate matter. On two occasions, October 7, 1994 and September 22, 1994, both the upwind and downwind samples exceeded 0.15 mg/m^3, which is indicative of off-site airborne particulate matter. The third sample, which was collected February 14, 1995, has a PM10 concentration of 0.716 mg/m^3. This reading is not supported by real-time air quality monitoring data or site activity and therefore may be erroneous. A weather station monitored wind speed and direction and rainfall.

The real-time air quality monitoring sampling was conducted at six locations as shown in Figure 3-1. Time monitoring commenced at the start of each work day and continued on an hourly basis until all construction activities ceased. A Mini Ram™ was utilized to monitor total suspended particles and an organic vapor analyzer was utilized to monitor organic vapors. Air quality monitoring logs of real-time data are presented in Appendix D. The action level for total organic vapors was exceeded once during construction. The vapor emissions response plan, as outlined in the Work Plan, was implemented and subsequent air monitoring indicated concentrations below action levels. The airborne particulate action level (as developed in the Remedial Work Plan) was exceeded on four occasions (September 15, 1994, September 27, 1994, September 28, 1994, and February 23, 1995). On two occasions, elevated airborne particulates can be attributed to sawing of lumber at the adjacent lumber yard. On the other two occasions, dust suppression techniques were implemented, as outlined in the Remedial Work Plan, and subsequent air monitoring indicated concentrations below action levels.

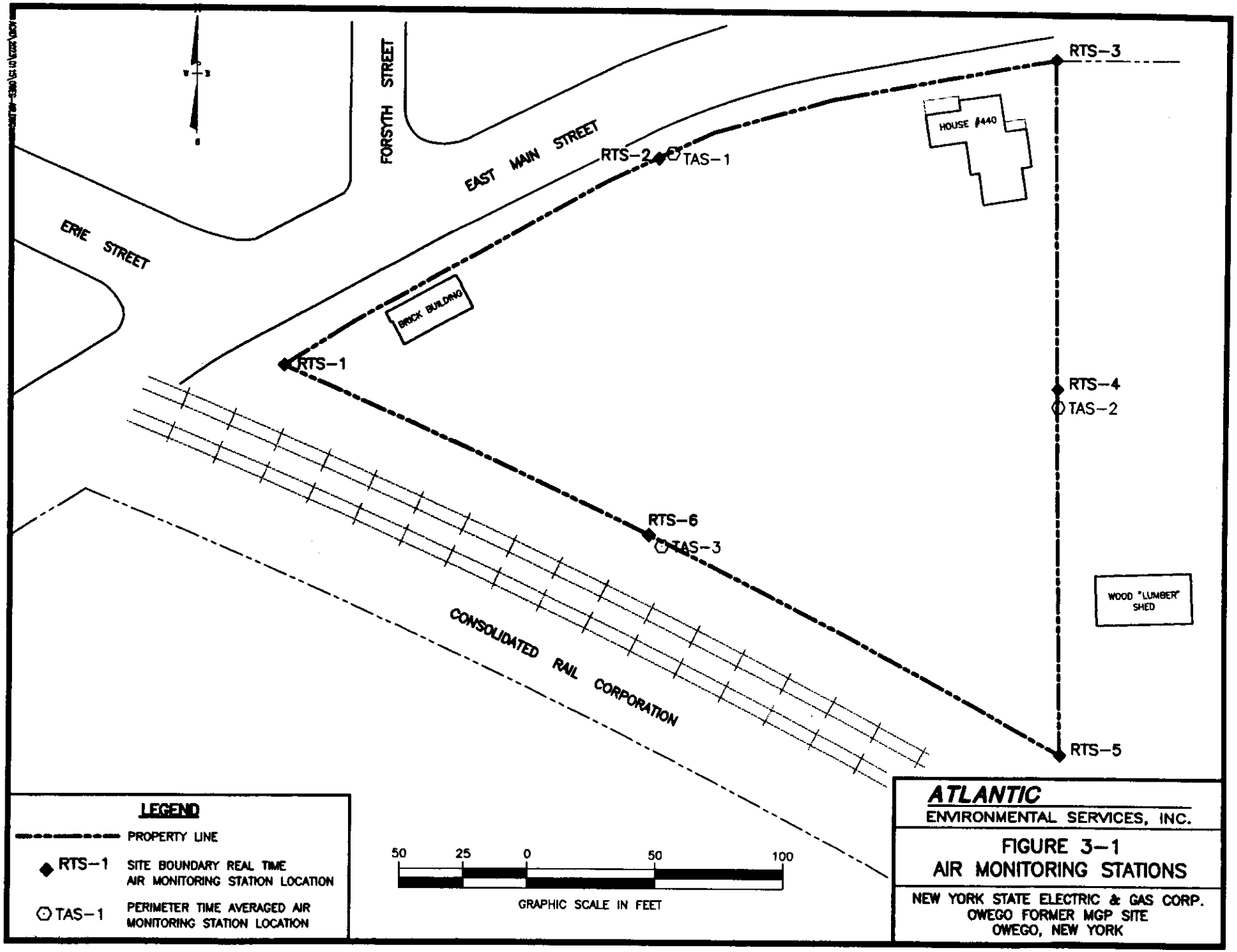
FORSYTH STREET
EAST MAIN STREET
ERIE STREET
HOUSE #440
BRICK BUILDING
WOOD "LUMBER" SHED
CONSOLIDATED RAIL CORPORATION
RTS-1
RTS-2
TAS-1
RTS-3
RTS-4
TAS-2
RTS-5
RTS-6
TAS-3
LEGEND
PROPERTY LINE
RTS-1 SITE BOUNDARY REAL TIME AIR MONITORING STATION LOCATION
TAS-1 PERIMETER TIME AVERAGED AIR MONITORING STATION LOCATION
50 25 0 50 100
GRAPHIC SCALE IN FEET
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FIGURE 3-1
AIR MONITORING STATIONS
NEW YORK STATE ELECTRIC & GAS CORP.
OWEGO FORMER MGP SITE
OWEGO, NEW YORK

3.4 Site Services

The existing on-site residential structure was utilized as the on-site construction office. All necessary site services (electric, telephone, water and sewer) were in place or were established. The site electrical service proved to be inadequate and was increased during the early stages of the construction. On-site plumbing was not adequate to provide required water pressure and flow rate for the building, the foam applicator that was used for odor control, and the decontamination equipment. Plumbing repairs to increase both flow rate and water pressure were made during the early stages of construction.

3.5 Holder Dewatering

A pump was installed in the existing well point within the holder and dewatering of the holder was started on September 25, 1994. Pumping of water from the holder continued on an intermittent basis until the start of holder excavation.

Groundwater removed from the holder, decontamination water, and water removed from the lined soil stockpile area were pumped to a holding tank. This water was treated with activated carbon and discharged to another holding tank for analysis. Treated water analyses and approval letters are presented in Appendix E, Water Analysis. The treated water was trucked to NYSEG's Hickling Station where it was used as tempering water as approved by NYSDEC.

3.6 Material Handling

The criteria for acceptance for treatment of impacted material at the NYSEG Hickling Station or Jennison Station established a maximum material size of 1.0 inch. This requirement required the screening of all excavated soil and the crushing of all over-sized material.

Excavation limits were established horizontally by the property line, building foundations, gas lines, and the requirement to maintain a safe excavation, and vertically based on the established parameter that remediation did not have to extend below the elevation of groundwater. Sidewall slopes at the property boundary were maintained at a 1(V):1.5(H) ratio per OSHA guidelines for type C soils (gravel and sand).

Contaminated debris that was not suitable for thermal destruction, such as metal piping, was decontaminated at the site using a high-pressure steam wash. Metal with a salvage value was shipped to Ben Whitesman and Sons to be recycled. Other debris was disposed of at the Seneca Meadows Landfill. Construction debris was sampled and analyzed before disposal. Analytical data is presented in Appendix F, Construction Debris Analysis.

Waste granular activated carbon from the enclosing structure air purification system was included with the waste manifested to Chemical Waste Management, Inc.'s Model City Facility. Waste granular activated carbon from the water treatment system is stored on site in drums and will be shipped back to Carbtrol Corporation, the vendor who supplied the water treatment system, for regeneration.

3.6.1 Surface Soils Remediation

Surface soils are defined as the top 2 feet of soil. These soils were previously characterized as part of the preremediation sampling program to support the alternative stockpile sampling program. Excavated soils were screened and stockpiled. Stockpiled material was sampled utilizing NYSEG protocol and subsequently transported to NYSEG for thermal destruction.

3.6.2 Subsurface Soils Remediation

Subsurface soils are defined as those soils from elevation 2 feet below grade to the groundwater table. The vertical extent of the excavation was determined by confirmatory analytical results or the elevation of groundwater. The excavation of all impacted soils was accomplished through open-cut excavation techniques which utilized side slopes or benching of the excavation sidewalls to prevent sloughing or collapse of adjacent soils. Blending of highly impacted soil with adjacent soil or sawdust was required in some areas to control odors and to contain free liquids.

