NYSEG

New York State Electric & Gas Corporation

Ithaca Court Street
Former Manufactured Gas Plant Site
Ithaca, New York

REMEDIAL DESIGN WORK PLAN

July 2007

Prepared For:
New York State Electric & Gas Corporation
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Binghamton, New York

URS

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REMEDIAL DESIGN
WORK PLAN

FOR

REMEDIATION OF THE ITHACA COURT STREET
FORMER MANUFACTURED GAS PLANT SITE

CITY OF ITHACA, TOMPKINS COUNTY, NEW YORK

Prepared By:

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JULY 2007

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LIST OF ACRONYMS REFERRED TO IN THE DOCUMENT

ACGIH	American Congress of Government Industrial Hygienists
ALJ	Administrative Law Judge
ANSI	American National Standards Institute
AQMP	Air-Quality Monitoring Program ASP - analytical service protocol
ASTM	American Society for Testing and Materials
AWQC	Ambient Water Quality Criteria
BTEX	benzene, toluene, ethylbenzene and xylenes
BTU	British thermal unit
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbons
C	Centigrade
CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Chain-of-Custody
CPP	Citizen Participation Plan
CPR	cardiopulmonary resuscitation
CQAP	Construction Quality Assurance Plan
CRZ	Contamination Reduction Zone
CTS	coal tar soils
DEC	Department of Environmental Conservation
DI	deionized
ECL	Environmental Conservation Law
ECRP	Equipment Contamination Reduction Pad
EEI	Edison Electric Institute
ELAP	Environmental Laboratory Approval Program
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
EZ	Exclusion Zone
F	Fahrenheit
FS	feasibility study
GC	gas chromatograph
GCS-DN	gas chromatograph station downwind
GCS-UP	gas chromatograph station upwind
HASP	Health and Safety Plan
HEPA	high efficiency particulate air
HSM	Health & Safety Manager
IARC	International Agency for Research on Cancer
ID	identification
IDLH	immediately dangerous to life
IRMs	Remedial Design
Kg	kilogram
L	liter
LGAC	liquid-phase granular activated carbon
LKD	lime kiln dust
mg	milligram

MGP	manufactured gas plant
MMBTU	million British thermal units
MSDS	material safety data sheet
NAPL	non-aqueous phase liquid
NCP	National Contingency Plan
NIOSH	National Institute for Occupational Safety and Health
NOI	Notice of Intent
NOT	Notice of Termination
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSEG	New York State Electric & Gas Corporation
OSHA	Occupational Safety and Health Act or Administration
PAHs	polycyclic aromatic hydrocarbons
PC	personal computer
PCBs	polychlorinated biphenyls
PCRA	Personnel Contamination Reduction Area
PEC	Project Emergency Officer
PEL	permissible exposure limits
PHSC	Project Health and Safety Coordinator
PID	photo ionization detector
POTW	Public Owned Treatment Works
PM	Project Manager
ppb	part per billion
PPE	personal protective equipment
ppm	parts per million
PSA	preliminary site assessment
QA	quality assurance
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
QC	quality control
O&M	operation and maintenance
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	remedial investigation/feasibility study
ROD	record of decision
ROW	right-of-way
SAP	Sampling and Analysis Plan
SCGs	Standards, Criteria, and Guidance
SGC	short-term guideline concentrations
SHSO	Site Health & Safety Officer
SPL	sound pressure level
SSO	Site Safety Officer
STEL	short-term exposure limits
SVOCs	semivolatile organic compounds
SW	solid waste
SZ	Support Zone
T & A	time and activity

TAGM	technical and administrative guidance memorandum
TCDOH	Tompkins County Department of Health
TCLP	toxicity characteristic leachate procedure
TLVs	threshold limit values
TPAH	total polycyclic aromatic hydrocarbons
UFPO	Underground Facility Protection Organization
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
VOA	volatile organic analysis
WBGT	wet bulb globe temperature

1.0 INTRODUCTION

This Remedial Design Work Plan (*Work Plan*) describes the removal and disposal of contaminated soils/subgrade structures associated with the Ithaca Court Street former manufactured gas plant (MGP) site located in the City of Ithaca, Tompkins County, New York, as shown on Figure 1. This project is being proposed in accordance with Section III of the Order on Consent (Index No. D0-000209309, see Appendix F) between NYSEG (New York State Electric & Gas Corporation) and the New York State Department of Environmental Conservation (NYSDEC). This project will be undertaken by NYSEG and will involve removal and disposal of coal tar-contaminated soils and subgrade structures located on the site.

The project also involves containment around the Markles Flats building including installation of sealable-joint sheet pile, a groundwater extraction and treatment system, and a soil gas depressurization system.

This *Work Plan* describes the techniques to be utilized for the sampling, community air monitoring, excavation, material handling, waste characterization, transportation and disposal of MGP residues. The *Work Plan* will be performed under the approval and oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

1.1 Site Location and Description

The site is located in the central portion of the City of Ithaca and occupies approximately the west half of the block bounded by Esty Street to the north, North Albany Street on the east, Court Street (formerly Mill Street) on the south, and North Plain Street on the west. Based on the results of Site Investigations conducted at the site, the site was divided into two Operable Units. Operable Unit No. 1 (OU-1) is defined as consisting of the former MGP property and the wooden duct formerly used to transport coal tar to the Cayuga Inlet. Operable Unit No. 2 (OU-2) is defined as consisting of every area beyond the wooden duct and the plant site including contamination north of the plant site, Washington Street, and the duct west of Meadow Street.

This Work Plan addresses remediation activities associated with OU-1 only. Remediation of OU-2 is addressed as a separate project and not part of this RDWP.

The former MGP site is entirely covered with asphalt paving or buildings except for a strip of grassed area that exists along the sidewalks on the north, west and south sides of the site. There is a fill layer that extend across the site that varies in thickness from 2 to as much as 15 feet. The fill layer is underlain by about 4 to 7 feet of silty sand, which in turn overlies a lower permeability stratum referred to as the silty clay unit.

There is a shallow unconfined aquifer that occurs in the silty sand/fill layers above the silty clay unit that acts as an aquitard. The groundwater surface is about 6 feet below ground surface at the site with flow generally from east to west across the site.

1.2 Site History

The history of coal gas production at the Ithaca Court Street site dates back to 1853. In that year, the Ithaca Gas Light Company, founded in October 1852, began distributing gas to the citizens of Ithaca. The company changed ownership in the 1860's and again in 1898. In 1916, the city gas and electric companies were merged to form Ithaca Gas and Electric Company. This company grew rapidly over the next few years through mergers with other gas and electric companies in the region and in 1918 it was named New York Gas Electric Company. This company then became part of the Associated Gas and Electric System and in 1929, after several additional mergers, it became the New York State Electric & Gas Corporation (NYSEG). Coal Gas production continued at Court Street until 1927 when a new water gas plant at First Street in Ithaca became operational. NYSEG subsequently used the site for an electric and gas service center. The property was sold to the Ithaca City School district in 1964.

Figures 2A and 2B depict the layout of the gas plant as it appeared in 1888, 1893, 1910 and 1919. The earliest plan shows the gas house, purifier house, coal sheds, and one iron gas holder which was centrally located on the site. By 1893, a second brick gas holder had been built north of the first and the coal shed had been extended along North Plain Street. A storage shed had also been constructed on the corner of North Plain and Esty Streets. Between 1893 and 1904 the gas production building which housed the retorts was enlarged and connected to the coal shed. Further changes occurred between 1904 and 1910 (Figure 2B). The original gas holder was torn down and a new, larger steel gas holder was constructed in the northeast corner

of the site. In addition, the brick gas holder was converted to steel. The plan from 1919 shows only the addition of two iron oil tanks and expansion of the coal shed near the corner of North Plain and Esty Streets.

A subsurface wooden duct transported coal tar from the Ithaca Court Street former MGP site to tar wells located at the Cayuga Inlet coal tar transfer site. The coal tar from these tar wells was pumped into either barges or railroad cars and used off site. In the Summer and Fall of 1995, to support the New York State Department of Transportation's Ithaca Infrastructure Project for NYS Routes 13, 79, 89 and 96, NYSEG provided oversight for the excavation and disposal of the subsurface duct on Court Street between the west side of Meadow Street to the east side of Fulton Street. The remaining duct was capped at both the Meadow Street and Fulton Street.

In the Fall of 1999 an *IRM* project was completed by NYSEG at the Ithaca Cayuga Inlet coal tar transfer site. During that *IRM* project the tar wells and piping containing coal tar were removed. In addition, the subsurface wooden duct was removed from the Inlet back to the east side of the Site. The duct was capped at this point. Then in the Spring of 2000, NYSEG completed an *IRM* project on the properties of the Old Port Harbor Restaurant and Watts Distributing Company. During that *IRM* project the subsurface wooden duct was removed from where it was capped during the previous *IRM* project to the east side of Watt's Distributing Company. The duct was capped at this point. A section of duct (capped at both ends) remains from the east side of Fulton Street continuing under the Lehigh Valley HSE + HO Corporation's railroad tracks to the east side of Watt's Distributing Company property.

In the spring of 2000 NYSEG also completed an *IRM* project at the Ithaca Court Street former MGP site. During that *IRM* project the contents of two subsurface concrete structures were removed. In addition, a scrubber, wooden tar separator and wooden duct from the tar separator back to the plant building were removed.

In the Fall of 2001 through Spring of 2002 NYSEG collected soil and water samples adjacent to the remaining wooden duct along Court Street as part of the *Supplemental Remedial Investigation*. This sampling was primarily done to determine if the wooden duct had leaked coal tar constituents into the surrounding soil. Such a leak was detected at the intersection of Court and Washington Streets where the wooden duct had been breached by an underground utility line. Coal tar constituents have been detected in the subsurface soil along narrow strip near the west curb line of Washington Street, north of Court Street to Cascadilla Street.

1.3 Nature of Potential Industrial Residues Located at the Site

The nature to the waste encountered during this project will include two classifications. The first would include coal tar soils (CTS) a mixture of soil contaminated by coal tar which contain various concentrations of polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and some heavy metals. These soils are a typical non-hazardous waste as defined by Resource Conservation Recovery Act (RCRA). The second is coal tars such as those contained within the wooden duct; these materials are a product from gas manufacturing at a former MGP. Coal tars are typically defined as a hazardous waste by RCRA due to the leachable concentrations of benzene. These materials contain 10% or more PAHs and VOCs.

1.4 Previous Investigations, *IRM* Work Plans, Remedial Design Work Plan and *IRM* Final Engineering Reports

- NYSEG's consultants and NYSEG completed the following Investigations, *IRM* Work Plans and *IRM* Final Engineering Reports for the Ithaca Court Street Site MGP Site and Ithaca Cayuga Inlet Coal Tar Site:

- April 1986 - TASK 1 Preliminary Site Evaluation at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers

- April 1986 - TASK 1 Preliminary Site Evaluation at Ithaca Cayuga Inlet Coal Tar Site, prepared by E.C. Jordan Company Consulting Engineers

- February 1987 - TASK 2 Preliminary Site Investigation at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers

- June 1987 - TASK 2, Initial Field Investigation Program at Ithaca Cayuga Inlet Coal Tar Site, prepared by E.C. Jordan Company Consulting Engineers

- March 1988 - TASK 3 Expanded Problem Definition Program at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers

- March 1990 - TASK 4 Risk Assessment at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers

- January 1999 - Remedial Design Work Plan for Activities at Ithaca Cayuga Inlet Coal Tar Site, prepared by NYSEG

- June 1999 - Remedial Design Final Engineering Report for Activities at the Ithaca Cayuga Inlet Coal Tar Site, prepared by NYSEG

- February 2000 - Remedial Design Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, prepared by NYSEG

- February 2000 - Remedial Design Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct , prepared by NYSEG

- August 2001 - Remedial Design Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, prepared by NYSEG

- August 2001 - Remedial Design Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct, prepared by NYSEG

- September 2001 - Work Plan for a Supplemental Remedial Investigation at the Ithaca Court Street MGP Site, prepared by IT Corporation

- Fall 2001 through Spring 2002 - Completed Supplemental Remedial Investigation of the Subsurface Wooden Duct associated with the Ithaca Court Street Former Manufactured Gas Plant Site.

- Fall 2003 – Remedial Design Work Plan for the Removal of the Subsurface Wooden Duct Associated with the Ithaca Court Street Manufactured Gas Plant Site.

Documents associated with the previous investigations and this *Remedial Design Work Plan* are available for public review at the following document repositories:

- Tompkins County Public Library
  101 East Green Street
  Ithaca, New York 14850-5613

Phone: (607) 272-4557

- NYSEG
  Ithaca - Dryden Road
  P.O. Box 3287
  Ithaca, New York 14852-3287
  Attn.: Mr. Robert L. Pass
  Phone: (607) 347-2148
  Monday - Friday, 8 a.m. - 4:30 p.m.

- New York State Department of Environmental Conservation
  Division of Environmental Remediation
  625 Broadway
  Albany, New York 12233-7013
  Attn.: Mr. William S. Ottaway, P.E.
  Phone: (518) 402-9662
  Monday - Friday, 8 a.m. - 4:30 p.m.

- City of Ithaca
  108 East Green Street
  Ithaca, New York 14850
  Attn.: Mayor Carolyn K. Peterson
  Phone: (607) 274-6501

- Coal Tar Advisory Committee
  106 Washington Street
  Ithaca, New York 14850
  Attn.: Ms. Jutta Dotterweich
  Phone: (607) 272-1239

Additionally, URS Corporation (URS) prepared a document entitled Draft Proposal to Revise the Selected Site Remedy, January 13, 2006. That document described the design requirements for preserving the Markles Flat Building as part of the site remedy.

2.0 PROJECT OBJECTIVES

The overall objective is to remove the coal tar-contaminated soils and subgrade structures which are potential reservoirs of coal tar.

This *Work Plan* is shown to be initiated in the fall of 2007 (see schedule in Appendix G) but NYSEG will determine the actual start of the construction process.

3.0 ORGANIZATIONAL STRUCTURE AND RESPONSIBILITY

NYSEG and New York State regulatory agencies will participate jointly in the remedial action for the Ithaca Court Street former MGP site. NYSEG has the ultimate responsibility for implementing this *Work Plan* for the project, including the community air monitoring program during the project (see Organization Structure in Appendix H). Approval of this *Work Plan* by the NYSDEC and the NYSDOH will be secured prior to site excavation. NYSDEC and NYSDOH personnel are anticipated to be on-site periodically for purposes of general program oversight. NYSEG will be responsible for all on-site construction operations during the project, unless otherwise stated in Section 4.0 including: implementation of contingency plans for odor control; management of waste water and waste-handling operations; maintenance of Site controls (i.e., run-off, run-on); the construction, excavation, and material handling activities associated with the remedial design; soil sampling program associated with the remedial design; community air monitoring; and documentation of the extent of the removal action.

Communication with regulatory agencies and with members of the surrounding community will be managed by NYSEG. The plan for sharing project information with the community (*Citizen Participation Plan*, *CPP*) is included in Appendix B.

Key personnel and their assigned responsibilities for implementation of the remedial design include:

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217 South Salina Street
Syracuse, New York 13202-3592
Phone: (315) 477-8163
E-mail: hmh01@health.state.ny.us

Tompkins County Department of Health:

Steve Maybee
Tompkins County Department of Health
401 Harris Dates Drive
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Phone: (607) 274-6688
E-mail: smaybee@tompkins-co.org

4.0 REMEDIAL DESIGN WORK PLAN

This *Work Plan* includes a chronological description of anticipated project activities together with a schedule for performance of these activities. Documents include a health and safety plan, figures, citizen participation plan, construction quality assurance plan, quality assurance project plan, transportation of solid and/or liquid waste plan, project schedule, organization structure, site vapor emission response plan, and a contingency plan.

Actual project data (i.e., community air monitoring, noise, dust control, etc.), obtained from NYSEG's previous remediation efforts at other MGP sites, have been used as guidance to design the procedures for the Ithaca Court Street site project and to minimize any potential impacts to the community.

The project may result in potential nuisance community impacts such as noise, vibration, dust, odors and traffic. However, all work will be conducted so that public impact is minimized, to the extent practicable. Hours of construction operations will generally be restricted to within 7 a.m. to 7 p.m. Monday through Friday. While no work is currently planned to extend beyond these hours, it may be necessary to work beyond these hours. The following sections describe the procedures to be used for remedial activities.

4.1 Definitions of MGP Materials

MGP Residue - All material which is contaminated with waste from the manufactured gas plant.

Coal Tar - Free phase tar.

Coal Tar Soil (CTS) - Soil that exhibits evidence of coal tar staining, but no free phase tar. For purposes of this *Work Plan*, any soil excavated will be disposed as CTS.

4.2 Pre-Remediation Sampling and Analysis

NYSEG will conduct an in situ sampling event at the Ithaca Court Street MGP site prior to the start of remedial activities. This sampling event will be conducted in accordance with the *Pre-Remediation In Situ Sampling & Analysis Work Plan For Activities Associated With Ithaca Court Street Former Manufactured Gas Plant Site (see* Appendix A). Representative soil samples will be collected throughout the site from the ground surface to the top of the silty clay unit. Groundwater samples also will be collected. These samples will be submitted for waste characterization analysis. The results of the sampling and analysis will be used to determine the proper disposal of these materials.