Excavated material was screened and stockpiled. Over-sized material was crushed and stockpiled. Stockpiled material was sampled utilizing NYSEG protocol and subsequently transported to NYSEG for thermal destruction.

3.6.3 Holder Remediation

During the excavation of subsurface soils immediately adjacent to the holder, it became evident that the brick holder wall was not structurally sound and that the mortar between the bricks had deteriorated. A nominal 3-foot-thick flowable fill compression ring was constructed around the holder to provide the required stability.

Excavation of the top portion of the holder was undertaken as an open excavation without odor control techniques being utilized. As the excavation proceeded it became evident that odor control techniques would be required and that the highly impacted material would require blending in the holder container to render the excavated material non-hazardous. As the excavation continued further into the holder heavily tar-impacted material was encountered. Real-time air perimeter monitoring indicated that the open excavation, even with odor control techniques in place, was no longer sufficient to control odor. At that point holder excavation was terminated and the excavation was secured with sawdust, an HDPE cover, and an application of Con-Cover odor suppressant foam.

To control odors and air emissions an enclosing structure with an air-purifying system was installed over the holder. The enclosing structure was 88 feet 7 inches in diameter and was equipped with three access doors: two doors for equipment/vehicle access, and the other for personnel access. The air purifying system handled an air flow rate of 20,000 cfm and used granular activated carbon as the treatment. Holder excavation and blending of the highly coal tar-impacted material with a proprietary coal-based formulation continued without odor problems. Initial blending attempts were not successful and NYSEG protocol testing determined that characteristic hazardous waste was removed from the holder and placed in the stockpile.

NYSDEC was informed of the contributing factors (letter dated May 12, 1995). Approval was obtained from the state to return the material to the holder for additional blending.

The additional blending was not successful and NYSEG protocol testing determined that characteristic hazardous waste was removed from the holder and placed in the stockpile. For a second time NYSDEC approved replacing the material into the holder for additional blending. NYSDEC was informed of the contributing factors associated with these actions (letter dated May 12, 1995). A small portion of the material at the base of the holder included tar balls that could not be effectively blended with the equipment on site, and it was deemed not to be cost effective to mobilize additional equipment. A total of 141.58 tons of material was shipped to the Chemical Waste Management, Inc. Model City Facility for disposal.

3.7 Transportation/Disposal

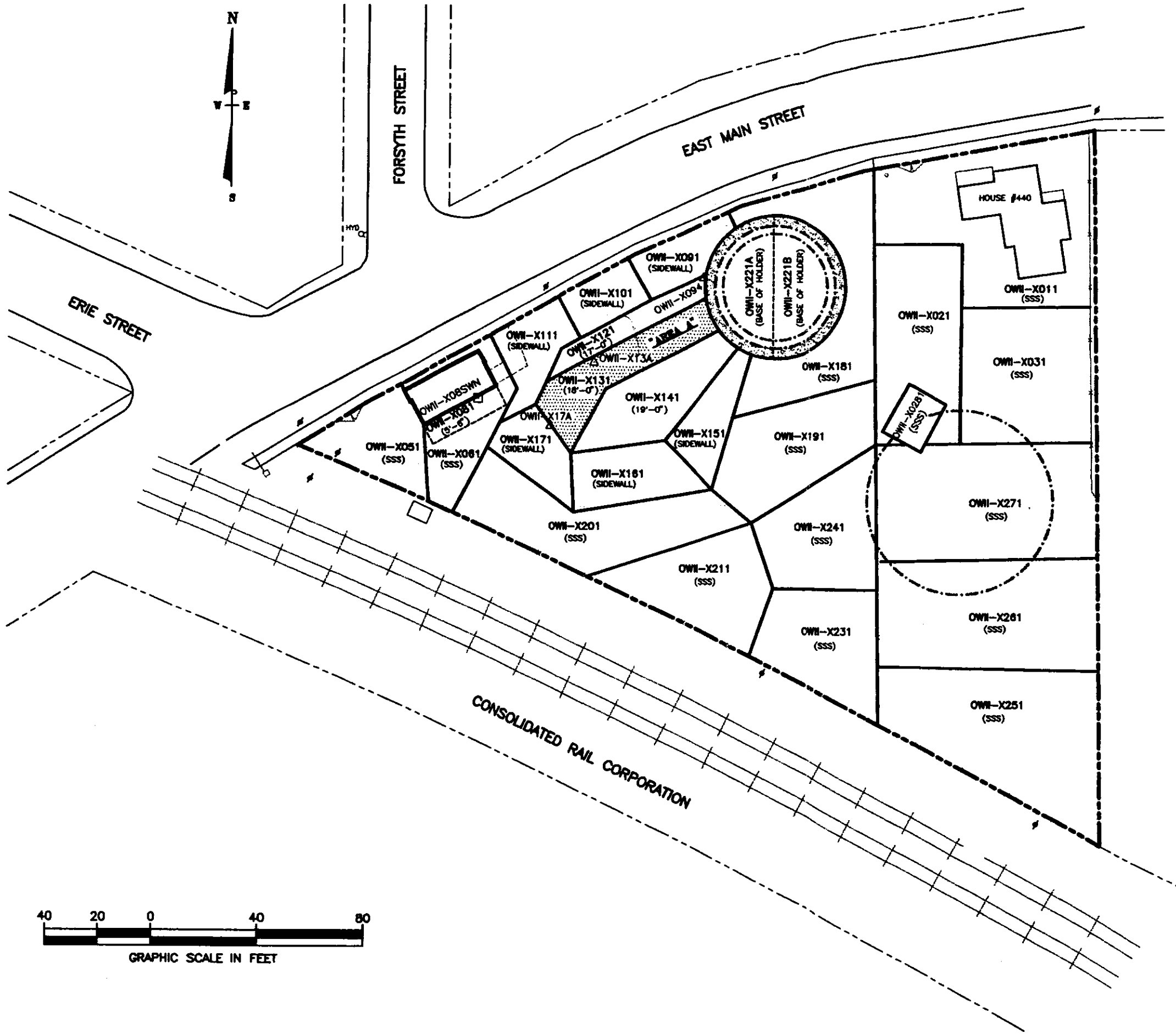
Excavated material suitable for thermal destruction was trucked to either the Hickling or Jennison power plant, using two different trucking companies. The primary trucking company was F.S. Lopke Contracting, Inc. The secondary trucking company was KRP Trucking. Soils classified as DO18 hazardous waste were trucked to the Model City Facility by Buffalo Fuel Corporation or Clean Harbor Environmental Services, Inc.

A total of 13,155 tons was sent to NYSEG, where the material was thermally destroyed. A total of 141.58 tons of material was shipped to the Chemical Waste Management, Inc. Model City Facility where it was placed in a Subtitle C landfill. Copies of all trucking manifests, weigh slips and certificates of destruction are provided in Appendix G, Hazardous Waste Manifests, Trucking Manifests, Certificates of Disposal and Certificates of Destruction. As of the date of this closure report, Certificates of Disposal and Certificates of Destruction have not been issued for all of the material sent to NYSEG for thermal destruction.

3.8 Verification Sampling

Confirmation soil sampling was conducted in accordance with EPA SW846 Chapter 9, Sampling Protocol. The basis of the sampling strategy is such that the number of samples collected are statistically valid and representative. Locations of verification samples and the depth below grade at which the sample was taken are indicated in Figure 3-2, Verification Sample Locations. Results of verification sampling are presented in Table 3-2, Verification Soil Analytical Results. Laboratory data sheets are in Appendix H, Verification Soil Analytical Results.

Verification samples were taken at the limits of excavation or when visual/olfactory observation indicated that the limit of impacted soil had been reached. The analytical results indicate the cleanup objective of 500 parts per million (ppm) for total polycyclic aromatic hydrocarbons (TPAH) and 0.1 ppm total benzene were achieved within the limits of excavation and above the groundwater table. Analysis of impacted soil below the groundwater table in Area A (depicted in Figure 3-1) indicates that impacted soils remain on the site (OWII-X131). The remaining impacted soil was deemed not to be a characteristic hazardous waste based on toxicity characteristic leaching procedure (TCLP) benzene concentrations and historical site data indicating that benzene is the only chemical compound documented on site that could result in impacting soil to the extent that it could be characterized as a hazardous waste.



LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- EXISTING FENCE
- HISTORICAL MGP STRUCTURES
- ø EXISTING UTILITY POLE
- OWII-X031 SAMPLE IDENTIFICATION
- (17'-0") SAMPLE DEPTH BELOW GRADE
- (SSS) SURFACE SOIL SAMPLE TAKEN AT EXCAVATION DEPTH OF APPROXIMATELY 2'-0"
- △ OWII-X094 GRAB SAMPLE FOR TCLP BENZENE
- ⊡ OWII-X08SWN GRAB SAMPLE VERIFICATION ANALYSIS

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FIGURE 3-2
VERIFICATION SAMPLE LOCATIONS

NEW YORK STATE ELECTRIC & GAS CORP.
OWEGO FORMER MGP SITE
OWEGO, NEW YORK

Table 3-2
Verification Soil Analytical Results

Area Description	Sample No.	TPAH (mg/kg)	Total Benzene (mg/kg)
Support Zone	OWII-011	46.8	<0.006
Contamination Reduction Zone	OWII-021	39.9	0.02
Support Zone	OWII-031	38.2	0.007
West Entrance	OWII-X051	389	<0.006
South of Gas Regulator	OWII-X061	30.8	<0.006
Southern Base of Gas Regulator	OWII-X081	5.51	<0.74*
Sidewall	OWII-X08SWN	69.71	<0.006
Base of Slope, TCLP Benzene	OWII-X09A	—	0.22 ppm
North Excavation Slope Adjacent to Holder	OWII-X091	107.47	<0.006
North Excavation Slope	OWII-X101	90.12	0.013
North Excavation Slope Adjacent to Gas Regulator	OWII-X111	BDL	<0.007
Base of North Excavation	OWII-X121	48.39	0.078
North/Central Excavation	OWII-X131	535.6	6.3
TCLP Benzene	OWII-X13A	—	0.15 ppm
Southern Excavation	OWII-X141	88.07	0.048
South Excavation Slope Adjacent to Holder	OWII-X151	1.5	<0.006
South Excavation Slope	OWII-X161	250.77	0.002
South Excavation Slope Adjacent to Gas Regulator	OWII-X171	0.29	<0.006
TCLP Benzene	OWII-X17A	—	0.019 ppm
East of Holder	OWII-X181	6.7	0.005
Center of Site	OWII-X191	29.25	0.008
South Edge of Site	OWII-X201	6.9	<0.006
South Edge of Site	OWII-X211	21.1	<0.006
Bottom of Holder	OWII-X221-SSW	64.2	<0.005
Bottom of Holder	OWII-X221-SSE	12.4	<0.005
South Edge of Site Adjacent to Stockpile	OWII-X231	37.49	<0.006
Central Site Adjacent to Stockpile	OWII-X241	55.5	<0.006
Southern End of Stockpile Area	OWII-X251	39.8	<0.006
Middle of Stockpile Area	OWII-X261	BDL	<0.006
Northern End of Stockpile Area	OWII-X271	41.7	<0.006
Area Under Decon Pad	OWII-X281	5.6	<0.006

BDL = below detection limits

Shaded values indicate analyses of samples for characterization of soils below the water table and left in place.

* High detection limit due to matrix interference. Galson Laboratories stated that no benzene was detected, in their letter dated February 9, 1995, presented in Appendix H, Volume IV.

3.9 Clean Backfill

Backfill of excavations proceeded immediately after review of confirmation soil analyses. The majority of backfill was obtained from the Lopke Owego gravel pit located on Route 17C West. Analysis of two soil samples from the Lopke gravel pit reported that all BTEX compounds was less than 0.2 μg/kg. Approximately 500 cubic yards of on-site surface soils were also used as backfill. Use of this soil was approved by NYSDEC based on chemical analysis of the soil (NYSDEC letter dated June 9, 1995). A copy of the letter and laboratory analysis of the on-site soil used as backfill and the Lopke gravel pit are in Appendix I, Backfill Documentation.

3.10 Site Restoration

After excavation, removal of the enclosure, processing and load-out of all impacted soil was complete, the site was graded to provide a uniformly sloping grade and seeded. The holder, the flowable fill compression ring, and the foundation slabs for the two former on-grade gas holders were left in place. The bottom of the relief holder was penetrated to provide drainage from the structure. The house remains on site but will be demolished in early 1996.

3.11 Monitoring Well Restoration and Sampling

Site monitoring wells remained intact during the construction. However, the 2-inch riser on monitoring wells MW-8602, MW-8603, MW-8604, MW-8605, and MW-8606 had to be raised to conform to the new surface elevation.

Both on-site and off-site monitoring wells were sampled before, during the construction period, and after construction. The locations of these wells are shown in Figure 3-3. Table 3-3 presents only the analytical results for those contaminants that exceeded detection levels. The complete analysis of each well is presented in Appendix J, Groundwater Analysis.

3.12 Work Plan Modifications

During the remediation of the Owego site, unforeseen circumstances developed which required modification of the Work Plan. Significant modifications to the Work Plan are briefly discussed below; original correspondence discussing the details of each modification are presented in Appendix K, Work Plan Modification Documentation.

1. The Work Plan indicated that on-site processing of material would be accomplished within an enclosing structure. Real-time air quality monitoring indicated that an enclosing structure was not required to control odors from material processing. NYSEG requested approval to operate the crusher without an enclosing structure. Verbal approval was given by NYSDEC on November 17, 1995 (NYSEG letter dated November 17, 1995).

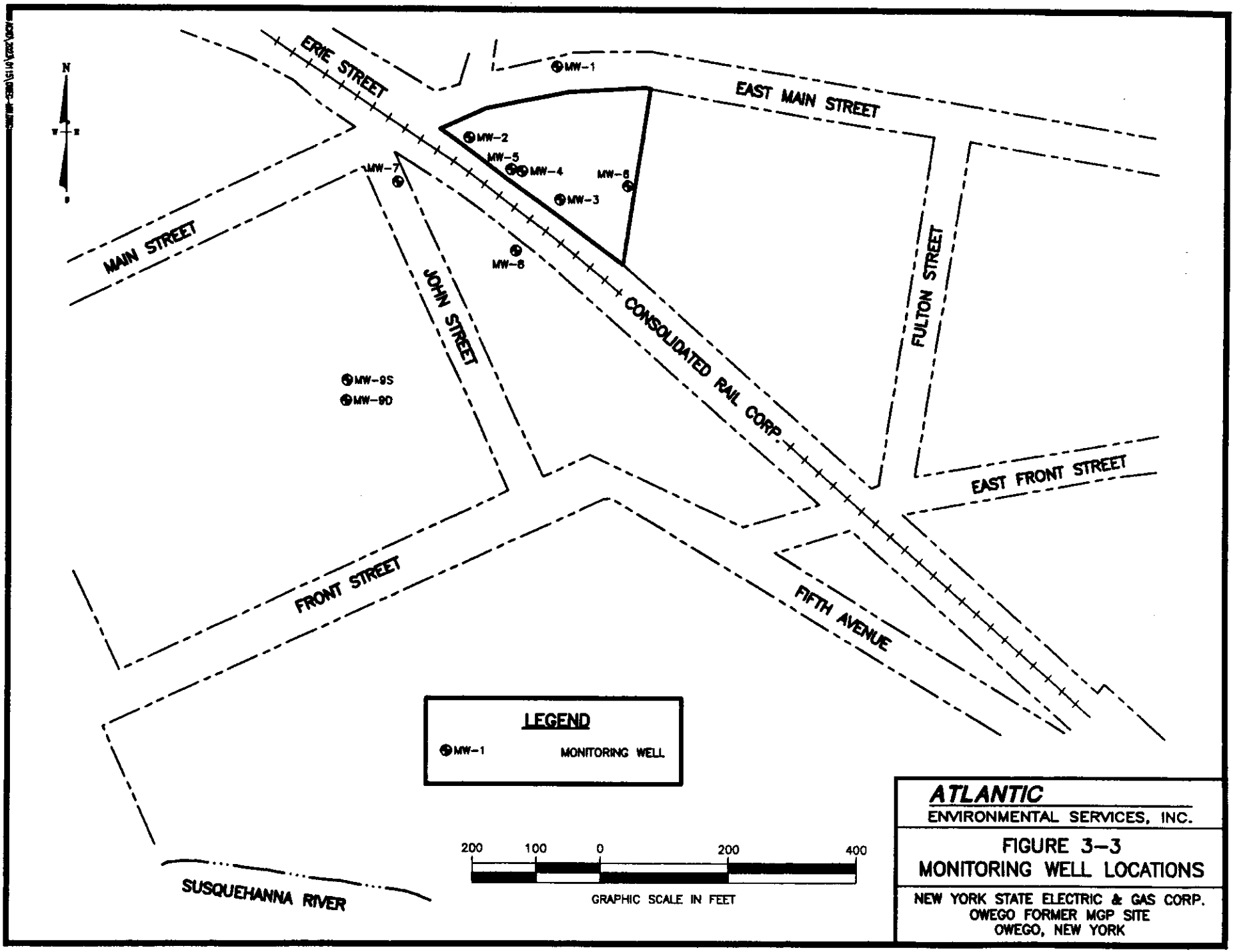

ERIE STREET
EAST MAIN STREET
MAIN STREET
JOHN STREET
FULTON STREET
CONSOLIDATED RAIL CORP
EAST FRONT STREET
FRONT STREET
FIFTH AVENUE
SUSQUEHANNA RIVER
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9S
MW-9D
LEGEND
MW-1 MONITORING WELL
200 100 0 200 400
GRAPHIC SCALE IN FEET
ATLANTIC
ENVIRONMENTAL SERVICES, INC.
FIGURE 3-3
MONITORING WELL LOCATIONS
NEW YORK STATE ELECTRIC & GAS CORP.
OWEGO FORMER MGP SITE
OWEGO, NEW YORK