Sampling, analysis, and disposal requirements discussed in this *Work Plan* will apply to any excavations performed in the Markles Flats remediation area. However, the following discussions for clean-up objectives and confirmation sampling do not apply to Markle Flats since that area will experience only minor and pre-determined excavations for wells and ancillary structures.

4.3 Pre-Remediation Building Surveys

Prior to initiation of any onsite remedial activities, NYSEG will perform a pre-remediation survey of the surrounding properties/structures to document the existing conditions. NYSEG will employ an independent firm experienced in this type of work to obtain suitable documentation. The survey will include the interior and exterior of the Markles Flats Building.

4.4 Cleanup Objectives

The cleanup objectives are to remove the CTS and subgrade structures within the limits of the site that are a source of coal tar. Confirmation samples will be obtained immediately after completing excavation of the CTS**.** The extent of excavation will be determined as follows:

- Soils containing individual PAHs above the objectives in TAGM 4046, or which are visibly impacted by coal tar, will be excavated to a depth of eight feet bgs;

- Soils below 8 feet bgs will be excavated if they contain either total PAHs over 500 ppm or are visibly impacted by coal tar (so provided soils in this zone are not visibly impacted by coal tar, they will be left in place if their total PAH concentration is less than 500 ppm.); and,

- All MGP structures, including piping, will be excavated.

4.5 Disposal Protocol

Pre-remediation in situ soil samples will be collected and analyzed in accordance with *Pre-Remediation In Situ Sampling & Analysis Work Plan For Ithaca Court Street Former Manufactured Gas Plant Site* (Appendix A). During excavation ex-situ soil samples may be collected and analyzed in accordance with Section 6.2.3 of this *Work Plan.* Based on the analytical results, soils will be handled according to the following criteria:

4.5.1 RCRA Non-Hazardous Waste

If the analytical results of the pre-remediation in-situ samples or if during excavation ex-situ soil samples indicate that the analytes listed in Table 4-1, Table 4-2, Table 4-3 and Table 4-4 are within their specified limits, then the respective materials will be sent to either (1) a RCRA Subtitle D landfill; or (2) a thermal treatment facility permitted to accept it.

4.5.2 Conditionally Exempt MGP Remediation Waste (per NYSDEC Policy DER-4, Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment from Manufactured Gas Plants) ["MGP's"]

If the analytical results of the pre-remediation in-situ soil samples or if during excavation ex-situ soil samples indicate that the total PAHs are greater than 500 ppm and the analytes listed in Table 4-2, Table 4-3, and Table 4-4 are within their specified limits but fail to meet TCLP limit for benzene as specified in Table 4-1, then its respective soil may be managed as a RCRA conditionally exempt waste and sent to a thermal treatment facility permitted to accept it.

4.5.3 RCRA Hazardous Waste

If the analytical results of the pre-remediation in-situ soil samples or if during excavation ex-situ soil samples indicate that the total PAHs are greater than 500 ppm and any analyte listed in Table 4-2, Table 4-3, and Table 4-4 exceeds its specified limit, then its respective material will be sent to a RCRA permitted facility.

TABLE 4-1
SAMPLE TCLP BENZENE ANALYTE AND LIMIT

TCLP ANALYTE	REGULATORY LIMIT (mg/L) [6NYCRR Part 371]
Benzene	0.5

TABLE 4-2
SAMPLE ANALYTES AND ACTION LIMITS
REACTIVE CYANIDE AND REACTIVE SULFIDE (REACTIVITY)

ANALYTE	US EPA ACTION LIMIT (MG/Kg)
Reactive Cyanide	250
Reactive Sulfide	500

TABLE 4-3
SAMPLE ANALYTES AND ACTION LIMITS
OTHER RCRA CHARACTERISTICS, LANDFILL REQUIREMENTS, and REQUIREMENTS FOR CONDITIONALLY EXEMPT MGP WASTE

ANALYTE	LIMIT
PCBs (total)	50 mg/Kg
Corrosivity (pH)	Non-Corrosive (pH must be >2 or <12.5)
Ignitability	Must be non-ignitable
Percent Sulfur	Must be <3.5%

TABLE 4-4
SAMPLE TCLP ANALYTES AND LIMITS

TCLP ANALYTE	REGULATORY LIMIT (mg/L) [6NYCRR Part 371)
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Carbon tetrachloride	0.5
Chlorobenzene	0.03
Chloroform	6.0
Chromium	5.0
Cresols (total of o,m,p)	200.0
2,4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1,1-Dichloroethylene	0.7
2,4-Dinitro toluene	0.13
Endrin	0.02
Heptachlor	0.008
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Lead	5.0
Lindane	0.4
Mercury	0.2
Methoxychlor	10.0
Methyl ethyl ketone	200.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
Selenium	1.0
Silver	5.0

TCLP ANALYTE	REGULATORY LIMIT (mg/L) [6NYCRR Part 371)
Silvex	1.0
Tetrachloroethylene	0.7
Toxaphene	0.5
Trichloroethylene	0.5
2,4,5-Trichlorophenol	400.0
2,4,6-Trichlorophenol	2.0
Vinyl chloride	0.2

4.6 Confirmation Sampling Requirements

Confirmation sampling and analysis of soils will be collected after the excavation of the CTS and removal of any subgrade structures. Procedures for confirmation soil sampling are presented in Section 6.2.2 of this *Work Plan.*

4.7 Site Set Up

4.7.1 Utility Notification

Prior to any construction activities, Dig Safely New York will be notified, and all on-site underground utilities will be marked in the field. Local police and fire departments also will be notified. The *Citizen Participation Plan For The Ithaca Court Street Former Manufactured Gas Plant Site Remediation* addresses notification of adjacent property owners and local officials.

4.7.2 Site Access Control

In order to restrict unauthorized access to the site during remedial activities, a 6-foot high chain link fence will be installed around the entire perimeter of the site and staging area. The fence will be positioned just inside the curb line along Court Street, North Plain Street and Esty Street. Along North Albany Street, the fence will be located just inside the western edge of the sidewalk, so that the sidewalk can be kept open.

An entrance gate will be provided on Esty Street. "NO TRESPASSING" signs will be installed on the fencing. A project sign for "NYSDEC Order on Consent No. DO-0002-9309" compliant with NYSDEC specifications will be posted. During daily operations, admittance requirements and visitor monitoring will be in effect, as specified in the Health and Safety Plan for activities at Ithaca Court Street Manufactured Gas Plant site.

4.7.3 Construction Offices

The Markles Flats building will be used as the temporary construction office including use by NYSEG and NYSDEC.

The overnight staging area will be located off of Esty Street near the northeast corner of the Ithaca Court Street MGP Site, (see Figure 3). The existing driveway will be widened using crusher-run to provide a stable area for the placement of the equipment trailers.

The construction office will be equipped with office supplies and provide office and storage space for the air monitoring activities at the site. Electric, telephone service, facsimile capabilities, potable water and portable toilets will be available for all project personnel. The NYSDEC onsite personnel will have an area with a desk, electrical outlet, phone, a phone line for computer hookup, DSL internet service access, and a 24 hour/seven day per week answering service (to pick up and direct calls to NYSDEC). Also available will be space for records storage, personal protective equipment, monitoring equipment, first aid location, and sample preparation and storage. In addition, operations personnel will utilize the space for safety meetings, project office tasks, and changing area.

4.7.4 Exclusion Zone

The work area Exclusion Zone (EZ) which is the active work area immediate to the excavation will be delineated by the Sprung, or equivalent, structure positioned over the excavation area. Signs will be posted on the outside of the structure noting that the area inside the structure is considered the EZ (see Figure 4A).

4.7.5 Contamination Reduction Zone

The work area Contamination Reduction Zone (CRZ) which is the area immediately outside the EZ will be used as a primary decontamination area for equipment and personnel. At a minimum the CRZ will be an area three feet outside of the EZ. An additional CRZ will be established adjacent to the construction office trailer, which will include the equipment contamination reduction area and wastewater storage area. Orange construction fence will be used to delineate the perimeter of the CRZ (see Figure 4A).

4.7.5.1 Equipment Contamination Reduction Pad

A temporary decontamination pad will be installed and maintained. The pad will be repositioned as necessary to ensure that all trucks and/or equipment can be properly decontaminated prior to leaving the Work Zone. Curtains or portable shields will be utilized as appropriate to ensure that the wash water/sediment is directed onto the pad where it can be collected. Water collected in the sumps will be pumped to the temporary onsite wastewater holding tanks for treatment and discharge to the local sewer or offsite disposal. The contaminated sediments will be disposed with the contaminated soil.

The equipment decontamination pad will have a minimum size of 20 feet by 40 feet, and constructed and maintained inside the Contamination Reduction Zone. The equipment decontamination pad shall be constructed as follows:

- The existing ground shall be graded and compacted as required; medium sand (NYSDOTSS, Section 703-03 Mortar Sand) shall be placed over the proposed area.
- 10-inch by 10-inch timbers, held in place by #5 rebar, shall be placed around the perimeter and sand shall be bermed around the inside of the timbers to protect an overlying polyethylene liner.
- A 30-mil high density polyethylene liner shall be placed over the sand and timbers and secured by nailing wooden battens on the outside of the timbers. The liner shall meet the requirements of GRI GM13.
- Two inches of medium sand shall be placed over the liner.

- A sump shall be constructed at the lowest area using a slotted PVC pipe and set in stone to collect water; remaining area within the timbers shall be filled with coarse stone (NYSDOTSS Table 703-4, Size 3, including 0 to 0.7 percent passing No. 200 sieve).

- Earthen or stone ramps shall be constructed to allow equipment to drive onto the pad.

A high-pressure washer shall be used in this area to clean vehicles and equipment of any contaminated soil that may be adhering to them. A submersible pump shall be placed in the sump to remove any collected water. The equipment decontamination pad shall be covered with polyethylene sheeting when not in use. The sheeting shall be secured with sandbags. At the completion of this work, sand, stone and sediment inside the pad shall be sampled, analyzed and disposed of at a permitted facility.

4.7.5.2 Personnel Contamination Reduction Area

A personnel contamination reduction area (PCRA) will be placed just outside the temporary building. The PCRA will consist of a portable enclosure located within the CRZ and positioned immediately adjacent to the mandoor on the temporary building. All personnel will pass through the PCRA when leaving the Work Zone. The area will contain two stages and will be constructed on a continuous sheet of polyethylene. Stage 1 will contain a boot wash tub with solution of detergent, a second boot wash tub with rinse water and a long handle brush. Stage 2 will contain a hand wash tub with solution of detergent, a second wash tub with rinse water and towels. Polyethylene bags will also be available for disposing Tyvek® suits, gloves, paper hand towels, etc. The PCRA will be re-established each time the temporary building is repositioned.

4.7.6 Support Zone

The Support Zone (SZ) which is the area where project support can be rendered without contact with contamination. This area is located outside the CRZ, (see Figure 4A).

4.7.7 Erosion and Sedimentation Control

Erosion and sediment controls will be installed in those areas of the site susceptible to erosion. These areas will be identified jointly by the Contractor, NYSEG and the NYSDEC. Siltation fence and haybales

will be installed as necessary using laborers and a backhoe. NYSEG may direct the Contractor to install additional erosion and sedimentation controls during construction. NYSEG will monitor and clean the streets as required, utilizing a street sweeper if necessary.

NYSEG will prepare a Sediment and Erosion Control Plan in accordance with http://www.dec.state.ny.us/website/dow/toolbox/swforms.html. This plan will meet the requirements of the New York Standards and Specifications for Erosion and Sediment Control. Subsequently, NYSEG will submit a Notice of Intent (NOI) for a General Permit GP-02-01 for Stormwater Discharges from Construction Activities as required by 40 CFR Part 122. After completion of the work, NYSEG will submit a Notice of Termination (NOT) to cancel the construction permit.

4.8 Mobilization

Mobilization to the site will be sequential in nature to accommodate the general requirements and specific operations to be undertaken. The first items to be mobilized to the site will be the support trailers, all the sheet piling required for the project, and the temporary wastewater storage tanks. The Remedial Contractor will begin mobilizing equipment and supplies to the site while the trailers are being set up. Equipment to be mobilized to the site over the course of the project may include: hydraulic excavators, a loader, a 100 ton track crane, a vibratory sheet pile hammer, a push type hydraulic sheet pile driver, trench boxes/shields, two (2) forklifts, a temporary building, air handling equipment, temporary and permanent wastewater storage tanks and treatment equipment, miscellaneous portable equipment, and hand tools. All heavy equipment will be equipped with scrubbers to minimize air emissions inside the temporary building. This equipment and its mode of operation will be described in further detail in the following sections

The equipment, materials and other supplies will be staged on the MGP site in a location so as not to interfere with excavation and backfilling operations. The exact location will be determined upon mobilization to the site after discussions with NYSEG.

4.9 Tree Removal and Replacement

Trees located in the lawn between the sidewalk and curb around the perimeter of the site will be removed as necessary prior to the installation of the steel sheet piles. The City of Ithaca will plant new trees during restoration. See Section 4.16.

4.10 Buildings and Substructures Demolition

All buildings and onsite structures, other than the Markles Flats Building, will be demolished and removed prior to excavation of any MGP contaminated materials. This will be accomplished in two stages. During the initial stage, buildings and structures will be taken down to grade level. The floor slabs, basements, footers and/or foundations will be left in place. Once the temporary building is erected, the at grade and below grade features (i.e. slabs, footers, asphalt paving, foundations) will be removed, inside the temporary building. Note: Some of the building foundations will be removed during the installation of sheetpiling.

4.11 Excavation of Subgrade Structures and Coal Tar-Contaminated Soil

4.11.1 Sheet Piling Installation

In order to allow the site to be dewatered, ensure the stability of the excavation throughout the remediation, and limit the amount of subsidence in areas outside the site perimeter, a system of steel sheetpiling will be installed at the site.

A 100-ton track crane with a vibratory hammer will be used to drive the sheet piling to the required depths, except within 30 feet of the Markles Flats Building. Within 30 feet of the Markles Flats Building, hydraulic (push-type) pile driving methods will be used to push the sheets in to minimize vibrations. Refer to Section 4.13 of this Work Plan for additional sheet piling requirements around the Markles Flats Building. Sheets to be installed will be staged on the MGP site in a location so as not to interfere with the sheet pile driving and mobilization activities.

Vibration monitoring will be performed continuously during installation of the sheet. Markles Flats Building settlement monitoring also will be performed. See Section 7.0. The Community Air Monitoring Plan (CAMP) in Section 5.3 will be in effect during sheet pile activities, including the requirement for odor suppression material such as BIO SOLVE® (Appendix K).

Additionally, the sidewalks around the perimeter of the site (i.e. on the north side of Court Street, the east side of North Plain Street and the south side of Esty Street) will be closed. Orange construction fence will be installed across sidewalk to the curb at each corner. Signs will be installed that read: "SIDEWALK CLOSED USE CROSSWALKS".

Prior to installing any of the sheetpiling, the ground surface/paving in the vicinity of the former gas holders will be scraped, as necessary, to expose the top edge of the former gas holders. This will be done so that the sheetpiling can be laid out to avoid intersecting the gas holders during installation.

4.11.1.1 Perimeter Cutoff Wall Sheeting

A watertight sheet piling wall (i.e. Waterloo or Seal Tight Systems) will be installed around the entire excavation area (see preliminary design in Appendix M and Figures 4A and 4B), including the Markles Flats Building area where the sheet pile must be installed as part of the Markles Flats groundwater extraction system work. To ensure a watertight sheet, the Contractor will be required to submit quality control documentation appropriate to the type of sealing that will be used. The design calls for 30-foot long, AZ18 sheet piles to be installed for the cutoff wall.

During driving of the perimeter steel sheeting, obstructions may be encountered that need to be removed so that the installation can be completed. In general, the following approaches will be utilized to clear the obstruction.

- The AZ18 sheets installed on the north and east sides of the Markles Flats building will ultimately be left in place permanently. The method to install these sheets and coordination with the Markles Flats groundwater extraction system is discussed in Section 4.12.

- Initially, an attempt will be made to "deflect" the sheeting around the obstruction. In this method, the angle and positioning of the sheeting is adjusted during driving operations so that the alignment/inclination of the sheeting is changed relative to the normal alignment. A maximum "deflection" of two to three feet over a horizontal distance of 10 – 12 feet can be achieved in this manner.

- If deflecting the sheeting is not effective, then an excavator will be utilized to dig down to the obstruction and remove it. This will be accomplished by digging on the inside of the perimeter wall, perpendicular to the sheeting. The excavation size will be kept as small as possible to minimize air emissions and cause minimal impact to adjacent structures, while maintaining the stability of the excavation. Once the obstruction has been removed, the excavation will be backfilled with the excavated material, and the sheet piling installation resumed.