Table 3-3
Monitoring Well Analysis
Concentrations in mg/l

Substance	Sampling Dates		
	7/25/94	4/24/95	8/31/95
MW-1			
Contaminants reported below detection limits			
MW-2			
Toluene	0.001	0.012	0.006
Styrene	0.003	0.018	0.006
Ethylbenzene	0.002	0.023	0.002
Carbazole	0.009	0.026	0.023
Acenaphthylene	0.018	0.045	BDL
Cyanide, Amenable	BDL	0.057	0.100
Cyanide, Total	0.477	0.417	1.9
Benzene	0.004	0.061	0.088
Total Xylenes	0.022	0.095	0.049
Naphthalene	0.28	0.6	0.17
Bis(2-ethylhexyl)phthalate	0.1	BDL	BDL
MW-3			
Bis(2-ethylhexyl)phthalate	BDL	0.007	BDL
Cyanide, Amenable	0.0249	NA	NA
Cyanide, Total	0.0249	BDL	BDL
MW-4			
Cyanide, Amenable	0.7	0.2	0.067
Cyanide, Total	9.96	3.06	0.767
MW-5			
Contaminants reported below detection limits			
MW-6			
All contaminants	BDL	NA	BDL
MW-7			
Cyanide, Amenable	BDL	0.0354	0.010
Cyanide, Total	0.161	0.126	0.196
MW-8			
Contaminants reported below detection limits			
MW-9S			
Cyanide, Amenable	0.01	0.0147	0.011
Cyanide, Total	0.0695	0.0775	0.180
MW-9D			
Contaminants reported below detection limits			

BDC = below detection limits
NA = not analyzed

2. A sulfur limit of 2.5 pounds of sulfur/MMBTU was proposed for soil acceptance in the NYSEG protocol presented in the Work Plan. NYSEG requested that the regulatory requirement for this parameter be met after the soil was blended with coal prior to the time when the blended material is fired at the Hickling Station. NYSDEC approved this request (NYSDEC letter dated December 2, 1994).

3. The sampling and analysis protocol presented in the Work Plan did not provide the required flexibility to address the holder remediation. New protocols were presented and approved by NYSDEC (NYSDEC letters of December 22, 1994 and January 5, 1995).

4. The Work Plan was updated to indicate that NYSEG would be responsible for air quality monitoring after December 12, 1994 and to list new Atlantic personnel (NYSEG letter dated January 3, 1995).

5. The Work Plan was modified to establish a procedure for securing the holder to control odors until the enclosing structure was in place. NYSEG letter of January 26, 1995 confirms discussions between NYSEG, New York State Department of Health (NYSDOH), and NYSDEC regarding securing the holder and outlining continuing work on site.

6. The Work Plan was modified to include a strategy for the re-blending of stockpiled soil that had been shown through chemical analysis to be characteristically hazardous for benzene. The procedure was presented in a NYSEG letter dated May 9, 1995 and was approved in a NYSDEC letter dated May 9, 1995. Procedures for re-blending of the soil did not prove to be effective, as documented in the NYSDEC letter dated May 11, 1995, and were modified to included better blending of the material (NYSEG letter of May 12, 1995). NYSDEC responded to the modified blending strategy, indicating that they did not consider sawdust an effective blending agent and that the blended material would have to be sampled in the holder and documented by chemical analysis to be non-hazardous before excavation (NYSDEC letter of May 12, 1995). NYSEG's letter of May 17, 1995 revised the proposed strategy and remediation continued without incident.

7. The Work Plan was modified to utilize on-site material as backfill. The NYSEG letter of June 7, 1995 requested the use of on-site material as backfill, and the NYSDEC letter of June 9, 1995 approved this Work Plan modification.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The Record of Decision (ROD) for the site established, at a minimum, that the remedial action should eliminate or mitigate all significant threats to the public health and to the environment presented by hazardous waste disposal at the site. A summary of the remediation goals established for the Owego former MGP site is listed as follows.

1. Reduce, control, or eliminate the contaminations present within the soils/waste on site (generation of leachate within the fill mass).

2. Remove the threat to surface waters by eliminating any future leaching from the contaminated soils to groundwater which could result in a possible impact to the Susquehanna River.

3. Eliminate the potential for direct human or animal contact with contaminated soils on site.

4. Mitigate the impacts of contaminated site soils to the groundwater.

5. Prevent, to the extent feasible, migration of contaminants to groundwater.

6. Provide for the attainments of New York Standards, Criteria, and Guidance (SCGs) for groundwater quality at the limits of the area of concern.

4.1 Conclusions

Remediation was completed in accordance with the Work Plan as modified herein. Confirmation soil sampling conducted during the Owego site remediation has confirmed that all impacted soil (soil with a total benzene concentration greater than 0.1 mg/kg and a PAH concentration greater than 500 mg/kg) above the groundwater table and at the excavation sidewalls has been removed. Removal of the impacted soil above the groundwater table has met the requirements of goals 1 through 5.

Impacted soil, as documented by verification sample OWII-X131, remains in place below the groundwater table. These soils have an average total benzene concentration of 6.3 mg/kg and an average PAH concentration of 535.6 mg/kg. Grab samples taken at the lower limit of excavation were analyzed for TCLP benzene. The analysis documented that the impacted soils left in place did not exceed regulatory limits for TCLP benzene.

Goal number 6, which requires achieving SCGs for groundwater quality at the site boundary, has not been achieved to date.

4.2 Recommendations

Previous research work at other MGP sites has indicated that, once the source area has been removed, natural groundwater attenuation will occur. The August groundwater data presented in subsection 3.11 indicates that groundwater is still being impacted by construction activities, but that natural attenuation may have started based on the downward trend of some of the parameters. Continued monitoring of the site groundwater monitoring wells is recommended at this time and should continue (1) on a quarterly basis for the parameters that have historically been above detection limits at those monitoring wells that have had contamination reported above detection limits and (2) on a yearly basis for VOCs, PAHs, and cyanide (both total and amenable) at all monitoring wells until a downward trend in contaminant concentrations has been established. At that time, monitoring should be reduced to a yearly basis for parameters that have historically been above detection limits until GA groundwater criteria have been achieved for a two-year period.

The Record of Decision establishes the need to address possible impacts to the Susquehanna River. These investigations are planned to be conducted under a separate operable unit, designated as Operable Unit 2 (OU-2).

EXHIBIT 1

CERTIFICATION OF REMEDIAL CLOSURE

CERTIFICATION
OF
REMEDIAL CLOSURE

SITE NAME: Owego Former MGP Site

SITE OWNER: New York State Electric & Gas Corporation

SITE LOCATION: Owego, New York

I hereby certify that the remedial design was implemented and all construction activities at the Owego former MGP site were completed in accordance with Atlantic's *Work Plan and Remedial Design* (September 2, 1994) as approved by the New York State Department of Environmental Conservation, and as further described in the *Remedial Action Closure Report*, dated October 1995.

ATLANTIC ENVIRONMENTAL SERVICES, INC.

_____, Its President
Paul Burgess, P.E.

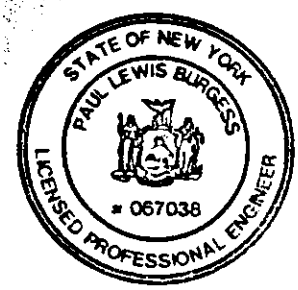


EXHIBIT 2

VALIDATION OF VERIFICATION DATA

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody form dated 9/29/94.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X011	9/29/94	10/3/94	9/30/94		
OWII-X021	9/29/94	10/3/94	9/30/94		
OWII-X031	9/29/94	10/3/94	9/30/94		

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory blanks: **The method blank was clean.** Benzene was reported below the stated reporting limit.

Surrogate Recoveries: Surrogate recoveries were all with-in acceptable limits except for sample OWII-X031. Recovery was high 136% vs QC upper limit of 126%. Reported Benzene for this sample was 0.7 ug/kg. No action taken.

Matrix Spike/matrix Spike Duplicate: MS/MSD samples were not reported.

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory Blanks: **The method and GPC blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits.**

Matrix Spike/Matrix Spike Duplicate: MS/MSD samples were not reported.

RECOMMENDATION: All results are acceptable and useable without qualification.

Alan Cornell
10/12/95

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody form # 0033.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X051	12/8/94	12/13/94	12/13/94		

The sample was analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory blanks: **The method blank was clean.** Benzene was reported below the stated reporting limit.

Surrogate Recoveries: Surrogate recoveries were all with-in acceptable limits.

Matrix Spike/matrix Spike Duplicate: MS/MSD samples were not reported.

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory Blanks: **The method and GPC blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits.**

Matrix Spike/Matrix Spike Duplicate: MS/MSD samples were not reported.

RECOMMENDATIONS: All results are acceptable and useable without qualification.

Alan Cornell
10/12/95

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody form # 036.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X061	12/15/94	12/20/94	12/20/94		
OWII-X071	12/15/94	12/20/94	12/20/94		

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory blanks: **No method blank data was found.**

Surrogate Recoveries: Surrogate recoveries were all with-in acceptable limits.

Matrix Spike/matrix Spike Duplicate: MS/MSD samples were not reported.

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory Blanks: **The method and GPC blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits.**

Matrix Spike/Matrix Spike Duplicate: MS/MSD samples were not reported.

RECOMMENDATIONS: All results are acceptable and useable without qualification. These results are accepted without a Benzene Blank in that both samples are reported as non-detects.

Alan Cornell
10/12/95

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody # 053.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X081	1/30/95	2/3/95	2/4/95		
OWII-X08SWN	1/30/95	2/3/95 & 2/7/95	2/4/95		

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory blanks: **No method blanks were reported.**

Surrogate Recoveries: Surrogate recoveries were with-in acceptable limits for sampe OWII-X0SWN. All surrogate recoveries for sample OWII-X081 were outside QC limits. All negative Benzene values for the low level recoveries are rejected. Surrogate recoveries for this sample at the medium level are all with-in QC limits.

Matrix Spike/matrix Spike Duplicate: MS/MSD samples were not reported.

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory Blanks: **The method and GPC blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits except for Terephenyl-d14 for sample OWII-X08SWN, recovery was high, 152% vs upper QC limit of 137%. As this was the only surrogate out of QC limits no action is considered advisable.**

Matrix Spike/Matrix Spike Duplicate: MS/MSD samples were not reported.

RECOMMENDATIONS: **All PAH results are acceptable and useable without qualification. Benzene value for sample OWII-X081 for low level recovery is rejected due to low surrogate recoveries. All other Benzene values are useable as reported. A copy of the qualified results sheet is attached.**

Alan Cornelll
10/12/95

Galson Laboratories

VOLATILE ANALYTICAL REPORT

Client : New York State Electric & Gas
Account # : 11163
Site : Owego MGP

Date Received : 02-FEB-95
Date Sampled : 30-JAN-95 - 01-FEB-95

Matrix : Soil
Method : SW846/8240
Units : UG/KG

Galson ID:	L21958-1	L21958-1	L21958-1
Client ID:	OWII-X081	OWII-X081	OWII-X081
Benzene	<6 R	<740	<30 R
Percent Moisture (%)	16	16	16
Dilution Factor	1	1	5
Analysis Date	02/03/95	02/07/95	02/03/95

R- Reject, out of limits surrogate recoveries.

ug - microgram
mg - milligram
kg - kilogram
> - Greater than

NR - Not Requested
NS - Not Specified
L - Liter
< - Less than

Approved by :PB
Date :08-FEB-95
QC by : EH
Date : 2/9/95

Footnotes:

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody # 065.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X091	2/21/95	2/22/95	2/24/95		
OWII-X101	2/21/95	2/22/95	2/24/95		
OWII-X111	2/21/95	2/22/95	2/24/95		
OWII-X121	2/21/ 95	2/22/95	2/24/95		

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory blanks: **The method blank was clean.**

Surrogate Recoveries: All surrogate recoveries were with-in acceptable limits.

Matrix Spike/matrix Spike Duplicate: MS/MSD samples were not reported.

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: No field duplicates were submitted.

Laboratory-

Laboratory Blanks: **The method and GPC blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits.**

Matrix Spike/Matrix Spike Duplicate: MS/MSD samples were not reported.

RECOMMENDATIONS: **All results are acceptable and useable as reported.**

Alan Cornelll
10/12/95

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody form # 073.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X131	3/3/95	3/8/95	3/7/95		
OWII-X131DU	3/3/95	3/8/95	3/7/95		
OWII-X131MS/MSD	3/3/95	3/8/95	3/7/95		

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: The RPD for the duplicates for Benzene was 7%. well within the guideline value.

Laboratory-

Laboratory blanks: **The Method Blank was clean.**

Surrogate Recoveries: Surrogate recoveries were all with-in acceptable limits except for Toluene-d8 for OWII-X131 which was low, 86% recovery vs 88% for the lower control limit and Bromofluorobenzene, 71% recovered vs 86% for the lower control limit. No action taken.

Matrix Spike/matrix Spike Duplicate: MS recoveries were within QC limits. RPD of roceries were within QC limits..

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicates: All analytes were within the 50% RPD guideline.

Laboratory-

Laboratory Blanks: **The method and GPC blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits.**

Matrix Spike/Matrix Spike Duplicate: MS recoveries and RPDs were all outside the QC limits. Recoveries in the MS of the Blank sample were all acceptable. No action taken based on MD/MSD.

RECOMMENDATIONS: All results are acceptable and useable as reported..

Alan Cornell
10/12/95

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody form # 076.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X141	3/9/95	3/15/95	3/15/95		
OWII-X151	3/10/95	3/15/95	3/14/95		
OWII-X161	3/10/95	3/15/95	3/15/95		
OWII-X171	3/10/95	3/15/95	3/14/95		
OWII-X151DU	3/10/65	3/15/95	3/14/95		
OWII-X151MS/MSD	3/10/95				

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: Field duplicates were both non-detects.

Laboratory-

Laboratory blanks: **The Method Blank was clean.**

Surrogate Recoveries: Surrogate recoveries were all with-in acceptable limits except for Bromofluorobenzene for OWII-X141 which was high, 118% recovery vs 113% for the upper control limit. No action taken.

Matrix Spike/matrix Spike Duplicate: MS recoveries were within QC limits. RPD of recoveries were within QC limits..

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: Samples OWII-X151 and OWII-X151DUP, all analytes in one or both samples are either non-detects or qualified as estimates. Unable to perform a meaningful anaylsis of overall precision.

Laboratory-

Laboratory Blanks: **The method and GPC blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits except for Terephenyl-14 which was high for samples OWII-X161 and OWII-X141, 145 AND 138% recoveries vs 137% for the upper QC control limit. No action taken.**

Matrix Spike/Matrix Spike Duplicate: All MS recoveries were within the QC limits. RPD of MSD for Pyrene was outside the QC limits, 21% vs 20% QC limit. No action taken.

RECOMMENDATIONS: All results are acceptable and useable as reported and qualified.

Alan Cornell
10/12/95

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody form # 081.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X181	3/16/95	3/20/95	3/21/95		
OWII-X181DU	3/16/95	3/20/95	3/21/95		
OWII-X181MS	3/16/95	3/21/95	3/22/95		
OWII-X181MSD	3/16/95	3/20/95	3/22/95		
TRIP BLANK	3/16/95	3/21/95			

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: Field duplicates were both non-detects.

Laboratory-

Laboratory blanks: **All Blanks were clean.**

Surrogate Recoveries: All surrogate recoveries were with-in acceptable QC limits.

Matrix Spike/matrix Spike Duplicate: MS recoveries were within QC limits. RPD of recoveries were within QC limits..

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: Samples OWII-X181 and OWII-X181DUP, the RPDs of all analytes were within the 50% guideline value except for the following:

Naphthalene- 53.7%
Phenanthrene- 66.7
Anthracene- 62.1%
Benzo(b)fluoranthene- 75%

The above compounds should be qualified as estimates for both sample and duplicate, and flagged with a J.

Laboratory-

Laboratory Blanks: **The Laboratory Blanks were clean.** All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits except for Terephenyl-14 which was high for a Blank Sample.**

Matrix Spike/Matrix Spike Duplicate: All MS recoveries were within the QC limits. RPD of MSD for Pyrene was outside the QC limits, 36% vs 20% QC limit. No action taken.

RECOMMENDATIONS: All results are acceptable and useable as reported except the PAHs listed above that are qualified as estimates. A copy of the qualified results sheets is attached.