- If a larger excavation is required to allow the obstruction to be removed, then a trench box equipped with a "slide-rail" system will be employed. This system consists of a rectangular steel frame. The long sides consist of a series of steel sheets that are free to move up and down on a series of rollers. The short sides are left open. The trench box is positioned on the ground in the area of the obstruction. The side sheets are driven part way into the ground so that the interior soils can be excavated without loss of support in the soils outside the box. As the excavation proceeds, the sheets are driven deeper so that they are always below the excavation depth. This process is repeated until the excavation reaches the level of the obstruction. The obstruction can then be removed from inside the trench box. This system allows breaker points, carbide cutters, rock saws and/or other equipment to be used to break up the obstruction so that it can be removed. The excavation will be backfilled with the excavated soils as long as there is no visual evidence of coal tar and no elevated TVA readings are obtained. If the soils are determined to be contaminated (i.e. visual or elevated TVA readings), they will be staged on polyethylene sheeting until they can be sampled and characterized for disposal. The piles of staged soils also will be covered with polyethylene sheeting. Once the excavation is backfilled, steel sheeting installation will be resumed.

- If none of these approaches are successful, alternative approaches (i.e. line drilling, blasting, etc.) will be discussed with the NYSDEC.

- A portable Vapor Control System will be employed, as necessary, during any excavation activities associated with the sheet piling to control VOC emissions and/or odor. This system will consist of air handling equipment, equipped with activated carbon absorbers and intake/exhaust tubing mounted on a trailer. Wooden planking and polyethylene sheeting will be utilized to construct a temporary enclosure over the active excavation area. The intake tubing from the Vapor Control System will be inserted into the temporary enclosure to withdraw any VOCs emanating from the exposed soils in the excavation. A typical vapor control system layout is shown on Figure 5A.

4.11.1.2 Interior Cantilevered Steel Sheeting

- In addition to the groundwater cutoff wall installed during mobilization, cantilevered sheetpiling will be installed to divide the MGP Site into six major excavation areas (i.e. Areas 1 to 6) as shown in Figure 4A. Each major area has been sized to fit within the footprint of the proposed temporary building (See Section 4.11.3)

- Initially, 54-foot long, AZ48 cantilevered sheet piles will be installed to form the brace wall inside the AZ18 groundwater cutoff sheet pile wall previously installed. The sheeting will be driven using a 100-ton track crane and a vibratory hammer, except within 30 feet of the Markles Flats Building where a push-type driver shall be used.

- Once the brace wall is completed, the remainder of the 54-foot long, AZ48 cantilevered sheet piles will be installed to subdivide the major excavation areas into smaller sub-areas. The sheeting will be driven using a 100-ton track crane and a vibratory hammer, except within 30 feet of the Markles Flats Building where a push-type driver shall be used.

- Within 30 feet of the Markles Flats Building, the AZ 48 sheets will be pushed in. The upper soil zone (above the silty day) will likely require water jetting or pre-trenching and backfill with imported sand during sheet pile installation if hydraulic push methods encounter too much resistance.

Should any obstructions be encountered during driving of the interior sheeting, the procedures outlined in Section 4.11.1.1 will be employed.

4.11.2 Site Dewatering

Each major excavation area will be dewatered during the excavation of each respective area. Dewatering sumps will be installed to allow excavations to be performed in the dry, as described in Section 4.11.4. The water will be pumped directly to the temporary onsite wastewater treatment system for processing and discharge to the local POTW.

4.11.3 Temporary Building and Air Handling System

- Due to anticipated release of VOCs and odors during the excavation operations, a temporary building will be installed over each of the major excavation areas prior to start-up of excavation operations in that area. It is anticipated that a structure approximately 132' W x 174'L will be utilized. The temporary building will be equipped with two large doors at one end for equipment and truck access and at least one man door on the side.

- The temporary building will be positioned over each proposed excavation area so that it completely encloses the area. The temporary building will be constructed using cranes (30 to 50 ton) and laborers with manlifts. The sides of the building will be held down using plates with steel pins driven into the ground and deadman concrete blocks.

- The temporary building will have a ventilation system to pull air out of the building and through a filter system prior to being released into the atmosphere. The ventilation ductwork will be constructed of rigid sheet metal or rigid spiral ductwork. The ductwork will be hung from the temporary building with appropriate brackets and ceiling hangers. The ductwork system will be run out through the side of the building to the carbon filtration unit and the vacuum fan. The fan will pull air from the building through the carbon filter prior to being released outside the building. The discharge stack on the system will be positioned a minimum of 10 feet above the ground and be directed away from all personnel and/or equipment.

- The existing soils data indicates that total VOC concentrations range from non detect to a maximum of 47,000 µg/Kg, with an overall average value of about 3,700 µg/Kg. The total quantity of soil to be excavated is about 50,000 cy or roughly 87,500 tons (assumes 1.75

tons/cy). Assuming an average concentration of 3,700 µg/Kg, it is calculated that there are less than 400 - 500 pounds of VOCs in the soils on site.

- The most cost-effective technology in this case is activated carbon. Based on the anticipated amount of VOCs, it is estimated that 1,000 pounds of carbon would be sufficient to collect the 400 - 500 pounds of VOCs.

  In addition to removing the VOCs, guidelines suggest that the air volume within the structure should be turned over approximately 5 times every hour to ensure that soot, dust, carbon monoxide and other contaminants are removed and a safe working atmosphere is maintained for workers. Based on the size of the temporary building and using an average height of 25 feet, the interior air volume is 577,500 cubic feet (cf). In order to achieve five turnovers per hour, the required airflow through the air handling system must be on the order of 48,000 cf per minute.

  To handle this flow rate, two large carbon vessels will be operated in parallel. The two units shall be TIGG NB-50, or approved equal. These specific units are box units containing 16,000 pounds of carbon each. Two 20-inch inlets and outlets are provided in order to handle the high air flow rates/volumes.

  Additionally, the air handling system will be equipped with inline particulate filters to remove any dust and thereby prevent "blinding" of the carbon units. Nitrous oxides (NO_x) will be monitored inside the temporary structure as part of any other required air monitoring.

4.11.4 Excavation Activities

- Prior to the start of excavation the NYSEG Sampling Technician will determine locations where community air monitoring will be conducted.

- Daily community air monitoring stations will be established upwind and downwind of the temporary structure. In addition, a community air monitoring station will be established between the temporary structure and the nearest occupied building. Daily Community air monitoring will commence prior to start of any excavation of soil and continue until excavation activities have ended for the day.

4.11.4.1 Major Excavation Areas 1 through 6

- Once the excavation support systems are in place and the temporary building with a ventilation system has been constructed, excavation operations will be initiated. As indicated, the site has been divided into six major areas, and all except Area 6 have been sub-divided into two sub areas (Figure 4A). The major areas have been identified as Areas 1 through 6, and the sub-areas as 1A, 1B, etc. The Contractor may revise the sequence to best coordinate with their proposed method to move the temporary building and coordinate with required work at the Markles Flats building area. As such, the temporary building will be setup over Area 1 initially. Excavation activities will then be conducted in Area 1A. At the completion of excavation operations in Area 1A and confirmation that no additional excavation needs to be performed, backfilling operations will be initiated. Clean common fill from a local supplier will be used to backfill the excavation area to original grade. When Area 1A has been backfilled to grade, excavation and backfilling in Area 1B will be performed.

- Excavation and loading operations will take place wholly within the temporary building.

  Excavated materials that exceed 18% moisture will be stabilized by mixing with lime or lime kiln dust (LKD). The Contractor will implement dust monitoring and dust suppression procedures during delivery and handling of these materials, including during the addition of lime or lime kiln dust to stabilize excavated materials. The use of these materials and an appropriate MSDS for lime and lime kiln dust will be included in the HASP.

- Dewatering sumps will be installed within the excavation areas, as necessary, to control existing groundwater and allow the excavation to be performed in the dry. Water generated from the dewatering operations will be pumped to the temporary wastewater treatment plant for treatment prior to discharge to the local sewer system.

- At the completion of backfilling operations, the ventilation system located in the temporary building will be dismantled and the building will be moved to the next area. Once the building has been set over the next major excavation area, the ventilation system will be installed and excavation operations resumed.

- Excavation, backfilling, and building moving operations will be performed in this manner until all material designated for removal has been excavated and the location backfilled.

- During excavation, odors or fugitive vapors emanating from the excavation will be actively controlled by misting the working area with BIO SOLVE®, see Appendix K for product information. The BIO SOLVE® will be applied using a pressure washer. A remediation worker will be available for dedicated operation of this equipment if required.

- Dust will be actively controlled, as necessary, by misting the excavated area with water or BIO SOLVE® .

- Care will be taken to prevent contaminated subsurface material from impacting surface soil outside the work area. If the on-site NYSDEC representative observes a condition that might spread contamination, immediate action will be taken to correct the situation.

- All the loading will be done inside the temporary building. Care will be exercised when loading trucks not to spill material on the outside of the trucks. After loading, the dump trailer will be covered with a tarp to control vapor emissions.

- Prior to leaving the Loading Area, each truck will be visually inspected (i.e. box sidewalls, box tailgate, and tires, etc.) and cleaned with brushes as required. Before staging another truck, the polyethylene sheeting will be either cleaned by brooms or replaced.

4.11.4.2 Excavation of Braced Wall Area

- The contaminated materials located between the perimeter sheetpiling wall and the interior cantilevered sheetpile bracing wall will be excavated concurrently, but independently of, excavation of Major Excavation Areas 1 to 6.

- A backhoe or small trackhoe will be utilized to excavate the soils to the required depth. The contaminated soils will be loaded directly into trucks for transport and offsite disposal at a permitted facility.

- Care will be taken to prevent contaminated subsurface material from impacting surface soils outside the work area by placing polyethylene sheeting on the ground in the truck loading area.

- Care will be taken to prevent contaminated subsurface material from impacting surface soils outside the work area by placing polyethylene sheeting on the ground in the truck loading area. Additionally, care will be exercised when loading trucks not to spill material on the outside of the trucks. After loading, the dump trailer will be covered with a tarp to control vapor emissions.

- Prior to leaving the Loading Area, each truck will be visually inspected (i.e. box sidewalls, box tailgate, and tires, etc.) and cleaned with brushes as required. Before staging another truck, the polyethylene sheeting will be either cleaned by brooms or replaced. Based on the analytical results from the Pre-Remediation sampling, this material will be transported to a permitted disposal facility, as described in Section 4.14.

- During excavation, odors or fugitive vapors emanating from the excavation will be actively controlled by misting the working area with BIO SOLVE®. Dust will be actively controlled, as necessary, by misting the excavated area with water or BIO SOLVE®.

- Dewatering sumps will be installed within the excavation area, as necessary, to control any liquid tar or groundwater that enters the excavation and allow the excavation to be performed in the dry. Liquids generated from the dewatering operations will be pumped to the temporary wastewater treatment plant for treatment prior to discharge to the local sewer system.

- A portable Vapor Control System will be employed, as necessary, during any excavation activities to control VOC emissions and/or odor. This system will consist of air handling equipment, equipped with activated carbon absorbers and intake/exhaust tubing mounted on a trailer. Wooden planking and polyethylene sheeting will be utilized to construct a temporary enclosure over the active excavation area. The intake tubing from the Vapor Control System will be inserted into the temporary enclosure to withdraw any VOCs emanating from the exposed soils in the excavation. A typical vapor control system layout is shown on Figure 5A.

4.12 Markles Flats Building Remediation

The remediation features to be constructed as part of the Markles Flats Building containment system are groundwater extraction, sheet pile containment, sub-slab soil gas depressurization, and on-site groundwater treatment, all of which will be considered as "permanent" and left in place after the remainder of the site has been restored and closed out. Except for portions of the AZ-18 perimeter cutoff wall sheet pile (north and east

A critical consideration of any of the construction work on site is to maintain the structural integrity of the Markles Flats Building so this will receive special scrutiny throughout construction. Additionally, the close proximity of the Markles Flats Building to North Plain Street and West Court Street will require coordination with utilities, coordination with traffic, temporary lane closure(s), preservation of and any necessary repairs to adjacent roadways, sidewalks, and curbs.

4.12.1 Groundwater and NAPL Extraction System

The groundwater and NAPL extraction system will consist of 7 vertical wells placed around the Markles Flats Building. The wells will be constructed to extract both groundwater and any NAPL that accumulates in the wells. The wells will be an "active" system connected together by a header pipe and activated by sensing groundwater levels in the wells. The extraction wells will be symmetrically placed around the building to promote symmetrical groundwater drawdown that will minimize the potential for differential settlement of the building.

Details and location of this system is shown on Figure 5B.

The groundwater extraction system will be constructed as follows:

- Seven 4-inch diameter PVC extraction wells will be used, constructed using a 6-1/4 inch hollow stem auger.
- Each well screen will be 5 feet long and will extend from the top of silt/clay layer upward. The slot size of each screen will be 0.020 in (20-slot size), the sand pack surrounding the screen will be #0 Morie sand or equivalent.
- Each well will be equipped with a 1-foot long solid pipe section (sump), extending from the bottom of the screen downward, extending one foot into the silty clay to accommodate any sediment build-up for eventual removal.
- Each well will be equipped with a peristaltic pump capable of pumping 1 gpm against the total head of 30 feet of water column. The suction lift of the pump will be 10 feet minimum. The

suction line will be 1-inch diameter PVC tubing that requires regular inspections and any replacement if it shows fouling from NAPL and/or sediment.

- Pumps and electrical connections will be housed in a 36-inch diameter, flush-mounted 5-foot deep manhole.

- Extracted groundwater and NAPL will be transferred to the permanent onsite treatment system via a 2-inch diameter PVC common header, installed at the depth of 4 feet below ground surface.

If long term monitoring demonstrates a need for additional groundwater extraction wells, such as groundwater head build-up near the bottom of the floor slab, then additional wells can be installed and connected to the header pipe. Similarly, if NAPL wells produce substantial amounts of product then the NAPL well system can be upgraded to an active mechanical system similar to the groundwater extraction system, and/or additional passive NAPL wells can be installed.

The wells, particularly the groundwater extraction wells, will be installed prior to installation of the sheet pile containment system so that the groundwater inside the eventual containment system can be readily pumped down if there is any groundwater rise due to installation of the sheet pile containment. All of the wells will be installed using conventional soil augers such as hollow stem augers to provide sidewall support. The well installation work will proceed without dewatering. An excavator will be available to remove any below-grade obstructions, although some minor horizontal adjustment, say 5 to 10 feet, in planned well location is acceptable should obstructions prove too troublesome to effectively remove.

To determine if any upward gradient from the sand aquifer beneath the silty clay might approach the floor slab level of the building, a piezometer will be installed inside the building at the former Geoprobe location MF-GB-01. That location encountered no subsurface obstructions and encountered only soil down to the top of the silty clay. The piezometer will also extend down to the top of the silty clay which is at 13 feet below top of slab. Also, this piezometer will demonstrate the groundwater differential between the building footprint and the groundwater extraction well locations, for use in the potential assessment of differential settlement of the building. The piezometer will be constructed of 1-inch diameter PVC with pre-packed filter sand, installed with a Geoprobe. The screen length will be 10 feet in total length, from 3 feet below the top of slab to 13 feet below the top of slab.

4.12.2 Sheet Pile Containment System

Vibratory or impact hammer sheet pile driving methods are prohibited near the Markles Flats Building given the uncertain impact of such methods upon the building. A variable moment vibratory hammer is a very low vibration hammer that may be suitable but if, by using such a hammer, unacceptable vibrations did occur then that driver might then have to be eliminated, causing project delays. Therefore, a hydraulic push-type (i.e. press pile) driver will be required. During pile driving, an excavator will be on standby to remove any obstructions that prevent pile driving. Any such excavations will be backfilled with a suitable soil. Above the water table, trench-excavated soil will be placed back into the excavation and bucket-compacted in one-foot lifts. Below the water table, a crushed stone with less than 10% fines will be used as backfill and similarly compacted.

One alternate or complementary method to installing sheet pile using a push-type driver as described would be to pre-drill along the proposed sheet pile alignment at about 8-foot centers, with a soil auger. This would loosen up the soil and identify obstructions to permit efficient use of a push-type driver, with an excavator on standby. The push-type driver assembly permits alternating use of augering and pushing as needed, however. Note that the pre-drilling would add about one to two weeks to the schedule but may not ensure uninterrupted use of the push-type method if numerous obstructions are present.

The overhead utility lines along North Plain Street will need to be de-energized to permit the pile driving work between the street and the Markles Flats Building, due to the 15 to 18 feet offset of these lines from the building. Pile driving equipment should be at least 15 feet away from active utilities but the building prevents that offset distance for the pile driver. The North Plain Street pile driving work is expected to take about 2 to 3 work days, and utility interruption, if no obstructions are encountered.

For joint sealing and vapor control requirements, refer to Section 4.11.1.1.

4.12.3 Sub-Slab Soil Gas Depressurization System

4.12.3.1 General

As part of the in-situ containment of MGP impacted waste and soil beneath the Markles Flats building, a sub-slab depressurization (SSD) system will be installed to mitigate the potential for organic vapors to accumulate inside the structure. As the building is not currently occupied except for use as a paint shop and for storage, the SSD system is being installed only as a precautionary measure. During this project the building will be used for construction offices for 1.5 years. In the event that the use of the building changes, the SSD system will be re-evaluated to ensure that the system continues to provide its intended purpose.

Prior to any work, a PID will be used to screen the indoor air for VOCs at several locations in each room of the structure. Floor penetrations, such as drains or sump holes, cracks in the floor, and any other potential pathways for vapor intrusion into the structure also will be screened with the PID. The entire first floor of the structure will be evaluated in this manner. Although the building is believed to be a slab-on-grade construction, with a perimeter foundation, a visual confirmation will be conducted to verify that there are no basements, crawlspaces, or other sub-slab spaces that potentially could accumulate vapors. Ventilation systems, combustion appliances, or other systems that may either compete with or otherwise be affected by the operation of the SSD also will be noted and considered during the installation of the SSD.

All work for the installation of the SSD system will be by a contractor specializing in the installation of similar systems. All work will be done in accordance with applicable mechanical, electrical, building, plumbing, and fire codes, standards, and regulations.

4.12.3.2 Suction Point Installation

The location of the SSD suction points through the floor will take into consideration that the building subsurface potentially is not a continuous area. That is, previous investigations have shown that the building may overlie former building foundations and other structures that, unless designed properly, could prevent the SSD system from achieving the desired extent of vacuum under the building slab. Additionally, the fact that

the floor is on several different levels and not one continuous slab is further evidence that multiple suction points may be required in order to effectively address vapors under the entire building slab. It is expected that one extraction point will be installed in every first floor section/level, or minimally at least 4 extraction points will initially be installed. After the system has been installed, testing will be conducted as described in 4.12.3.6 to determine whether additional extraction points may be required.

After the initial SSD vent locations have been identified, a hole large enough to accommodate 4-inch diameter Schedule 40 PVC pipe will be cored through the concrete floor at each proposed vent location. The concrete floor slab is believed to be approximately 6 inches thick. After the hole has been cored, additional material will be hand excavated from the area immediately below the slab vent penetration point. Each vent pipe will be installed through the coring and sealed airtight to the concrete slab. The vent pipe will be supported from the existing building structure in a manner that prevents the pipe from pushing into the hole.

4.12.3.3 Vent Pipe Installation

All vent pipes and fittings will be 4-inch diameter Schedule 40 PVC. All joints and connections will be airtight and permanently sealed with solvents/adhesives as recommended by the pipe manufacturer. The vent pipes will be fastened to the interior structure of the building with hangers, strapping or other supports as appropriate to securely fasten the piping to the building structure. Existing plumbing, pipes, ducts or other mechanical equipment will not be used as pipe supports. The pipes will be installed with a slight slope to ensure that any condensate that collects in the piping is allowed to drain freely back into one of the extraction points. A butterfly valve will be installed in the pipe from each vent point to allow for the suction at each point to be adjusted and balanced for optimum system performance. All of the vent pipes will manifold together into one common header that connects to the vent fan for the system.

4.12.3.4 Vent Fan Installation

Based on the building footprint (90 feet by 38 feet), it is estimated that a relatively large extraction fan unit will be required. The largest fans available specifically for this purpose generally can achieve a maximum vacuum of 3.5 to 4 inches water column. If one of these fans is not sufficient to achieve the desired vacuum beneath the extent of the slab, additional fan units will be installed. Each unit will be equipped with a separate discharge stack.

The vent fan (or fans if multiple units are required) will be designed specifically for use in SSD or radon mitigation systems and will be mounted on the exterior of the building (assuming that this does not violate any local codes or preservation requirements). The fan will be installed in a vertical run of vent pipe, but in a configuration that allows water condensation above the fan to drain away from the fan. The discharge from the SSD system will vent at a single or multiple points located higher than the building eaves and will be located a minimum of 10 feet from any window, door, or other opening into the building structure.

The vent system fan will be equipped with a warning light system that activates whenever the fan stops running for any reason. The warning light will be mounted in a location easily visible to persons entering the building. Phone numbers of persons to contact in the event of a problem with the system, as well as contingency procedures, will be developed and posted in a location prominent and visible to persons entering the building on a routine basis.

4.12.3.5 Floor Sealing

Openings around the vent pipe penetrations through the floor slab, as well as any existing penetrations through the slab (such as for utilities), will be cleaned, prepared, and sealed airtight using caulks, expanding foam, or other sealant products. Additionally, any other openings or cracks in the slab will be sealed using urethane caulk or similar material as appropriate to the nature and location of the opening. After the SSD system has been installed and is operational, the cracks and leaks through the floor will be inspected via smoke testing and other means to verify that there is no leakage apparent.

4.12.3.6 Testing

The SSD system will be tested upon completion of system installation. After the system has operated for at least one hour, a minimum of four small pilot holes (less than ½ -inch diameter) will be drilled through the floor slab in various locations. Smoke testing will be conducted to verify that sub-slab airflow is being achieved at the test locations. Vacuum gauges also may be used to measure the vacuum achieved both at the SSD locations and at the test holes. If insufficient vacuum is observed in the test holes, alternatives such as installing additional vacuum points and/or installing a larger or additional fan units will be evaluated.

4.12.3.7 System Maintenance

System maintenance will be conducted as recommended by the system (fan) manufacturer. Monitoring will consist of periodic verification of system operation at such times that persons are entering the building.

4.12.4 Permanent On-Site Groundwater Treatment System (GTS)

4.12.4.1 General

The temporary wastewater treatment system (discussed in detail in Section 4.13) for dewatering the site-wide excavation area also will be used to treat and dispose of water collected from the groundwater extraction wells around the Markles Flats building, during the construction phase of the work. Once installation of the extraction wells is complete and enclosed by permanent sheet pile cutoff, the flow rate of groundwater to be treated from the Markles Flats area is estimated to be less than 10 gpm. A permanent groundwater treatment system will be installed specifically for the treatment and discharge of groundwater from extraction wells. While the temporary wastewater system is designed for a total flow rate of 250 gpm, the permanent groundwater system will be designed for a total flow rate of 10 gpm. As with the temporary system, it is anticipated that the treated groundwater will be discharged to the local publicly owned treatment works (POTW) via the existing sewer system. Any free product (i.e., DNAPL) or other solids collected in the oil water separator will be drummed for off-site transportation and disposal.

4.12.4.2 GTS Components

The treatment units of the permanent system will be similar to the temporary system (described in Section 4.13.1) since the groundwater contains the same MGP-related contaminants and DNAPL as the water collected during construction. The components of the system will include at a minimum an oil water separator, bag filters, two organoclay filters, two carbon filters, and effluent bag filters. Figure 7 shows the process flow diagram for the permanent GTS. The quantities of each component as indicated herein and as shown on the drawings represent the minimum quantities of units that the contractor shall provide to allow for process redundancy and maintenance. The Contractor may elect to use additional units and treatment streams

as desired, provided that the system as a whole provides a minimum of 10 gpm of treatment (not just flow rate) capacity. The system must provide the same or equal function and controls as indicated herein. The Contractor shall be responsible for selecting and integrating all components of the system to meet the requirements of this remedial action. The Contractor shall ensure that all of the system components are constructed and will operate in a manner compatible with each other, while meeting their individual objectives.

Notable differences between the temporary and permanent systems are that the units of the permanent system will be much smaller, as they will be designed only for a maximum flow rate of 10 gpm. Additionally, because the system is much smaller, no backwash capabilities will be provided for the organoclay and the carbon adsorption units. These units are small enough that when exhausted, they will be exchanged with fresh units. Backwash of these units typically is not required. These units also will be installed in a series configuration as opposed to the parallel configuration proposed for the temporary system.

The permanent treatment system also will be equipped with a control system to include adequate monitors, controls, interlocks, and alarms to allow the system to operate unattended for long periods of time. An autodialer type system will automatically alert an operator via phone of any alarm conditions at the system. The system also shall include provisions for remote monitoring and control via computer.

During startup of the GTS, samples of treated water will be collected and analyzed to determine whether the discharged water is meeting the discharge requirements of the POTW. If the discharge requirements cannot be met, the system will be modified (e.g., by adding additional organoclay or carbon units) until the requirements are met.

4.12.4.3 System Housing

Because this will be a permanent groundwater treatment system, all of the equipment will be housed in a trailer or other small structure located in the proposed asphalt concrete parking lot to be located just outside the Markles Flats building, in accordance with the Ithaca City School District discussions. No special foundation requirements or security fencing are anticipated. A submersible pump in each of the vertical wells will transfer the collected groundwater to the treatment system. All piping that cannot be installed below the

frost depth will be heat traced to prevent freezing during the winter months. The treatment system housing will be provided with heating, ventilation, and other measures as required for protection of the system and operators.

4.12.4.4 Schedule of Sampling and Analysis

Sampling and analysis for the permanent groundwater system is assumed to be the same as for the temporary wastewater system (described in Section 4.12.2) at least for the first month of system operation. Following the first month, it is assumed that the frequency of sampling will be reduced to a monthly or quarterly basis. All components of the sampling and analysis program will be verified with the POTW prior to the installation of the permanent system, and will follow the requirements of the permit to be issued for the facility. For the organoclay and carbon units, samples will be collected between the first and second unit to help determine when the primary (lead) unit is exhausted and no longer capable of maintaining the treatment requirements for the groundwater. When the lead unit becomes exhausted, it will be removed and exchanged for a new unit containing fresh media; the previous secondary unit will become the primary unit, and the new unit will become the secondary unit.

4.12.4.5 System Maintenance

The GTS system will be designed to operate with minimal oversight and operation by onsite personnel. Sufficient monitors and interlocks will be provided so that if there is a problem with any of the system components, the system will automatically shut down until the problem is resolved. The alarm system will include capability to automatically notify the system operator via a phone call in the event of an emergency.

An Operations and Maintenance (O&M) manual will be prepared for the permanent treatment system. System maintenance will be conducted as recommended by the system manufacturer. Routine operations will include the changeout of bag filters, the organoclay units, and the carbon adsorption units as the sampling indicates that the units have reached the end of their useful life for collecting contaminants from the groundwater. During all visits to the site, the system operator will record pertinent information such as the system flow rate and total flow, pressure drops across the filtration units, and temperature.

In the event that the wastewater treatment system is out of service for an extended period of time (e. g., the water level inside the containment cell might rise above the water level on the outside) then large portable storage tanks (e.g. Baker tanks) or a separate temporary system will be mobilized to the site. Water from the dewatering system will be pumped into the portable tanks for storage and treatment once the system is fixed, or transported for offsite disposal.

4.13 Stormwater, Groundwater and Wastewater Management

Prior to initiating any excavation operations, a temporary wastewater treatment plant will be set up at an approved location adjacent to the MGP site near the existing pool. The treatment plant will be designed for treatment of coal tar and DNAPL at a 250 gpm flow rate with continuous discharge. The main components of the system will at a minimum consist of multiple influent storage (frac) tanks, an oil water separator, two (2) bag filters, two (2) organoclay filters, two (2) carbon filter vessels, two (2) bag filters, and an effluent holding tank. Water will be pumped from the oil water separator through the two (2) bag filters, two (2) organoclay filters, two (2) carbon filter vessels, two (2) bag filters, and to the effluent holding tank prior to discharge to the local sewer (see Figure 6). The quantities of each component as indicated herein and as shown on the drawings represent the minimum quantities of units that the contractor shall provide to allow for process redundancy and maintenance. The Contractor may elect to use additional units and treatment streams as desired, provided that the system as a whole provides a minimum of 250 gpm of treatment (not just flow rate) capacity. The system must provide the same or equal function and controls as indicated herein.

Byproducts of the treatment operations (oils, coal tar, and DNAPL) will be mixed in with the excavated coal tar-contaminated soils and loaded out for off-site transport and disposal, provided the mixture requires no stabilization first, such as with lime or lime kiln dust as described in Section 4.11.4.1. Suitably stable materials may be loaded out.

Samples of the effluent water will be taken and analyzed to confirm that discharged water is meeting permitted discharge requirements. Should the water fail to meet the permitted discharge requirements, it will be recirculated through the treatment system until the parameters are met. If the discharge requirements still cannot be met, the system will be modified (i.e. additional carbon, filters, flowrates, etc.) until the requirements are met. The temporary wastewater treatment plant will be used to treat water generated from the dewatering of the excavation area, the contaminated soil excavation operations, the water generated from

the gravity dewatering of the excavated soils, and groundwater extracted from the Markles Flats remediation area during the construction phase of the project.

In the event that the wastewater treatment system is out of service for any length of time or cannot meet the discharge requirements, then the following actions will be taken:

- Large (i.e. 20,000 gal) portable storage tanks (e.g. Baker tanks) will be set up on site. Water from the dewatering system will be pumped into the portable tanks.
- Water in the portable tank will be sampled and submitted to a NYSDOH approved laboratory for disposal characterization analysis. Expedited turnaround time for the analysis will be used, as applicable, based on inflow rate from the dewatering system.
- Based on the analytical results, the water will be transferred to tanker trucks and hauled to offsite treatment and/or disposal facilities permitted to manage contaminated water.
- This process will be continued, as necessary, until the onsite wastewater treatment system has been repaired or modified such that the contaminated water can be treated on site.

The following is a process description of the proposed temporary Wastewater Treatment System (WWTS), for the Court Street MGP project. A description of each component is included, along with the rationale for its utilization. The Contractor shall be responsible for selecting and integrating all components of the system to meet the requirements of this remedial action design. The Contractor shall ensure that all of the system components are constructed and will operate in a manner compatible with each other, while meeting their individual objectives. The information below is a respresentation of the minimum requirements for each component.

4.13.1 Temporary Wastewater Treatment System Components

Influent Storage Tanks. Water from the excavation, and associated construction waters will be pumped to one of several influent storage (also called "frac") tanks. These tanks will each be approximately 21,000 gallons, and will allow heavier solids and free product to settle out of the influent water.

The influent storage tanks also will be used to equalize spent backwash flows from the downstream organoclay and activated carbon units. Forward flow from operations will be stopped during backwash operations.

Oil Water Separator (O/W/S). Waters from the influent storage tanks will flow by gravity into an O/W/S or other baffled tank. The oil water separator will be used to separate and collect any remaining floating petroleum products from the process water, as well as allow the heavier sediments to settle out, prior the filtration phase of the treatment. The O/W/S is a 21,000 gallon closed vessel that is made up of a solids separation chamber, followed by an oil phase separation chamber, followed by a third chamber that serves as an equalization chamber to control the discharge pump via level controls, if needed. Weirs direct and control the flow and level of the water within the unit and separate the chambers. The O/W/S has a maximum flow capacity of 500 gallons per minute, allowing for a minimum residence time of 40 minutes within the unit. At the design flow of 250 gpm, the residence time would be 80 minutes. Additional O/W/S units may be required if the residence time is not adequate. A chemical feed system will be provided to inject chemicals (a coagulant or flocculant) into the wastewater ahead of the O/W/S, if necessary.

Centrifugal Pump. Following the O/W/S will be an electric centrifugal pump. This pump may be activated and deactivated by utilizing level controls in the O/W/S, or it can be operated in manual mode. The flow rate of this pump will be adjusted with the use of a valve on the output side of the pump. This pump will be the main drive pump that will drive the process water through the rest of the components in the system. A magnetic flow meter will be provided to measure influent flow to the plant.

Hoses. Hoses will be used for the conveyance of the process water between the WWTS components. Hoses are used instead of piping because they provide a degree of flexibility and shock absorption that is critical in the field. The proposed hose is a hard rubber 150-psi suction type hose with a spiral wound steel reinforcement running through the length of it.

Bag Filters. Particulate filtration will be accomplished using skid-mounted bag filters. Two parallel trains of filter vessels containing a 25-micron bag followed by 5-micron bag will be plumbed in series to facilitate continuous operation. The vessels will be fitted with inlet and outlet pressure gauges. Bag filters will be changed at an appropriate pressure differential.

Organoclay. Following particulate filtration, wastewater is directed to two organoclay filter vessels designed to remove any emulsified oil and grease present. The removal of free oils, grease and high molecular weight hydrocarbons will prolong carbon bed-life and efficiency. In addition, the organoclay vessels will remove a significant fraction of the influent organics. The vessels will be provided with backwash capability to ensure continuous operation.

Granulated Activated Carbon. From the organoclay units, the waste stream then flows through two Granular Activated Carbon (GAC) vessels. The GAC units will remove volatile organics and any remaining semi-volatiles in the effluent from the organoclay units.

As with the organoclay units, the GAC filters will be provided with backwashing capability to allow continuous operation. This configuration will also provide the flexibility to run all 4 vessels at the same time if it is necessary to increase the treatment rate for some reason. The amount of carbon and organoclay in each vessel will give the process water the correct amount of contact time at the maximum design flow rate of 250 gallons per minute.

Bag Filters. Following the GAC units will be another set of bag filters. These will be sized at 5-micron. The purpose of these filters is to catch and remove and suspended solids that may have made it through the system previously, and any carbon or clay fines that may be present. The vessels will be fitted with inlet and outlet pressure gauges. Bag filters will be changed at an appropriate pressure differential.