Alan Cornell
10/12/95

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

OWII-X181

Lab Name: GALSON LABORATORIES Contract: New York St

Lab Code: Case No.: 1 SAS No.: SDG No.: L22473

Matrix: (soil/water) SOIL Lab Sample ID: L22473-1

Sample wt/vol: 30.05 (g/mL) g Lab File ID: ^DK427.95

Level: (low/med) LOW Date Received: 03/17/95

% Moisture: 18 decanted: (Y/N) N Date Extracted:03/17/95

Concentrated Extract Volume:500 (uL) Date Analyzed: 03/21/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	150	J J
208-96-8	Acenaphthylene	400	U
83-32-9	Acenaphthene	400	U
86-73-7	Fluorene	83	J
85-01-8	Phenanthrene	580	J
120-12-7	Anthracene	190	J J
206-44-0	Fluoranthene	1000	
129-00-0	Pyrene	830	
56-55-3	Benzo(a)anthracene	750	
218-01-9	Chrysene	640	
205-99-2	Benzo(b)fluoranthene	500	J
207-08-9	Benzo(k)fluoranthene	670	
50-32-8	Benzo(a)pyrene	720	
193-39-5	Indeno(1,2,3-cd)pyrene	410	
53-70-3	Dibenzo(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	420	

J. - estimated due to high RPD for duplicate analysis.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. OWII-X181 DU

Lab Name: GALSON LABORATORIES Contract: New York St

Lab Code: Case No.: 1 SAS No.: SDG No.: L22473

Matrix: (soil/water) SOIL Lab Sample ID: L22473-2

Sample wt/vol: 30.06 (g/mL) g Lab File ID: ^DK428.95

Level: (low/med) LOW Date Received: 03/17/95

% Moisture: 19 decanted: (Y/N) N Date Extracted: 03/17/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 03/21/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	260	J J
208-96-8	Acenaphthylene	410	U
83-32-9	Acenaphthene	410	U
86-73-7	Fluorene	410	U
85-01-8	Phenanthrene	290	J J
120-12-7	Anthracene	100	J J
206-44-0	Fluoranthene	910	
129-00-0	Pyrene	820	
56-55-3	Benzo(a)anthracene	1100	
218-01-9	Chrysene	960	
205-99-2	Benzo(b)fluoranthene	1100	J
207-08-9	Benzo(k)fluoranthene	950	
50-32-8	Benzo(a)pyrene	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	600	
53-70-3	Dibenzo(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	560	

J - estimated due to high RPD for duplicate analysis.

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site
Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody form # 082.

		Extraction/Analysis			
Sample ID	**Dates Collected**	**Total Benzene**	**Total PAHs**		
OWII-X191	3/17/95	3/20/95	3/22/95		
OWII-X191DU	3/17/95	3/20/95	3/22/95		
OWII-X191MS	3/17/95	3/21/95	3/22/95		
OWII-X191MSD	3/17/95	3/20/95	3/22/95		
OWII-X201	3/17/95	3/21/95	3/22/95		
OWII-X201DU	3/17/95	3/20/95	3/22/95		
OWII-X201MS	3/17/95	3/20/95	3/22/95		
OWII-X201MSD	3/17/95	3/20/95	3/22/95		

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: No field blanks were submitted.

Field duplicate: OWII-X191, The RPD of the Field duplicates for benzene was 46%, within the 50% guideline.
OWII-X201, both samples were non-detects.

Laboratory-

Laboratory blanks: All Blanks were clean.
Surrogate Recoveries: All surrogate recoveries were with-in QC limits.

Matrix Spike/matrix Spike Duplicate: MS recoveries were within QC limits. RPD of recoveries were within QC limits..

SEMIVOLATILES:

Quality Control Samples:

Field Blank: No field blanks were submitted.

Field duplicate: Samples OWII-X191 and OWII-X191DUP, the RPDs of all the PAHs exceeded the 50% guideline and are qualified as estimates for both sample and duplicate, and flagged with a J.
OWII-X201 and OWII-X201, all RPDs were within the 50% guideline.

Laboratory-

Laboratory Blanks: The Laboratory Blanks were clean. All PAHs were reported as below the stated reporting limit.

Surrogate Recoveries: OWII-X191 -All surrogates were recovered with-in QC limits except for 2- Fluorobiphenyl and Terephenyl-14, both of which were high for a Blank Sample. No action taken.

OWII-X201 -All surrogates were recovered with-in QC limits except for Terephenyl-14, which was high for a Blank Sample. No action taken.

Matrix Spike/Matrix Spike Duplicate: OWII-X191- All MS recoveries were within the QC limits. RPD of MSD for Pyrene was outside the QC limits, 28% vs 20% QC limit. No action taken.
OWII-X201- All MS recoveries were within the QC limits. RPD of MSD for Pyrene was outside the QC limit, 21% vs 20% QC limit. No action taken.

RECOMMENDATIONS: All results are acceptable and useable as reported except for the PAHs for Samples OWII-X191 and OWII-X191DUP which are qualified as estimates and flagged with a J. Copies of the results sheets attached..

Alan Cornell
10/13/95

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. OWII-X191DU

Lab Name: GALSON LABORATORIES Contract: New York St

Lab Code: Case No.: 1 SAS No.: SDG No.: L22528

Matrix: (soil/water) SOIL Lab Sample ID: L22528-2

Sample wt/vol: 29.98 (g/mL) g Lab File ID: ^DK434.95

Level: (low/med) LOW Date Received: 03/18/95

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/18/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 03/22/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	730	U
208-96-8	Acenaphthylene	160	J
83-32-9	Acenaphthene	400	U
86-73-7	Fluorene	230	J
85-01-8	Phenanthrene	960	
120-12-7	Anthracene	330	J
206-44-0	Fluoranthene	1400	
129-00-0	Pyrene	1100	
56-55-3	Benzo(a)anthracene	780	
218-01-9	Chrysene	670	
205-99-2	Benzo(b)fluoranthene	540	
207-08-9	Benzo(k)fluoranthene	520	
50-32-8	Benzo(a)pyrene	650	
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	400	J
191-24-2	Benzo(g,h,i)perylene	340	

AC

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. OWII-X191

Lab Name: GALSON LABORATORIES Contract: New York St

Lab Code: Case No.: 1 SAS No.: SDG No.: L22528

Matrix: (soil/water) SOIL Lab Sample ID: L22528-1

Sample wt/vol: 29.96 (g/mL) g Lab File ID: ^DK433.95

Level: (low/med) LOW Date Received: 03/18/95

% Moisture: 17 decanted: (Y/N) N Date Extracted: 03/18/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 03/22/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	1500	J
208-96-8	Acenaphthylene	490	
83-32-9	Acenaphthene	150	J
86-73-7	Fluorene	720	
85-01-8	Phenanthrene	3000	
120-12-7	Anthracene	1300	
206-44-0	Fluoranthene	4500	
129-00-0	Pyrene	3900	
56-55-3	Benzo(a)anthracene	2800	
218-01-9	Chrysene	2300	
205-99-2	Benzo(b)fluoranthene	1800	
207-08-9	Benzo(k)fluoranthene	2200	
50-32-8	Benzo(a)pyrene	2200	
193-39-5	Indeno(1,2,3-cd)pyrene	1200	
53-70-3	Dibenzo(a,h)anthracene	100	J
191-24-2	Benzo(g,h,i)perylene	1100	

AC

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody # 130.

		Extraction/Analysis			
			Total PAHs		
Sample ID	Dates Collected	Total Benzene	Extract	Analyze	
OWII-X231	6/14/95	6/19/95	6/15/95	6/18/95	
OWII-X231 DUP	6/14/95	6/19/95	6/15/95	6/18/95	
OWII-X231MS/MSD	6/14/95	6/19/95	6/15/95	6/18/95	
OWII-X241	6/14/95	6/19/95	6/15/95	6/18/95	
OWII-X241 DUP	6/14/95	6/19/95	6/15/95	6/18/95	
OWII-X241 MS/MSD	6/14/95	6/19/95	6/15/95	6/18/95	
TRIP BLANK	6/14/95	6/15/95	6/15/95	6/17/95	

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: TRIP BLANK Clean.

Field duplicate: field duplicates pass RPD for all analytes except Naphthalene for sample OWII-X231. Positive result for naphthalene in this sample must be qualified (J) as estimate.

Laboratory-

Laboratory blanks: **method blanks clean.**

Surrogate Recoveries: Surrogate recoveries were within acceptable limits for all samples.

Matrix Spike/matrix Spike Duplicate: MS/MSD samples were within acceptable limits.

SEMIVOLATILES:

Quality Control Samples:

Field Blank: Field Trip blank was clean

Field duplicate: field duplicates pass RPD for all analytes except Naphthalene for sample OWII-X231. Positive result for naphthalene in this sample must be qualified (J) as estimate No field duplicates were submitted.

Laboratory-

Laboratory Blanks: **The method blanks were clean.** All PAHs were reported as non-detect.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits.**

Matrix Spike/Matrix Spike Duplicate: MS/MSD samples were within acceptable limits.