Effluent Tank. After the water has been through the treatment system, it will be fed into a 20,000-gallon effluent tank. This tank will serve as a "batch tank" during the start up phase of the operation, and later, after the system is proven and goes to a continuous discharge, this tank will be utilized as a clean water holding tank for the backwash water.

Centrifugal Pump. Following the effluent tank will be an electric centrifugal pump. This pump will be the discharge/backwash pump, and have a valve arrangement that will direct treated water to one of three locations:

1. The POTW's or SPDES discharge point after passing through a rate/totalization flow meter.
2. The backwash system for the organoclay and GAC units.

3. To recycle the treated water back to the head of the system, if required.

Rate/Totalization Flow Meter. All waters discharged into the local POTW will first be pumped through a totalization meter. This will provide an accurate measure of discharged waters for billing and permitting purposes.

4.13.2 Schedule of Sampling and Analysis

The temporary wastewater treatment plant sampling and monitoring program is required for SPDES permit compliance at the Ithaca Area Wastewater Treatment Facility, and for day-to-day control of the treatment plant.

Samples will be collected and analyzed for the following reasons:

1) To form a rational basis for controlling the treatment processes.
2) To define the operational efficiency of the plant.
3) To satisfy the discharge reporting requirements of the Sewer Use Law.

Sampling. Two flow-proportioned composite samplers will be utilized to sample influent and effluent flows. An influent sampler will provide flow-composite influent samples, measured at the Oil Water Separator. Effluent flow will be composited separately at the Effluent Storage Tank.

Table 4-5 shows the sampling plan for the wastewater treatment plant at the Court Street site. All samples will be properly preserved and sent to Severn Trent Laboratories (STL) in Buffalo, New York. STL is a fully accredited laboratory. Split samples also will be provided, should NYSDEC, the City of Ithaca, or its engineer require independent sampling.

All samples will be analyzed in accordance with the current edition of Standard Methods or other appropriate, recognized testing standard.

4.13.3 Analysis Schedule

All contaminants in Table 4-5 will be sampled according to the following schedule:

- Every other day during the first week of operations;
- Once per week for the next three weeks;
- Once every other week after four weeks of operation.

The samples will be taken at the Oil Water Separator and from the Effluent Storage Tank, and represent the minimum samples to be taken. More frequent sampling may be required during startup, or if the plant experiences a process upset.

TABLE 4-5

INFLUENT/EFFLUENT SAMPLING PLAN

Parameter	Reason For Analysis	Frequency
Flow	R	Daily/Continuous
Oil and Grease	R	4GD
Total Suspended Solids	R	CD
Volatile Organics	R	CD
Polyaromatic Hydrocarbons	R	CD
pH	R	3GD
Jar Testing (for chemical addition)	O	4GD

Reason For Analysis	Type of Sample	Frequency of Analysis
R—for Record Analysis	G—Grab	D—Daily
O—Operation and Control	C—Composite	

4.14 Waste Transportation and Disposal

The transportation of soil and/or wastewater will be accomplished by a transportation contractor in accordance with the NYSEG specification for the *Transportation of Solid and/or Liquid Materials* (see

Appendix E). All truck drivers leaving the site must have either a Hazardous Waste Manifest or a Nonhazardous Solid Waste Manifest signed by NYSEG and the driver.

Trucks transporting coal tar contaminated hazardous waste will have the entire box (to top of side boards) lined with polyethylene sheets per NYSEG's discretion. Trucks transporting non hazardous waste may be lined as previously stated. All trucks will have water tight tailgates which have a gasket between the box and tailgate.

Trucks will enter the work area from NYS Routes 13 & 34 and head east down Esty Street. Once loaded the trucks will take a left out of the site onto Esty Street and head west to NYS Routes 13 & 34.

4.15 Contingency Plan

A Contingency Plan for Activities Associated with the Ithaca Court Street Former Manufactured Gas Plant Site has been developed to address spills and temporary stop work, as described in Appendix J.

The City of Ithaca Water and Sewer Departments and NYSEG Gas Department will be notified prior to start of excavation activities. The City of Ithaca Water and Sewer Departments and NYSEG Gas Department will have workers on call and available for any repairs that may be warranted during the excavation activities. If a water main, water service line, sewer line, or gas line needs repair the construction supervisor will notify either the City of Ithaca Water and Sewer Departments or NYSEG that a line has been damaged or broken and needs to be repaired.

4.16 Site Restoration

NYSEG in conjunction with the Ithaca City School District will develop a Restoration Plan separate from the *IRM* Work Plan. The "Restoration Plan" will be located in the Ithaca Court Street former MGP site repositories. It is anticipated that the overall site restoration will include the following activities:

- All equipment and materials will be demobilized from site.

- The 6 feet high chain link fence around the site will be removed.
- All roadways, sidewalks, driveways, curbing, etc. that were damaged or removed during the construction will be replaced, as required.
- The crusher run stone in the staging area off Esty Street will be removed, transported and disposed off site.
- The staging area will be backfilled with clean soil and the site graded as required.
- A 180 ft X 180 ft, or equivalent area, asphalt parking lot will be constructed in the southwest corner of the former MGP site.
- The staging area and the remainder of the site will be covered with six inches of topsoil, fertilized, mulched and seeded as required.
- The area between the Markles Flats Building and the permanent sheet pile will be covered with an asphalt concrete sidewalk.

The design of curbing, driveway aprons and sidewalks will be per City of Ithaca specifications. Roadway design and asphalt concrete sidewalk around the Markles Flats Building will follow NYSDOT or City specifications. A detailed drawing will be available prior to final restoration.

4.17 Documentation of Site Activities

4.17.1 Daily Logbook

A designated logbook will be used to document daily on-site activities. The daily logbook will be kept in the field office until completion of the excavation portion of the project.

4.17.2 Master Sample Log

A laboratory notebook will remain in the field office to record every sample collected. The field technician will log in all samples collected and those sent to the off-site analytical laboratory. Waybill numbers will be logged at the end of each day.

4.17.3 Chain-of-Custody Record

A Chain-of-Custody (COC) form will document custody of all samples from the field to the laboratory.

4.17.4 Waybills

A waybill receipt will be obtained at the time of accepted sample shipment by Federal Express or courier and will be attached to the Master Sample Log.

4.17.5 NYSEG's Public Liability Accident Report, NYSEG's Report of Employee Injury, and NYSEG's Incident Report

The above-mentioned report forms will be used to document any accident occurring on-site during the remedial project. The sheets are attached to the HASP and will be located in the field office.

4.18 Demobilization

All equipment, materials, construction debris, and personnel will be demobilized from the site at the conclusion of the site restoration portion of the project.

4.19 Project Schedule

A Project Schedule is provided in Appendix G.

4.20 Permits

NYSDEC Waste Transporter permits (6NYCRR Part 364) will be obtained by the Transportation Contractor for the vehicles used for transportation of waste as described in Section 4.14.

NYSEG will be obtain permits from the City of Ithaca Engineering Department, to close the sidewalks around the perimeter of the site, and for lane restrictions around the Markles Flat Building.

The Remedial Contractor will obtain the necessary permit from the POTW to allow discharge of the treated wastewater from the site, as applicable.

4.21 Snow Removal Plan

The remedial construction will possibly continue throughout the winter months. Consequently, it will be necessary to remove snow from work areas and access roads. This will be accomplished with heavy equipment (e. g., front end loaders) or trucks equipped with snow plows.

The snow collected from those portions of the site where remediation equipment is operating (i.e. haul roads, staging areas) or the snow in direct contact with the site soils, will be managed as if it were contaminated. The snow from these areas will be stockpiled in a bermed area lined with polyethylene sheeting. This stockpile area will be located in the eastern portion of the site. A sump will be constructed so that the melting snow can be collected and pumped to the onsite wastewater treatment system for processing and discharge to the local POTW. Sediment generated from the melting snow will be disposed along with the excavated soils. The piles will be covered with polyethylene sheeting, as necessary, to minimize the infiltration of rainwater.

Snow collected from those portions of the site wherein no work activities are taking place and/or are still covered with asphalt paving or concrete floor slabs will be considered ‘clean’, and be managed accordingly. This snow will be placed in areas of the site that will not interfere with the proposed work activities and be allowed to melt freely. Any runoff will be directed to the applicable storm water control

structures. Silt fences and/or other erosion control methods will be employed as necessary, to minimize any erosion due to melting of the snow.

5.0 AIR-QUALITY MONITORING PLAN

5.1 Overview

The objective of this *Air-Quality Monitoring Program* (AQMP) is to provide direct measurement of volatile organic compounds and total suspended particulates (0.1 to 10 microns) which could potentially be released during excavation, handling, and transportation of MGP residues at the site. The air-quality monitoring program consists of (1) work zone air-monitoring for evaluating construction worker health and safety; and (2) community air-monitoring to determine the levels of volatile organic compounds and total suspended particulates at the perimeter of the Work Area. Real-time air monitoring and speciated real-time data will be used to guide appropriate action to reduce/minimize air emissions to acceptable levels. NYSEG has developed an Ithaca Court Street MGP Site Vapor Emission Response Plan (see Appendix I) to address any exceedances of acceptable levels.

5.2 Work Zone Air-Monitoring Program

The air quality within the work zone will be monitored to ensure worker health and safety in accordance with requirements specified in 29 CFR 1910.120 as described in the NYSEG *Health And Safety Plan For Activities Associated With Ithaca Court Street Former Manufactured Gas Plant Site***.**

5.3 Community Air-Monitoring Program

5.3.1 Overview

NYSEG will undertake a community air monitoring program (CAMP) during the project to provide direct measurement of volatile organic compounds and total suspended particulates which may be released off site during remediation work, including excavation, handling of MGP residues, grading, backfill, and demolition of on-site buildings.

This air monitoring program was established to address the following objectives:

- To insure concentrations of volatile organic compounds and total suspended particulate are minimized to protect human health and the environment.
- To provide an early warning system so engineering controls can be enacted to prevent unnecessary exposures or emissions resulting from project activities.
- To measure and document the concentrations of volatile organic compounds, speciated BTEX (benzene, toluene, ethylbenzene and xylene) and total suspended particulates for determining compliance with the established air monitoring limits.

The community air monitoring is intended to be a discrete program which will be operated in conjunction with the work zone air monitoring program. The work zone monitoring is established to protect worker health and safety during construction and materials handling. The community air monitoring will include real time air quality data that will be collected throughout the duration of all excavation activities and will include upwind, down wind and nearest receptor measurements. Wind direction will be determined using a wind sock, weather vane or equivalent device. Multiple site activities may require independent air monitoring, so perimeter air monitoring for VOC's and fugitive dust will be conducted downwind of all on-site construction activities that may generate VOC's or fugitive dust.

5.3.2 Real-Time Air Monitoring - Volatile Organic Compounds

The total VOC monitoring will be accomplished using a total volatile organic analyzer (TVA) equipped with a photo ionization detector (PID) using a 10.2 eV lamp. Each day the analyzer will be calibrated to benzene with a 10 ppm isobutylene air standard. The TVA will be capable of calculating a 15 minute running average of the measured VOC concentrations. The 15 minute averages will be used to monitor air quality and will be recorded throughout the day.

Real-Time VOC monitoring will be initiated one day prior to any excavation or soil handling activities. In addition a daily up wind measurement will be taken at the start of each work day and immediately following any changes in wind direction. These measurements will be used for establishing baseline emissions due to natural and anthropogenic sources. The baseline value will be added to the air

natural and anthropogenic sources. The baseline value will be added to the air monitoring limits to compensate for the existing ambient conditions (i.e. VOC limit of 2.5 ppm + 1.2 ppm upwind = 3.7 ppm limit).

Total VOC monitoring will operate continuously and include the downwind location for the site perimeter. The nearest receptor (regardless of its relationship to wind) will be an additional monitoring location if it is closer than the downwind site perimeter location. Readings at each location will be accomplished by pointing the intake tube of the TVA toward the likely emission source, generally at the height of 3 feet above grade. The instrument will measure concentrations continuously and calculate four 15 minute averages per hour throughout the day. Each 15 minute average will be recorded on log sheets along with the date, time, sampling location, wind direction and weather conditions. A hard copy of the data will be maintained on site. The daily data will also be submitted at the end of each day in an electronic format to Henriette Hamel, NYSDOH at hmh01@health.state.ny.us; William Ottaway, NYSDEC at wsottawa@gw.dec.state.ny.us; Steve Maybee, Tompkins County Dept. of Health (TCDOH) at smaybee@tompkins-co.org; Mayor Carolyn K. Peterson, City of Ithaca at mayor@cityofithaca.

Based on data published by OSHA (Occupational Safety and Health Administration), ACGIH (American Congress of Government Industrial Hygienists) and NIOSH (National Institute for Occupational Safety and Health), a short term air quality action level of 5 ppm for total VOCs has been established for air emissions action level at the site perimeter. If the total VOC concentration exceeds 5.0 ppm, the worker personal protective equipment will be upgraded from modified Level D to Level C which requires the use of respirators as specified in the Health and Safety Plan.

Total VOCs from the air handling/treatment system for the temporary building also will be monitored. If total VOCs are greater than 2.5 ppm the system will be adjusted as necessary to reduce VOC emissions. If actions to control total VOC emissions are not effective and concentrations at the site perimeter continue to increase to 2.5 ppm (above background), then excavation and waste handling activities will be halted and actions will be initiated as specified under the Vapor Emission Response Plan (Section 5.3.7). Concurrently a portable gas chromatograph (GC) will be used to determine speciated BTEX levels at the location of the exceedance (to insure benzene levels do not exceed 0.5 ppm).

The 2.5 ppm action level (above background) at the site perimeter is based on an estimated concentration for benzene which is one of the VOC compounds included in the TVA reading. Since the TVA detects volatile compounds other than benzene, the 2.5 ppm action level is considered to be conservative.

5.3.3 Speciated Real-Time Air Monitoring - BTEX

To supplement the real-time VOC air monitoring for the community air monitoring program, a portable gas chromatograph (GC) unit will be used to determine the concentration of the individual BTEX (benzene, toluene, ethylbenzene and xylenes) compounds. The GC instrument will be a Perkin-Elmer Photovac Voyager™. The Voyager™ equipped with a PID detector can accurately determine the BTEX compounds with detection limits in the low ppb (parts per billion) range. The purpose in generating this data will be twofold: (1) to supplement the real time VOC readings, aiding in critical path decisions to be made for the Vapor Emission Response Plan (Section 5.3.7) and the Major Vapor Emission Response Plan (Section 5.3.8); and (2) to monitor emissions of BTEX to the surrounding community during construction activities.

The Voyager™ will be calibrated daily using gas standards containing BTEX compounds. Calibration checks will be conducted twice daily (a.m./p.m.) with a verification gas standard containing the BTEX target analytes. Calibration drift of greater than +/-15% will require recalibration of the instrument. Samples will be collected in a tedlar bag over a 30 minute period and analyzed by the GC.

Two site perimeter monitoring stations, one upwind and one downwind, will be established based on meteorological information and will be designated as GCS-UP (Gas Chromatograph Station Upwind) and GCS-DN (Gas Chromatograph Station Downwind), respectively. One sample will be collected and analyzed at each station according to the following schedule:

- once every two hours during excavation of MGP contaminated soil and debris, commencing at the start of the work day continuing until excavation activities have ceased
- as warranted by the Vapor Emission Response Plan (Section 5.3.7)

The results of this sampling and analysis will be data logged into the Voyager™ memory and downloaded on a daily basis into a laptop PC (personal computer). The raw data will be reviewed weekly by

personnel knowledgeable in gas chromatography. The results will be provided to the NYSDOH and TCDOH as soon as possible during instances when the total VOC action level is exceeded (See section 5.3.7) or an odor complaint is lodged by a community member. In absence of such instances, these data will be provided to NYSDOH, TCDOH and NYSDEC on a weekly basis or upon request. Sample results will be compared to the short term guidance (SGC) values as published in Air-Guide-1 (See Table 5-1).

TABLE 5-1

AIR GUIDE-1 SHORT TERM GUIDANCE (SGC) CONCENTRATIONS

Contaminant	SGC (µg/m3)	SGC (ppm)
Benzene	30	0.009
Toluene	89,000	24
Ethylbenzene	100,000	23
Xylenes	100,000	23

5.3.4 Odor Monitoring Plan

The nature of the MGP residues pose a concern regarding the generation of nuisance odors during excavation and material handling. Consequently, all excavation and material handling will be performed inside the temporary building, except for any spot excavations for wells and subsurface obstructions adjacent to the Markles Flats Building. Additionally, an odor control and monitoring plan has been developed for the site. For an odor complaint residents may speak with the NYSEG's on-site construction supervisor or the NYSDEC's on-site representative. To register an odor complaint to NYSEG residents may call 1-800-572-1111 during normal business hours and 1-800-572-1121 after normal business hours. Calls during business hours will be answered by a customer service representative (CSR) at the NYSEG Call Center and calls after hours will be answered by an answering service individual. In either case, project team members will be contacted. Project team members will record the callers concern and contact the site construction supervisor or project manager, who will assess the reason for concern and apply the appropriate engineering controls.