RECOMMENDATIONS: **All Volatile results are acceptable and useable without qualification. All PAH results are acceptable and useable without qualification. Except naphthalene for sample OWII-X231 (J) estimated.**

Steven Wallett
10/13/95

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

OWII-X231

Lab Name: GALSON LABORATORIES Contract: NYSEG

Lab Code: Case No.: 1 SAS No.: SDG No.: L23874

Matrix: (soil/water) SOIL Lab Sample ID: L23874-1

Sample wt/vol: 30.02 (g/mL) g Lab File ID: EB919

Level: (low/med) LOW Date Received: 06/15/95

% Moisture: 13 decanted: (Y/N) N Date Extracted:06/15/95

Concentrated Extract Volume:500 (uL) Date Analyzed: 06/18/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	2500	J
208-96-8	Acenaphthylene	760	
83-32-9	Acenaphthene	270	J
86-73-7	Fluorene	1000	
85-01-8	Phenanthrene	4500	
120-12-7	Anthracene	1700	
206-44-0	Fluoranthene	5200	
129-00-0	Pyrene	4700	
56-55-3	Benzo(a)anthracene	2800	
218-01-9	Chrysene	2500	
205-99-2	Benzo(b)fluoranthene	2000	
207-08-9	Benzo(k)fluoranthene	2500	
50-32-8	Benzo(a)pyrene	2600	
193-39-5	Indeno(1,2,3-cd)pyrene	1800	
53-70-3	Dibenzo(a,h)anthracene	660	
191-24-2	Benzo(g,h,i)perylene	2000	

DATA VALIDATION

Project No.: **2023-01-11** Owego MGP Site

Reporting Laboratory: Galson Laboratories
Syracuse, N.Y.

The samples sent from the field were analyzed as requested on NYSEG chain of custody # 134.

		Extraction/Analysis			
			Total PAHs		
Sample ID	Dates Collected	Total Benzene	Extract	Analyze	
OWII-X251	6/26/95	6/27/95	6/27/95	6/29/95	
OWII-X261	6/26/95	6/27/95	6/27/95	6/29/95	
OWII-X271	6/27/95	6/27/95	6/27/95	6/29/95	
OWII-X281	6/27/95	6/27/95	6/27/95	6/29/95	
TRIP BLANK	6/27/95	6/27/95	6/27/95	6/29/95	

The samples were analyzed for all parameters within the prescribed holding times.

VOLATILES:

Quality Control Samples:

Field Blanks: TRIP BLANK Clean.

Field duplicate: none provided.

Laboratory-

Laboratory blanks: **method blanks clean.**

Surrogate Recoveries: Surrogate recoveries were within acceptable limits for all samples.

Matrix Spike/matrix Spike Duplicate: Not Provided

SEMIVOLATILES:

Quality Control Samples:

Field Blank: None Provided.

Field duplicate: None Provided.

Laboratory-

Laboratory Blanks: **The method blanks were clean.** All PAHs were reported as non-detect.

Surrogate Recoveries: **All surrogates were recovered with-in QC limits.**

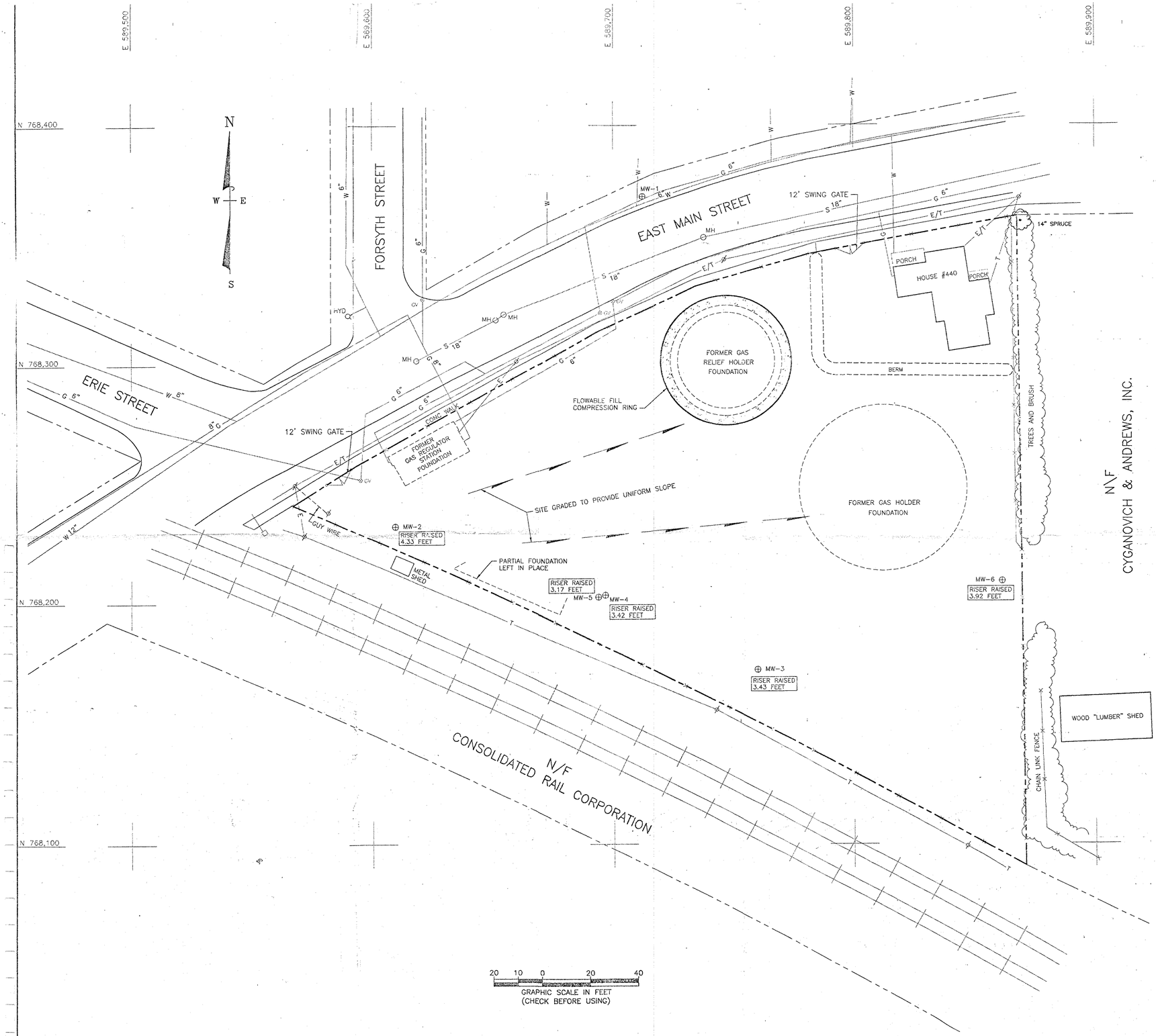
Matrix Spike/Matrix Spike Duplicate: MS/MSD samples were not included.

RECOMMENDATIONS: **All Volatile results are acceptable and useable without qualification.**
All PAH results are acceptable and useable without qualification.

Steven Wallett
10/13/95

APPENDIX A

RECORD DRAWINGS



LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- E/T — EXISTING OVERHEAD ELECTRIC\TELEPHONE LINE
- T — EXISTING OVERHEAD TELEPHONE LINE
- G — EXISTING GAS MAIN
- S — EXISTING SANITARY SEWER
- W — EXISTING WATER MAIN/SERVICE
- EXISTING TREELINE
- EXISTING FENCE
- MH — EXISTING MANHOLE
- EXISTING UTILITY POLE
- MW-4 — EXISTING MONITORING WELL LOCATION

NOTES:

1. REFERENCE IS MADE TO PLAN TITLED:
   A. "BOUNDARY AND TOPOGRAPHIC SURVEY FOR OWEGO GAS PLANT SITE NOW NEW YORK STATE ELECTRIC & GAS VILLAGE OF OWEGO TIOGA COUNTY NEW YORK" SCALE: 1"=20' DATE: 23 SEP.86 JOB NO.: 8661 PREPARED BY GEORGE R. WILLIAMS CANDOR, N.Y.
   B. "BOUNDARY SURVEY PARCEL TO BE ACQUIRED BY NEW YORK STATE ELECTRIC & GAS CORPORATION FROM PHYLLIS INSCHO VILLAGE OF OWEGO TIOGA COUNTY NEW YORK STATE" SCALE: 1"=20' JULY 14, 1992 BY HAWK ENGINEERING, PC.
2. ALL UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED (LOCATION AND ELEVATION) PRIOR TO CONSTRUCTION. NOTIFY "UFPO" AT 1-800-962-7962. COORDINATE CONNECTIONS WITH UTILITY COMPANIES.