A project fact sheet will be distributed to adjacent property owners explaining the remediation work to occur at the site, the potential for odors and how the phone system works. This will be distributed prior to

beginning any excavation work. Additionally, door to door contacts of persons living and working immediately adjacent to the active site will be made regarding planned work activities.

If significant odor is detected by the site personnel in areas outside the temporary building or a complaint is received, engineering controls will be implemented as outlined in the Vapor Emission Response Plan (Section 5.3.7) to reduce odor causing emissions. Once odors become non-discernable, normal operations may resume. This determination will be subject to the approval of the on-site NYSDEC representative.

5.3.5 Real-Time Air Monitoring - Total Suspended Particulates

NYSDEC TAGM 4031 will be considered as an applicable guidance document for this work.

In conjunction with the real-time volatile emission monitoring, direct-reading monitoring equipment for particulate matter will be used to collect real-time airborne particulate data on an every 15 minutes basis at the site perimeter. The instrument to be used for this sampling is a *personal* DataRam™ which operates on the principle of light scattering. The *personal* DataRam™ responds to particles in the size range of 0.1 to 10 micrometers and in the concentration range of 0.01 to 400 mg/m^3. Particulate measurements will be based on a 30-second, time-weighted average. The *personal* DataRam™ will be calibrated daily with a filtered air sample. Recorded measurements at the upwind and downwind site perimeter monitoring locations will be logged by the technician every 15 minutes. Equivalent backup real-time air monitoring equipment will be available on-site in the event of an equipment malfunction.

A New York State recommended action level of 0.15 mg/m^3 for particulate matter (above background) will be used to determine whether modifications to given processes are required. If the action level is exceeded, monitoring of the upwind background level will commence immediately using the same portable monitor. If the site particulate measurement is greater than 0.15 mg/m^3 above the upwind background level, the source of the dust (i.e. emissions from the temporary building or subsurface soils outside the building) will be identified. Dust suppression techniques (i.e., misting surfaces with water or covering open piles) will be implemented, as applicable, to reduce the generation of fugitive dust. If the action level of 0.15 mg/m^3 (above background) is exceeded at the site perimeter, the NYSEG project manager and NYSDEC on-site representative will be notified. The NYSEG project manager will notify the Division of

Air Resources in writing within five working days (NYSDEC TAGM 4031: Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 1989).

As described in TAGM 4031, visual observation of unacceptable dust levels may be necessary and employed, thereby requiring dust suppression techniques. Stabilization activities with lime or lime kiln dust have a high dusting potential and are relevant in this regard.

5.3.6 Documentation for Air Quality Monitoring

An essential part of any sampling/analytical scheme is ensuring the integrity of the sample from collection to data reporting. Sample integrity includes the possession and handling of a sample that is traceable from the time of collection, through analysis and final disposition.

Sample Labels: Unique sample identification codes will be assigned at the time of collection to prevent misidentification of samples. The identification codes will include the following information:

- project/name/number;
- sample location;
- date of collection;
- time of collection;
- initials of sampler;
- analytical method.

Field Log Book: All information pertinent to sampling will be recorded in a log book. It is imperative that sufficient information be recorded so that the sampling event can be reconstructed without reliance on the collector's memory. Information will be entered into a bound notebook and as a minimum entries will include the following:

- location of sampling point;

- location of sampling point;
- sample identification code;
- sample collection date and time;
- sample methodology;
- sample analysis;
- collector's initials;
- field observations, if any; and
- field measurements, if any.

Dedicated field log books will be maintained on site to document the daily calibration of the real-time and speciated real-time air monitoring equipment.

5.3.7 Vapor Emission Response Plan

The Ithaca Court Street MGP Site Vapor Emission Response Plan (see Appendix I) will be triggered by an exceedance of the 15 minute average VOC concentration of 2.5 ppm (above background) at the site perimeter or a benzene concentration of 0.5 ppm as measured at the site perimeter with the portable GC. If the Vapor Emission Response Plan is triggered all excavation activities will be stopped and the following actions will be taken:

- Continue total VOC monitoring of emissions from the air handling/treatment system and at the site perimeter. If the total VOC level drops below 2.5 ppm (above background) at both locations, then excavation activities can resume. However if the VOC levels at either location persist above 2.5 ppm, based on continual observance of the meter, then the construction supervisor will immediately check the operation of the air handling/treatment system and adjust flow rates or change the carbon as necessary. Additionally, the Construction Supervisor may implement engineering controls such as misting the excavation area with BioSolve®, covering, back filling

- etc. required to reduce emissions and at the same time notify the site Project Manager and the Project Health & Safety Coordinator (PHSC).

- If the total VOC levels at the air handling/treatment system and the site perimeter drop below 2.5 ppm (above background) after the implementation of additional engineering controls, then the excavation activity can resume provided process and work activities were adjusted to reduce emission levels. If work stoppage was due to a high benzene level (greater than 0.5 ppm) at the site perimeter, then work will not resume until the benzene level is documented to be less than 0.5 ppm at the site perimeter.

- If the total VOC levels continue to be greater than 2.5 ppm (above background) at the site perimeter then all site activities must be discontinued. If, after cessation of activities, the total VOCs continue to be greater than 2.5 ppm (above background) but less than 2.5 ppm at the site perimeter, activities can resume provided the total VOCs and benzene levels 200 feet downwind of site perimeter or half the distance to the nearest residential or commercial structure are 2.5 ppm and 0.5 ppm, respectively as specified in the Major Vapor Emission Response Plan (Section 5.3.8).

Primary engineering controls which may be implemented to reduce emission levels include:

- Adding surfactant such as BioSolve® (Appendix K) to impacted media (application in excavated areas will be a light mist as to avoid increasing solubility of wastes leading to increased groundwater contamination)

- Limiting excavation size and the surface area of exposed contaminated soil.

- Covering contaminated soils with polyethylene sheeting.

- Adding additional carbon canisters into the system to treat effluent air from the temporary building .

If efforts to abate the emission source are unsuccessful and total VOCs greater than 5.0 ppm or benzene greater than 0.5 ppm persist for more than 30 minutes in the 20 foot zone, then the Major Vapor Emission Response Plan shall automatically be placed in effect. Also, the Major Vapor Emission Response Plan shall be immediately placed into effect if the 20-foot total VOCs or benzene levels are greater than 5.0 ppm or 0.5 ppm, respectively, above background. Upon activation of the Major Vapor Emission Response Plan, the following activities will be undertaken:

- Cover the excavated area with polyethylene sheeting or clean soil
- Notify Steve Maybee with the Tompkins County Health Department at (607) 274-6688, City of Ithaca Police Bureau at (607) 272-3245, William Ottaway with the NYSDEC at (518) 402-9662 and Henriette Hamel of NYSDOH at (315) 477-8163.
- Total VOC and benzene levels will be monitored at 15 minute intervals within the 20-foot zone at the nearest downwind residential or commercial structure and at the site perimeter.
- If total VOC levels persist above 5.0 ppm (above background) within the 20-foot zone, the construction supervisor, PHSC and NYSEG project manager will consult with each other and the Emergency Response agencies to determine the appropriate actions to be implemented. NYSEG project management personnel have ultimate authority during major vapor emission emergencies. The NYSDEC must approve any action to continue work following such a shut down.
- If total VOCs and benzene levels in two successive readings fall below action levels, air monitoring may be halted or modified by PHSC and work activities resumed.

6.0 SAMPLING AND ANALYSIS PLAN

This *Sampling and Analysis Plan (SAP)* has been developed to describe the objectives and procedures for the sampling and analyses of MGP residues, soil, and wastewater that will be produced during this project. In addition, the NYSEG *Ithaca Court Street MGP Site Quality Assurance Project Plan* (QAPP, Appendix D) and NYSEG's *Pre-Remediation In-Situ Sampling and Analysis Work Plan, Ithaca Court Street Former MGP Site* (Appendix A) should be consulted where specific sampling and analysis procedures and methods are referenced.

The environmental media to be sampled during the project, and the purpose for collecting and analyzing environmental samples, includes the following:

TABLE 6-1

ENVIRONMENTAL SAMPLING MEDIA AND OBJECTIVES

Sampling Media	Sampling Objective
Soil:	
- Waste Characterization Samples	To characterize soil for proper waste disposal
- Confirmation Samples	To document residual soil quality after completion of remedial excavation
Wastewater:	To characterize wastewater to be transported and disposed of at a permitted facility or discharged to local POTW.

Because of the importance of air monitoring to worker and community health and safety, it has been described in detail as a separate section of this *Work Plan* (*Air Quality Monitoring Plan*, Section 5.0).

The following sections of this *SAP* provide specific information regarding the rationale and methods for sampling and analyzing MGP residues, soil, and wastewater.

6.1 Quality Assurance/Quality Control (QA/QC) *Requirements/Data Quality Objectives*

QA/QC requirements are specified throughout the *QAPP*, (Appendix D). Data quality objectives are also delineated in the *QAPP* (Appendix D, Section 2).

6.2 Soil Sampling and Analyses Plan

6.2.1 Soil Sampling Field Protocols

6.2.1.1 Soil Sampling Field Procedures

Samples will be placed into the appropriate containers specified in the QAPP (Appendix D) using decontaminated stainless steel trowels or spoons. Organic debris (i.e., leaves, twigs, bark) along with large pieces of gravel will be avoided. Sampling containers will be filled completely to avoid creating a head space where volatiles may escape. After each jar is filled, the threads will be wiped clean so the cap can be threaded on without creating an air gap.

All filled jars will be labeled with the following information as a minimum:

- Project Number;
- Sampling Time and Date;
- Sample Number;
- Sample Location;
- Analysis; and
- Collector's Initials.

The location, depth of sample, sample type, time of sample, and other associated data (i.e., color of the soil, odors, texture, etc.) will be documented in the field notebook when the sample is taken. Once all the

soil samples are collected, the samples will be maintained at 4°C until the samples are delivered off site for analyses.

All used sampling devices will be kept together, separate from clean tools, so that they can be cleaned according to appropriate decontamination and cleaning procedures as specified in the QAPP. In no event will a sampling device be used without full cleaning between samples.

6.2.1.2 Soil Sampling Field Equipment List

The following items constitute a minimum listing of required field equipment for collecting soil samples.

- chemical resistant boots, latex gloves, chemical resistant gloves and the appropriate level of personal protection for working conditions as described in Section 4.2 of the *Health and Safety Plan for Activities at the Ithaca Court Street Former MGP Site*;
- sample containers: glass jars with Teflon-lined caps;
- Teflon-coated or stainless steel sample spoons and bowls;
- wooden stakes and spray paint (highly visible);
- field notebook;
- sample bottle labels; water resistant tape;
- ice cooler for sample storage; and
- chain-of-custody forms.

6.2.2 Confirmation Soil Sampling and Analysis Plan

6.2.2.1 Sampling Plan Rationale

A confirmation soil sampling and analyses plan will be implemented to determine the concentration of compounds remaining on the site following excavation. These data will be used to document that the cleanup objectives were achieved.

6.2.2.2 Laboratory Analytical Protocols

Confirmation soil samples will be analyzed for total polycyclic aromatic hydrocarbons (PAHs) using EPA Laboratory method 8270. Samples collected to verify conformance with the cleanup objectives will be subject to NYSDEC ASP (Analytical Services Protocol) Category B deliverables. Target compound list (TCL) volatile and semi-volatile compounds for post remediation confirmatory samples will be determined at a minimum rate of 1 per every group of 10 confirmatory samples or portion thereof.

The laboratory chosen for the project will be certified, and maintain certification, under the NYSDOH ELAP and NYSDOH ELAP CLP for analyses of solid and hazardous waste. Only analytical laboratories that have experience in MGP projects or similar projects will be used. NYSEG will provide a list of laboratories for NYSDEC review and acceptance.

6.2.2.3 Soil Sampling Protocol

In the excavated areas, confirmatory samples will be obtained only from the bottom of the excavation. In addition, confirmation samples will be obtained to document areas of coal tar contamination observed. All confirmation sample locations will be documented by GPS receiver or other suitable method should the temporary enclosure preclude effective use of the GPS method.

Discrete post-excavation soil samples will be collected from the bottom of the excavation at the rate of one sample for every 30-feet by 30-feet area (900 ft^2).

permit a coarser sampling grid if approved by NYSDEC and if efficiency of record keeping is not compromised by the varying grid size.

A sample representing the first 3 to 6 inches of soil encountered will be taken from each sampling point. This means that in the case of a bottom sample, the first 3 inches of a sample point in the excavation floor will be discarded and the remaining soil at that point, to a vertical depth of approximately 6 inches, will be collected. The first 3 inches are discarded to avoid collecting soil sample at the surface of the excavation because volatile compounds at the excavation surface may have been released. Discarding the first 3 inches of soil will help to ensure that a sample representing the volatile compounds present in the excavation are more accurately profiled. The sample will be representative of the area soil based upon visual and olfactory observations and PID readings.

Confirmation samples obtained from excavations extending beyond 4 feet below grade may be collected via a stainless steel remote sampler or a hydraulically-activated sampling device. A drawing depicting confirmation sample locations along with information concerning sample identifications, depth below original ground surface, and dates of collection will be maintained by the field sampling technician throughout the project.

6.2.3 Pre-remediation In Situ Sampling and Analysis Work Plan for Waste Characterization/Site Characterization

6.2.3.1 Pre-remediation In Situ Sampling Rationale

(See Pre-Remediation In Situ Sampling and Analysis Work Plan for the Ithaca Court Street MGP Site, Appendix A, "Introduction".)

6.2.3.2 Laboratory Analytical Protocols

(See Pre-Remediation In Situ Sampling and Analysis Work Plan for the Ithaca Court Street MGP Site, Appendix A, "Analytical Protocol".)

6.2.3.3 Soil Sampling Protocol

(See Pre-Remediation In Situ Sampling and Analysis Work Plan for the Ithaca Court Street MGP Site, Appendix A, "Sampling Protocol".)

6.3 Wastewater Sampling and Analyses Plan

6.3.1 Sampling Plan Rationale

Wastewater resulting from dewatering of the excavation and decontamination of equipment will be generated during the project. This wastewater will be transferred to a holding tank that will be positioned in the staging area. The wastewater will be processed through the onsite wastewater treatment system as described in Section 4.13.1. A sampling and analysis plan will be implemented to properly characterize the treated wastewater for disposal at a local Public Owned Treatment Works (POTW) or an alternate disposal facility permitted to accept it.

If the results of analysis meet the limits specified by the POTW, the wastewater will be transferred into tank trucks for transport to the POTW or be discharged into a sanitary sewer. If the wastewater is identified as material that exceeds local POTW specifications, then an alternate permitted disposal facility will be used or the wastewater will be treated onsite until it meets the POTW criteria.

6.3.2 Laboratory Analytical Protocols

Analytical requirements will be determined by a POTW or facility permitted to accept wastewater.

6.3.3 Wastewater Sampling Protocol

As the tank nears its capacity, a sample will be collected and analyzed for parameters specified by a local POTW (or an alternate facility permitted to accept the wastewater).

6.3.4 Wastewater Field Sampling Procedures

Wastewater (treated/untreated) will be sampled directly from each filled tank prior to shipment off-site. Nitrile gloves will be worn to protect the sampling person and to avoid cross contamination through handling. Wastewater will be sampled by lowering a stainless steel or disposable polyethylene bailer into the tank using a polyethylene cord. The sample contents will be immediately transferred into the appropriate sized container for each analysis as specified in the *QAPP* (Appendix D). Vials for volatile analyses will be filled completely so as to avoid creating a head space where volatiles may escape, and must be checked to ensure that no air gap or bubbles are present.

All filled jars must be labeled with the following information as a minimum:

- Project Number;
- Sampling Time and Date;
- Sample Number;
- Analysis; and
- Collector's Initials.

The sample chain-of-custody form will then be immediately filled out and kept with the sample. The sample will be maintained at 4°C until delivered to the off-site analytical laboratory.

6.3.5 Wastewater Sampling Field Equipment List:

The following items constitute a minimum listing of required field equipment for collecting wastewater samples.

- chemical resistant gloves and appropriate level of personal protection for working conditions as described in Section 4.2 of the *Health and Safety Plan for Activities at the Ithaca Court Street Former MGP Site*;

- sample containers - two 40-ml VOA vials; two one-liter amber containers; two plastic 500-ml acid-washed containers;
- stainless steel or disposable polyethylene bailer;
- field notebook;
- sample bottle labels; and
- chain-of-custody forms.

7.0 VIBRATION MONITORING PLAN

7.1 Overview

The objective of the *Vibration Monitoring Plan* is to monitor ground vibrations in the vicinity of the construction work to minimize potential adverse affects on buildings (e.g., Markles Flats building) and structures in areas surrounding the site that may result from the construction activities. Also the Markles Flats Building will be monitored for settlement, both during construction and long term.

7.2 Vibration Monitoring Program

The intensity of ground vibrations resulting from sheet pile driving and other construction activities will be monitored.

7.3 Equipment

BlastMate Series III vibration monitoring equipment manufactured by Instantel, Inc. or equivalent, shall be used for the vibration monitoring.