STATE OF NEW YORK — JOHN LEWIS MARSH — 087038 — LICENSED PROFESSIONAL ENGINEER

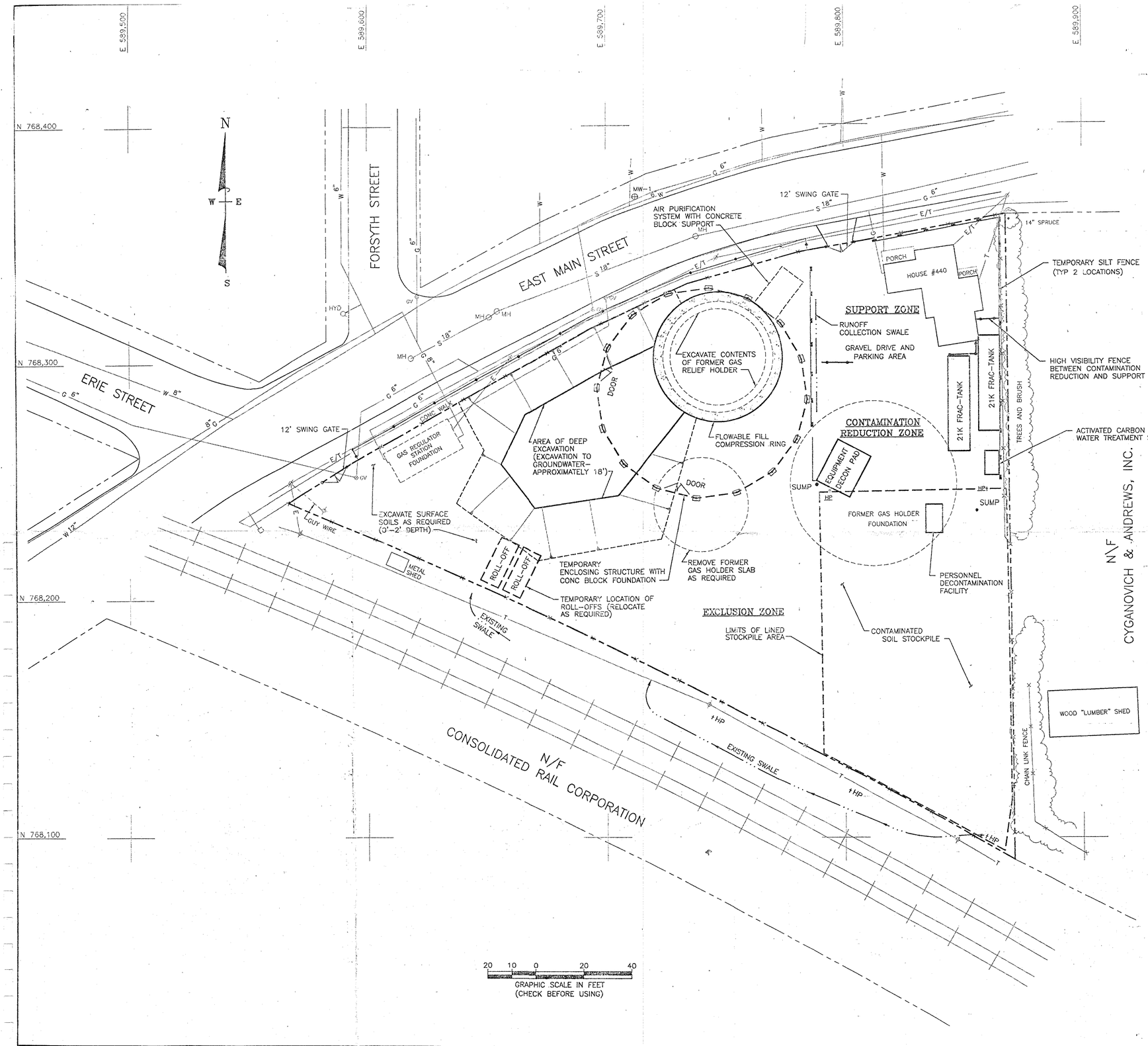
REVISIONS

ATLANTIC
ENVIRONMENTAL SERVICES, INC.
188 NORWICH AVENUE COLCHESTER, CT 06415

PLAN PREPARED FOR
NEW YORK STATE ELECTRIC AND GAS
OWEGO FORMER MANUFACTURED GAS PLANT SITE
VILLAGE OF OWEGO, NEW YORK

RECORD DRAWING – EXISTING CONDITIONS PLAN
PROJECT NO. 2023-01-15

SCALE: 1"=20'	DRN BY: ACG	PLATE 1
DATE: OCT 1995	CHK BY:	



LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- E/T — EXISTING OVERHEAD ELECTRIC\TELEPHONE LINE
- T — EXISTING OVERHEAD TELEPHONE LINE
- G — EXISTING GAS MAIN
- S — EXISTING SANITARY SEWER
- W — EXISTING WATER MAIN/SERVICE
- EXISTING TREELINE
- EXISTING FENCE
- PROPOSED CHAIN LINK FENCE
- TEMPORARY HIGH VISIBILITY FENCE
- ○ MH — EXISTING MANHOLE
- ‡ HP — EXISTING HIGH POINT
- ‡ HP — PROPOSED HIGH POINT
- ⌀ — EXISTING UTILITY POLE

ATLANTIC
ENVIRONMENTAL SERVICES, INC.
188 NORWICH AVENUE COLCHESTER, CT 06415

PLAN PREPARED FOR
NEW YORK STATE ELECTRIC AND GAS
OWEGO FORMER MANUFACTURED GAS PLANT SITE
VILLAGE OF OWEGO, NEW YORK

REVISIONS

RECORD DRAWING – REMEDIAL OPERATIONS PLAN
PROJECT NO. 2023-01-15

SCALE: 1"=20'	DRN BY: ACG
DATE: OCT 1995	CHK BY:

PLATE 2

APPENDIX B

CONSTRUCTION PHOTOGRAPHS

Photograph 1
Construction of lined storage area. Photograph shows installation of geotextile used to protect HDPE liner.

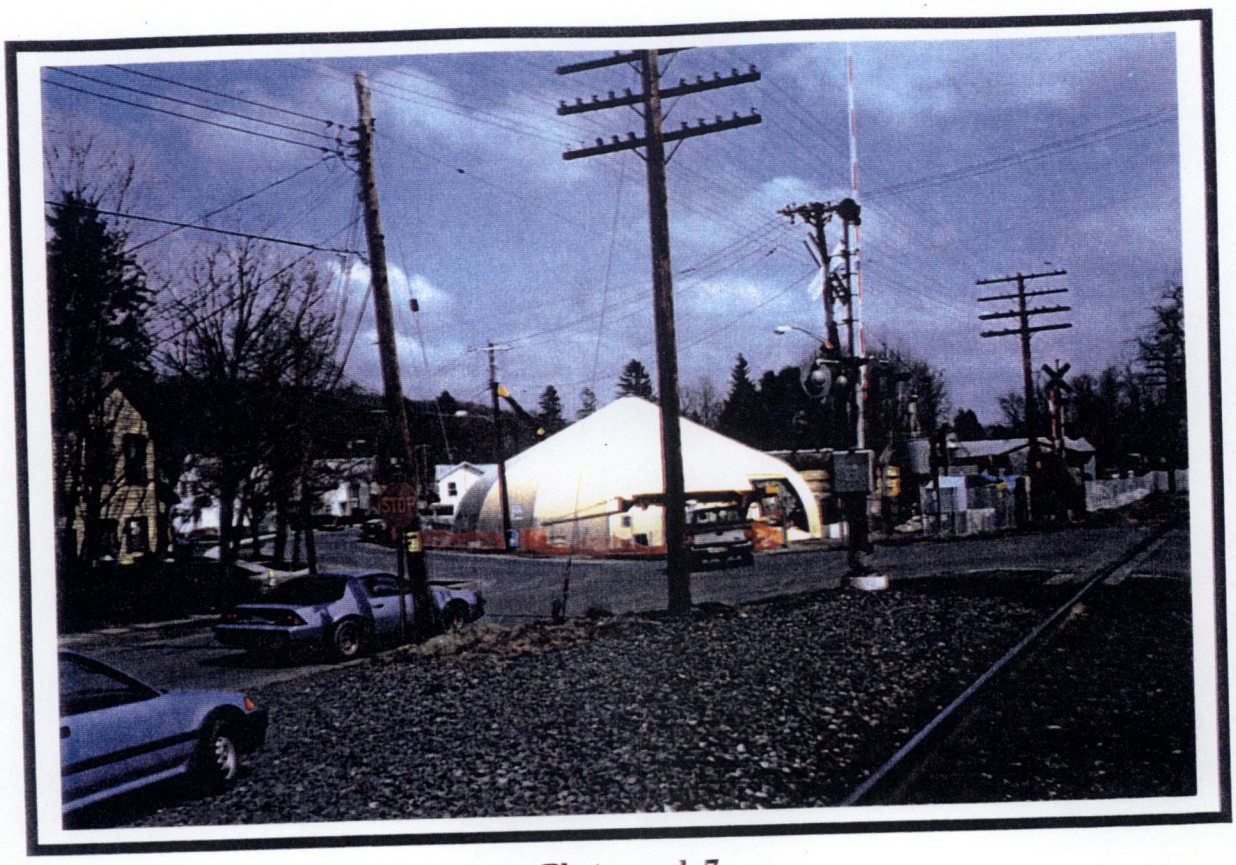
Photograph 2
Soil stockpile area.

Photograph 3
Trommel screen.

Photograph 4
City crusher.

Photograph 5
Application of Con-Cover to control odor.

Photograph 6
Equipment decontamination.



Photograph 7

Enclosing structure as viewed from west of the site.

Photograph 8

Time-averaged air monitoring station.
Final site grading.