- Seismic range: 0.01 to 8 inches per second with an accuracy of 5% and no more than a 3dB roll off at the low frequency end.
- Flat frequency response: 2 to 200 Hz.
- Three component sensor.
- Two power sources: Internal rechargeable battery and charger and 115 volts AC. Battery shall be capable of supplying power to monitor vibrations continuously for a minimum of 1 week.
- Sufficient memory to allow vibration data to be collected continuously for a minimum of 12 hours before downloading.

- Capable of internal dynamic calibration.

- Direct writing to printer and electronic storage media. Instruments shall be capable of producing strip chart recordings of readings on site within 1 hour of obtaining the readings. Provide computer software to perform frequency analyses of data obtained on electronic storage media.

- Continuous monitoring mode shall be capable of recording peak velocities.

7.4 Vibration Monitoring

7.4.1 Areas to be Monitored

Monitoring will be conducted in those areas within 100 feet of the site perimeter that contain historical, residential and/or commercial buildings that were included in the Pre-Remediation Conditions Survey.

7.4.2 Vibration Monitoring Activities

Vibration monitoring will be conducted during any sheet piling or other heavy or intrusive construction activities completed within 200 feet of any of the structures to be monitored.

The vibration monitors will be installed on the Markles Flats building and in the grassed area between the street and the sidewalk on the opposite side of the street from the pile driving operations. The monitor will be operated continuously during any sheetpiling installation. Recording will be initiated 15 minutes prior to the start of any sheetpiling installation and continue till 15 minutes after driving operations have ceased for the day.

Data from the vibration monitoring equipment will be downloaded at the end of each day. The monitoring equipment will have sufficient memory to record data on a continuous basis and sufficient battery life to operate for 12 hours without battery replacement or recharging.

7.4.3 Action Levels

A maximum vibration limit of 0.5 inch per second peak particle velocity is suggested for sensitive structures such as those where:

- The foundation type is unknown,
- The foundations are known to be wood piles but the condition is poor or unknown, or
- The foundations or foundation walls are in poor condition.
- Markles Flats Building

For structures with reinforced concrete foundation walls and steel or concrete foundations structurally connected to the walls, it is suggested that a maximum vibration limit of 1.0 inch per second be used.

7.4.4 Actions to be Taken

If the action levels are exceeded, the following actions will be taken:

- Pile driving activities will be halted temporarily. A portable vibration monitor will be installed directly on the affected structure and pile driving resumed. If vibration levels remain below the maximum vibration limit then pile driving operations will be continued.
- If vibration levels exceed the maximum vibration limit then modifications to the pile driving procedures and/or equipment will be implemented until the vibration levels are at or below the acceptable range. (Modifications may include changing the frequency of the vibratory hammer, replacing the driving cushion, using a different vibratory hammer, etc.)

7.5 Settlement Monitoring

In addition to the vibration monitoring described above, the Markles Flats Building will be monitored for vertical movement. The building will be equipped with permanent survey markers or settlement gauges

referenced to fixed benchmarks that will not be affected by construction activities. There will be a minimum of 12 survey markers affixed to the building exterior – 4 on each of the two long sides and 2 on each of the two short sides, equally spaced. At least 2 fixed reference benchmark locations will be established, one benchmark per location.

At a minimum, survey measurements of each survey marker on the Markles Flats Building will be recorded at least twice daily during the following construction activities:

- When AZ-18 pile driving and groundwater collection and NAPL well construction operations occur for the permanent Markles Flats remediation system.
- When the AZ-48 sheet pile is installed along the north and east side of the Markles Flats Building.
- When the excavation, bracing and backfill operations occur between the AZ-18 and AZ-48 sheet pile on the north and east sides of the Markles Flats Building.
- When vibration monitoring indicates that maximum vibration limits on the Markles Flats Building are achieved.

Movement of the building will be maintained within the tolerable threshold values, as measured vertically from the fixed reference benchmarks. The tolerable threshold value will be limited to 1/8 inch.

If the tolerable threshold value is reached then the causal construction activitie(s) will be halted temporarily and the cause(s) will be identified. If the tolerable threshold value is exceeded by 100 percent, then a survey of the interior and exterior of the Markles Flats Building will be performed by an independent firm such as for the pre-remediation survey. In the mean time, modifications to the construction operation(s) will be implemented to prevent further movement. Modifications can include those described above in section 7.4.4 for pile driving modifications due to vibratory issues, pilot trenching or water jetting during pile driving, cessation of dewatering around the Markles Flats building, providing additional bracing for sheet pile, altering the excavation sequence or method, or any other remedy relevant to the identified problem.

Long Term Monitoring

The survey markers or settlement gauges will be monitored after construction is complete to determine if groundwater extraction has caused building movement beyond tolerable threshold values. Monitoring will be conducted once quarterly and include visual inspection of the building exterior and of existing cracks inside and outside the building. The tolerable threshold value will be limited to ¼ inch total settlement and ⅛ inch differential settlement. If the threshold value of total or differential settlement occurs then a building condition survey will be performed. The results of the condition survey may dictate no action, if a remedy is required, or if increased frequency in monitoring is required. For example, a condition survey might show unacceptable cracking of block walls or foundation. Potential remedies can include installing additional groundwater extraction wells or a horizontal well under the building, to create a more uniform groundwater drawdown under the building footprint. Another remedy may include underpinning the building. Correspondingly, the groundwater extraction system might be intentionally shut down to level the groundwater table while a plan of course is established.

8.0 NOISE MONITORING

- Community – Site remedial and construction work will conform to applicable community noise regulations, in particular, Town of Ithaca Noise Ordinance, Chapter 184: Noise.

- Occupational – All contractors working on the site, will be advised by the site manager of the need to supply appropriate hearing protection to their workers.

APPENDIX A

PRE-REMEDIATION IN SITU

SAMPLING & ANALYSIS

NYSEG

REMEDIAL DESIGN

PRE-REMEDIATION
IN SITU SAMPLING AND ANALYSIS WORK PLAN

FOR

REMEDIATION OF THE ITHACA WEST COURT STREET
FORMER MANUFACTURED GAS PLANT SITE

City of Ithaca, Tompkins County, New York

Prepared By:

URS Corporation – New York
77 Goodell Street
Buffalo, New York 14203

Prepared For:

NEW YORK STATE ELECTRIC & GAS CORPORATION
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1.0 INTRODUCTION

New York State Electric and Gas Corporation (NYSEG) is preparing to implement a Remedial Design Work Plan (Work Plan) involving the excavation, removal and disposal of tarry waste, fill, and soil (material) at NYSEG's Ithaca Court Street Former Manufactured Gas Plant (MGP) Site, City of Ithaca, Tompkins County, New York. This pre-remediation sampling plan describes the sampling and analysis protocol that will be utilized to provide waste characterization data for materials generated during site remediation and to provide geologic data to assist in design of the sheetpiling system.

The in situ sampling program will utilize a Geoprobe® to characterize approximately 50,000 cubic yards of material. Analytical tests will be performed on the samples to characterize the material and insure proper treatment or disposal.

NYSEG or its contractor will conduct the sampling of the in-place material. A drilling contractor will be hired to provide Geoprobe® sampling of the material to be excavated during the site remediation. All composited samples will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified analytical laboratory utilizing the methods and procedures specified to determine if the material meets the definition of a Resource Conservation and Recovery Act (RCRA) hazardous waste and to determine if the material contains polycyclic aromatic hydrocarbons (PAHs) above established levels. All sampling and analysis will be performed in accordance with the Quality Assurance Project Plan (QAPP) (Appendix D). Data will be submitted to the New York State Department of Environmental Conservation (NYSDEC) and the disposal facility for review and approval prior to final disposition of the material.

The approved Ithaca Court Street Health and Safety (H&S) Plan will be used during the pre-remediation sampling event. The H&S Plan provides emergency response procedures and appropriate levels of personal protective equipment (PPE) required for this operation. The minimal amount of materials that potentially will be exposed during the sampling operation will not require any additional health and safety requirements than already enumerated in the H&S Plan.

All material obtained during the sampling operation will be containerized and managed in accordance with criteria in Section 3.0. Precautions will be taken to prevent the contamination of the surface soil with any subsurface materials. Plastic sheeting will be used to minimize the risk of cross contamination and all subsurface materials will be immediately containerized for laboratory analysis.

2.0 SAMPLING PROTOCOL

The area targeted for remedial excavation includes all of the former Ithaca West Court Street MGP site. The site, which is approximately 270 feet X 330 feet in size, has been divided into nine areas measuring approximately 90 feet by 110 feet each with each area having five core samples. Each area represents approximately 5,500 cubic yards of material to be excavated. The sample locations as described for each area are depicted on Figure 3. Physical obstructions such as building foundations and underground services will result in adjustment of some of the boring locations. Care will be taken to insure the sampling is representative of the area and relocations remain in close proximity of the original site.

Sampling locations around the perimeter of the site will be located within 15 feet, or less, of the inside edge of the sidewalk. These borings are intended to provide soil samples for waste characterization as well as data on the geologic conditions in the 15 foot wide zone between the perimeter sheetpiling wall and the interior brace wall. Particular attention will be given to identifying any potential obstructions and to determining the required depth of excavation in this zone.

The material samples will be two-inch macrocore samples obtained using a Geoprobe® sampling system. Three material samples will be collected from each boring location: a material sample from the 0- to 4-foot interval, a material sample from the 4- to 8-foot interval, and a material sample from the interval below 8 feet to the top of the silty clay (estimated to be 15 feet). Each macrocore will be cut open and screened for volatile organic vapors with a total vapor analyzer (TVA). A discrete material sample for volatile organic compounds (VOC) analysis will be collected from the section of the sampling interval with the highest volatile organic vapor concentration, as measured with the TVA, and/or distinct coal tar odor or discoloration. Samples with visible coal tar will be noted, but not analyzed. The remaining material from each interval will be placed in a large stainless steel collection vessel and thoroughly mixed. A representative sample of the homogeneous material samples will be collected. Since the designated sampling locations will undergo remedial excavation, sand and bentonite pellets will be used to seal the Geoprobe® holes. Any excess soils will be containerized.

3.0 WASTE CHARACTERIZATION

3.1 Material in the Interval from 0 to 8 Feet

The material in the interval from 0 to 8 feet will be excavated and transported offsite for disposal in a permitted facility if it exceeds the individual recommended soil cleanup objectives listed in NYSDEC Technical and Administrative Guidance Memorandum HWR-94-4046 (TAGM 4046) Determination of Soil Cleanup Objectives and Cleanup Levels. This material consists of asphalt paving, concrete foundations/slabs and soil/fill. In order to determine the potential need for offsite disposal, the soil/fill materials will be sampled and analyzed. The 90 material samples collected from the 0 to 8 foot interval represent approximately 26,400 cubic yards or 46,200 tons of material. Each core sample represents approximately 295 cubic yards or 515 tons of material. Each material sample will be submitted to the laboratory for determination of the individual and total PAH compounds shown in the List B Analytes as specified in the Analytical Protocol section (below). If the total PAH concentration is greater than 500 ppm, then the sample will be analyzed for determination of List A Analytes as specified in the Analytical protocol section (below).

3.2 Material in the Interval from 8 Feet to the top of the Silty Clay

The material in interval from eight feet to the top of the silty clay will be excavated and transported offsite for disposal in a permitted facility if total PAHs exceed 500 parts per million. The 45 material samples collected from eight feet to the top of the silty clay represent approximately 23,100 cubic yards or 40,425 tons of material. Each core sample represents approximately 515 cubic yards or 900 tons of material. Each material sample will be submitted to the laboratory for determination of List B Analytes as specified in the Analytical Protocol section (below). If the total PAH concentration is greater than 500 ppm, then the sample will be analyzed for determination of List A Analytes as specified in the Analytical protocol section (below).

4.0 AIR QUALITY MONITORING

The air monitoring program will provide a direct measurement of VOCs that are released during the in situ sampling process. The site area or exclusion zone is confined to the area within the Ithaca Court Street MGP site. Real time air monitoring of volatile organic vapors will commence at the start of each workday and will continue until daily activities have ceased. The real time data generated will allow an assessment of the impact of the sampling activities on air quality.

Real time monitoring will be accomplished using a TVA, which will be calibrated daily to benzene with a 10 ppm isobutylene standard. The PID will be capable of calculating 15 minute running average concentrations. Monitoring will be undertaken at the downwind location of the work area while macrocore samples are being collected. Upwind concentrations will be measured at the start of each work day and following a change in wind direction.

Sampling will be accomplished by pointing the intake tube of the PID toward the emission source, generally two feet above the Geoprobe® borehole. After 15 minutes has elapsed, the calculated running average concentration of volatile organic vapors in air will be measured and recorded on data sheets along with the time, Geoprobe® location, wind direction and weather conditions.

Based on data published by the Occupational Safety and Health Administration (OSHA), the American Congress of Government Industrial Hygienists (ACGIH), and the National Institute for Occupational Safety and Health (NIOSH), short term air quality action levels have been established for air emissions control at the site perimeter. An action level for total volatiles at the site perimeter has been established at 5.0 ppm above background. If this action level is exceeded, all Geoprobe® activities will cease with all potential sources of emissions to be contained. If odors are detected in the nearby community, despite the fact that the total volatiles are below the 5 ppm action level, actions will be taken to minimize or eliminate the odors.

An action level of 5.0 ppm above background will be used at the work area, in accordance with OSHA short term exposure limits (STEL) for benzene to ensure worker health and safety (29 CFR

1910.1028). If the total volatile concentration exceeds 5.0 ppm, worker PPE will be upgraded from Modified Level D to Level C as specified in the H&S Plan.

5.0 ANALYTICAL PROTOCOL

(Refer to the attached QAPP for specific methods where not given)

5.1 List A Analytes:

TCLP VOCs, TCLP SVOCs, TCLP Metals,
TCLP Pesticides/Herbicides, Reactive Cyanide,
Total Cyanide, Reactive Sulfide, Corrosivity
Ignitability, PCBs, Percent Solids, Percent Sulfur
Total Cyanide, TPH (DRO)

TABLE 1

TCLP ANALYTES AND LIMITS

TCLP Analyte	Regulatory Limit (mg/L) 6 NYCRR Part 371
Arsenic	5.0
Barium	100.0
Benzene	0.5
Cadmium	1.0
Carbon Tetrachloride	0.5
Chlordane	0.03
Chlorobenzene	100.0
Chloroform	6.0
Chromium	5.0
Cresols (total of o, m, p)	200.0
2,4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1.1-Dichloroethylene	0.7
2,4-Dinitrotoluene	0.13
Endrin	0.002
Heptachlor Epoxide	0.008
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Lead	5.0
Lindane	0.4
Mercury	0.2

TCLP Analyte	Regulatory Limit (mg/L) 6 NYCRR Part 371
Methoxychlor	10.0
Methyl ethyl ketone	200.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
Selenium	1.0
Silver	5.0
Silvex (2, 4, 5 – TP)	1.0
Tetrachloroethylene	0.7
Toxaphene	0.5
Trichloroethylene	0.5
2,4,5-Trichorophenol	400.0
2,4,5-Trichlorophenol	2.0
Vinyl chloride	0.2

TABLE 2

RCRA CHARACTERISTICS

Analysis	Regulatory Limit 40 CFR 261, Subpart C
Ignitability	$\leq 60^{o}$ C
Corrosivity	<2 or >12.5
Reactive Cyanide	≥250 mg/kg
Reactive Sulfide	≥500 mg/kg

TABLE 3

NYSDEC WASTE CHARACTERISTICS

Analyte	Regulatory Limit 6 NYCRR Part 371.4(e)
PCBs (Total)	50 mg/kg

TABLE 4

LDR ANALYTICAL REQUIREMENTS

Analysis	Analytical Method
Percent Solids	
Percent Sulfur	ASTM S129-64
Total Cyanide	Method 9012
TPH (DRO)*	Method 8015 B

* Total Petroleum Hydrocarbons, Diesel Range Organics

5.2 List B Analytes:

Total PAHs

TABLE 5

TOTAL POLYCYCLIC AROMATIC HYDROCARBONS

Compound	TAGM 4046 Objective
Acenapthene	50 mg/kg
Acenaphthylene	41 mg/kg
Anthracene	50 mg/kg
Benzo(a)anthracene	0.224 mg/kg
Benzo(a)pyrene	0.061 mg/kg
Benzo(b)fluoranthene	1.1 mg/kg
Benzo(e)pyrene	*
Benzo(k)fluoranthene	1.1 mg/kg
Benzo(g,h,I)perylene	50 mg/kg
Benzo(j)fluoranthene	*
Chrysene	0.4 mg/kg
Dibenzo(a,h)anthracene	0.014 mg/kg
Fluoanthene	50 mg/kg
Fluorene	50 mg/kg
Indeno(1,2,3-cd)pyrene	3.2 mg/kg
Phenanthrene	50 mg/kg
Pyrene	50 mg/kg

* No cleanup objective established by TAGM 4046

APPENDIX B

CITIZEN PARTICIPATION PLAN

(CPP)

NYSEG

REMEDIAL DESIGN
CITIZEN PARTICIPATION PLAN

FOR

REMEDIATION OF THE ITHACA WEST COURT STREET
FORMER MANUFACTURED GAS PLANT SITE

City of Ithaca, Tompkins County, New York

Prepared By:

URS Corporation – New York
77 Goodell Street
Buffalo, New York 14203

Prepared For:

NEW YORK STATE ELECTRIC & GAS CORPORATION
James A. Carrigg Center, 18 Link Drive

JUNE 2007

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Section

ATTACHMENTS

1.0 INTRODUCTION

This Citizen Participation Plan *(CPP*) details the citizen participation activities that will be implemented for the planned remediation of the Ithaca Court Street former manufactured gas plant (MGP) site.

A *Remedial Design Work Plan For Remediation of the Ithaca Court Street Former Manufactured Gas Plant Site* has been developed. The proposed remedial measures will involve excavation, removal and disposal of the coal tar contaminated soils and subgrade structures associated with the Ithaca Court Street MGP site located in the City of Ithaca, Tompkins County, New York, as shown on Figure 1. The *Work Plan* will be conducted according to the requirements of an Order on Consent between NYSEG and the New York State Department of Environmental Conservation (NYSDEC). The Order on Consent is a legal document which defines the obligations of each party for conducting site investigations and remediations. The Order on Consent requires that all work by NYSEG at the Site be performed under the oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

2.0 BASIC SITE INFORMATION

The history of coal gas production at the Ithaca Court Street Site dates from 1853. In that year, the Ithaca Gas Light Company, founded in October 1852, began distributing gas to the residents and business establishments of Ithaca. The company changed ownership in the 1860s and again in 1898. In 1916, the city gas and electric companies were merged to form Ithaca Gas and Electric Company. This company grew rapidly over the next few years through mergers with other gas and electric companies in the region and in 1918 it was named New York Gas Electric Company. This company then became part of the Associated Gas and Electric System and in 1929, after several additional mergers, it became the New York State Electric & Gas Corporation (NYSEG). Coal Gas production continued at Court Street until 1927 when a new water gas plant at First Street in Ithaca became operational. NYSEG subsequently used the site for an electric and gas service center. The property was sold to the Ithaca City School district in 1964. The Ithaca City School District is the present owner of the site.

In 1888, the site consisted of the gas house, purifier house, coal sheds, and one iron gas holder which was centrally located on the site. By 1893, a second brick gas holder had been built north of the first and the coal shed had been extended along North Plain Street. A storage shed had also been constructed on the corner of North Plain and Esty Streets. Between 1893 and 1904 the gas production building which housed the retorts was enlarged and connected to the coal shed. Further changes occurred between 1904 and 1910. The original gas holder was demolished and a new, larger steel gas holder was constructed in the northeast corner of the site. In addition, the brick gas holder was converted to steel. The plan from 1919 shows the addition of two iron oil tanks and expansion of the coal shed near the corner of North Plain and Esty Streets.

A subsurface wooden duct transported coal tar from the Ithaca Court Street MGP site to tar wells located at the Cayuga Inlet coal tar transfer site. The coal tar from these tar wells was pumped into either barges or railroad cars and used off site. In the summer and fall of 1995, to support the New York State Department of Transportation's Ithaca Infrastructure Project for NYS Routes 13, 79, 89 and 96, NYSEG provided oversight for the excavation and disposal of a section of the subsurface duct on West Court Street between the west side of Meadow Street to the east side of Fulton Street. The remaining duct was capped at both Meadow Street and Fulton Street.

In the fall of 1999 an *IRM* was completed by NYSEG at the Cayuga Inlet coal tar transfer site. During that *IRM* the tar wells and piping containing coal tar were removed. In addition, the subsurface wooden duct was removed from the Inlet back to the east side of the Site. The duct was capped at this point. Then in the spring of 2000, NYSEG completed an *IRM* on the properties of the Old Port Harbor Restaurant and Watts Distributing Company. During that *IRM* the subsurface wooden duct was removed from where it was capped during the previous *IRM* to the east side of Watt's Distributing Company. The duct was capped at this point. A section of duct (capped at both ends) remains from the east side of Fulton Street continuing under the Lehigh Valley HSE + HO Corporation's railroad tracks to the east side of Watt's Distributing Company property.

In the spring of 2000, NYSEG also completed an *IRM* at the Ithaca Court Street former MGP site. During that *IRM* the contents of two subsurface concrete structures were removed. In addition, a scrubber, wooden tar separator and wooden duct from the tar separator back to the plant building were removed.

In the fall of 2001 through spring of 2002, NYSEG collected soil and water samples adjacent to the remaining wooden duct along Court Street as part of a *Supplemental Remedial Investigation*. This sampling was primarily done to determine if the wooden duct had leaked coal tar constituents into the surrounding soil. Such a leak was detected at the intersection of Court and Washington streets where the wooden duct had been breached by an underground utility line. Coal tar constituents have been detected in the subsurface soil along a narrow strip near the west curb line of Washington Street, north of Court Street to Cascadilla Street.

In the fall of 2003, NYSEG completed the Remedial Design Work Plan for Removal of the Subsurface Wooden Duct Associated With Ithaca Court Street Former MGP Site. Remedial activities, including removal of the wooden duct and associated coal tar contaminated soils have been initiated and are expected to be completed in the spring of 2004.

Byproducts of gas manufacturing include coal tars, light oils and spent purifying materials. These products were often left behind when the plants closed. Coal tar may exceed the Federal Resource Conservation and Recovery Act (RCRA) regulatory limits due to the leachable concentrations of benzene and therefore be classified as a "hazardous waste". Coal tars generally contain high levels of volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs).

Purifier wastes are the spent materials (i.e. wood chips or other organic material with iron filings) used to remove impurities like hydrogen sulfide and cyanide from the gas produced by the MGP. These materials can contain varying concentrations of sulfides and cyanides complexed with iron.

Petroleum products were used on-site as a fuel source for the MGP and to increase the heat content of the manufactured gas. Although unconfirmed, these products may have been spilled on-site as a result of material handling practices. The petroleum products were a heavier fraction of the crude distillate (i.e. diesel, No. 6, bunker C, etc.) and primarily contain PAHs.

3.0 PREVIOUS INVESTIGATIONS, *IRM* WORK PLANS AND *IRM* FINAL ENGINEERING REPORTS

NYSEG and its consultants completed the following investigations, *IRM* work plans and *IRM* final engineering reports for the Ithaca Court Street MGP site and Cayuga Inlet coal tar transfer site:

- April 1986 TASK 1 Preliminary Site Evaluation at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers
- April 1986 TASK 1 Preliminary Site Evaluation at Ithaca Cayuga Inlet Coal Tar Site, prepared by E.C. Jordan Company Consulting Engineers
- February 1987 TASK 2 Preliminary Site Investigation at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers
- June 1987 TASK 2, Initial Field Investigation Program at Ithaca Cayuga Inlet Coal Tar Site, prepared by E.C. Jordan Company Consulting Engineers
- March 1988 TASK 3 Expanded Problem Definition Program at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers
- March 1990 TASK 4 Risk Assessment at Ithaca Court Street Site, prepared by E.C. Jordan Company Consulting Engineers
- January 1999 Interim Remedial Measures Work Plan for Activities at Ithaca Cayuga Inlet Coal Tar Site, prepared by NYSEG
- June 1999 Interim Remedial Measures Final Engineering Report for Activities at the Ithaca Cayuga Inlet Coal Tar Site, prepared by NYSEG
- February 2000 Interim Remedial Measures Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, prepared by NYSEG
- February 2000 Interim Remedial Measures Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct , prepared by NYSEG

- August 2001 Interim Remedial Measures Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, prepared by NYSEG

- August 2001 Interim Remedial Measures Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct , prepared by NYSEG

- September 2001 Work Plan for a Supplemental Remedial Investigation at the Ithaca Court Street MGP Site, prepared by IT Corporation

- Fall 2001 through Spring 2002 - Completed Supplemental Remedial Investigation of the Subsurface Wooden Duct associated with the Ithaca West Court Street Former Manufactured Gas Plant Site.

- Fall 2003 Remedial Design work Plan for the Removal of the Subsurface Wooden Duct

  Associated with the Ithaca West Court Street Manufactured Gas Plant Site.

Additionally, URS Corporation (URS) prepared a document entitled Draft Proposal to Revise the Selected Site Remedy, January 13, 2006. That document described the design requirements for preserving the Markles Flats Building as part of the site remedy.

4.0 PROJECT DESCRIPTION

The overall objective is to remove the coal tar-contaminated soils and subgrade structures which are potential reservoirs of coal tar.

5.0 INTERESTED/AFFECTED PUBLIC

A mailing list has been developed which includes adjacent property owners and businesses, local and State elected officials, local media, and other identified interested parties. Names can be added to the mailing list by contacting any of the individuals listed below in Section 8.0 - Additional Information, or by completing an "interested party mailer" which is included with all NYSEG mailings.

6.0 DOCUMENT REPOSITORY

Documents associated with the previous investigations and this Remedial Action *Work Plan* are available for public review at the following document repositories:

- Tompkins County Public Library
  101 E. Green Street
  Ithaca, New York 14850-5613
  Phone: (607) 272-4557

- NYSEG
  Ithaca - Dryden Road
  P.O. Box 3287
  Ithaca, New York 14852-3287
  Attn.: Mr. Robert L. Pass
  Phone: (607) 347-2148

- New York State Department of Environmental Conservation
  Division of Environmental Remediation
  625 Broadway
  Albany, New York 12233-7013
  Attn.: Mr. William S. Ottaway, P.E.
  Phone: (518) 402-9662

- City of Ithaca
  108 East Green Street
  Ithaca, New York 14850
  Attn.: Mayor Carolyn K. Peterson
  Phone: (607) 274-6501

- Coal Tar Advisory Committee
  106 Washington Street
  Ithaca, New York 14850
  Attn.: Ms. Jutta Dotterweich
  Phone: (607) 272-1239

7.0 DESCRIPTION OF CITIZEN PARTICIPATION ACTIVITIES FOR EACH MAJOR ELEMENT OF THE REMEDIAL ACTION WORK PLAN

To facilitate the Remedial Action Work Plan process, NYSEG in cooperation with NYSDEC and NYSDOH, will inform the public and local officials of planned remedial activities. Public participation will include at least the following:

- Distribution to those identified in Section 5.0 of this document of a fact sheet prepared by NYSEG describing the planned remedial activities.
- The Remedial Action *Work Plan* will be available for public review a minimum of 30 days prior to the public meeting.
- Either a public availability session or a public meeting, will be held by NYSEG, in conjunction with the NYSDEC and NYSDOH, prior to *Work Plan* finalization, to describe the planned activities at the site.
- Posting by NYSEG of a telephone number for the public to call with any questions or concerns which may arise during the Project[1].
- Notice of public meetings, provided by NYSEG via mailing list and notices through the local media.

[1] A call to the posted phone number (1-800-572-1111) during normal business hours will be answered by one of a specially trained group of customer service representatives (CSR) who can provide information from the fact sheet. If additional information is required, the CSR can contact members of the project team from a call list. For emergencies, After normal business hours, a separate phone number (1-800-572-1121) goes directly to individuals who can contact a project team member.

8.0 ADDITIONAL INFORMATION

For additional information about this project you may contact any of the following individuals:

Mr. Bert W Finch
Project Manager
NYSEG
18 Link Drive, P.O. Box 5224
Binghamton, NY 13902-5224
Phone: (607) 762-8683
E-mail: bwfinch@nyseg.com

Mr. Robert L. Pass
Community Projects Manager
NYSEG
Ithaca - Dryden Road
P.O. Box 3287
Ithaca, NY 14852-3287
Phone: (607) 347-2148
E-mail: rlpass@nyseg.com

Mr. William Ottaway, P.E.
Project Manager
NYSDEC
625 Broadway
Albany, NY 12233-7013
Phone: 1-800-342-9296
or (518) 402-9662
E-mail: wsottaway@gw.dec.state.ny.us

Ms. Henriette Hamel
Community H&S Oversight
NYSDOH
217 South Saline Street
Syracuse, NY 13204-2400
Phone: (315) 477-8163
E-mail: hmh01@health.state.ny.us

APPENDIX C

CONSTRUCTION QUALITY ASSURANCE PLAN

(CQAP)

NYSEG

REMEDIAL DESIGN

CONSTRUCTION QUALITY
ASSURANCE PLAN
(CQAP)

FOR

REMEDIATION OF THE ITHACA WEST COURT STREET
FORMER MANUFACTURED GAS PLANT SITE

City of Ithaca, Tompkins County, New York

Prepared By:

URS Corporation – New York
77 Goodell Street
Buffalo, New York 14203

Prepared For:

NEW YORK STATE ELECTRIC & GAS CORPORATION
James A. Carrigg Center, 18 Link Drive
Binghamton, New York 13902-5224

JUNE 2007

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1.0 INTRODUCTION

This *Construction Quality Assurance Plan (CQAP)* is designed to assure the quality of the project by monitoring, inspecting, and testing the processes and materials associated with the Remedial Design Work Plan (*Work Plan*) to be completed at the Ithaca Court Street Former Manufactured Gas Plant site (MGP), City of Ithaca, Tompkins County, New York. This Construction Quality Assurance Plan supplements the *Work Plan.*

1.1 Construction Quality Assurance Plan (CQAP) Objectives

The objective of this *CQAP* is to identify and standardize measures to provide confidence that activities in all phases of the project will be completed in accordance with the *Work Plan*, applicable local, state and federal regulations and appropriate industry standards. The CQAP will be implemented through inspection, sampling, testing, review of services, workmanship, and materials. Specific objectives of this plan establish protocols and procedures for the following components:

1. **Responsibility and Authority -** The responsibility and authority of the key personnel involved in the completion of the project.

2. **Inspection and Testing Activities -** Establish the observations and implement inspections and tests that will be used to ensure that the construction activities for the project meet or exceed all design criteria, (i.e., *Work Plan*, and local, state and federal regulations).

3. **Sampling Strategies -** Establish responsibility for sampling activities and methods including frequency and acceptance criteria for ensuring that sampling meets criteria in the *Work Plan*, local, state and federal regulations.

4. **Documentation and Reporting -** Establish appropriate field documents (i.e., daily field construction reports, photographic log, sampling log, and variances to the *Work Plan*).

2.0 RESPONSIBILITY AND AUTHORITY

Responsibilities of each member of the construction project team are described below.

2.1 Contractor (NYSEG)

The contractor is responsible for coordinating field operations of the project, including coordination of subcontractors, to comply with the requirements of the *Work Plan* and permitting agencies. The Contractor is responsible for completing and submitting documentation required by the *CQAP* and also has the authority to accept or reject the materials and workmanship of any subcontractors at the site.

The contractor is also responsible to ensure that a functional construction quality control organization is active during the project and provide support for the construction quality control system to perform inspections, tests and retesting in the event of failure of any item of work, including that of the subcontractors, and to assure compliance with the contract provisions. The construction quality control system includes, but is not limited to, the inspections and tests required in the technical provisions of the *Work Plan*, and will cover all project operations.

2.2 Construction Quality Assurance Officer: Bert W Finch, Project Manager

The responsibility of the construction quality assurance officer is to perform those activities in this *CQAP* deemed necessary to assure the quality of construction and support quality control efforts. The construction quality assurance officer will be on-site as required during construction activities. The responsibility of the construction quality assurance officer is to ensure that the quality of construction meets or exceeds that defined by the *Work Plan* and identified in the *Quality Assurance Project Plan (QAPP)*. Specific responsibilities of the construction quality assurance officer include:

- Directing and supporting the construction quality control representative inspection personnel in performing observations and tests by verifying that the data are properly recorded, validated, reduced, summarized, and inspected.

- Evaluating the construction activities and the construction quality control representative's efforts
- Evaluating sampling activities and efforts of the sampling quality assurance officer
- Educating construction quality control inspection personnel on construction quality control requirements and procedures
- Scheduling and coordinating construction quality assurance inspection activities

2.3 Sampling Quality Assurance Officer: Bert W. Finch, Project Manager

The responsibility of the sampling quality assurance officer is to perform those activities in this *CQAP, Work Plan* and *QAPP* deemed necessary to assure the quality of sampling and testing and support quality control efforts.

To avoid conflicts of interest, the sampling quality assurance is performed by an entity other than the construction quality control, and provides the permitting agency an assurance that all sampling efforts, for both field and laboratory analysis, meet or exceed that defined by the *Work Plan* and identified in the *CQAP*. The sampling quality assurance officer will be on-site as required during the project. The sampling quality assurance officer will report directly to the construction quality assurance officer.

Specific responsibilities of the sampling quality assurance officer include:

- Confirm that the test data are properly recorded and maintained (this may involve selecting reported results and backtracking them to the original observation and test data sheets);
- Confirm that the testing equipment, personnel, and procedures do not change over time or making sure that any changes do not adversely impact the inspection process; and
- Confirm that regular calibration of testing equipment occurs and is properly recorded.
- Provide the construction quality control officer with up to date sampling results.

2.4 Construction Quality Control Representative: (to be determined), Construction Supervisor

A construction quality control representative, supplemented as necessary by additional personnel, is to be on the work site during the construction process, with complete authority to take any action necessary to ensure compliance with the *Work Plan* as necessary to achieve quality in the constructed facility. The construction quality control representative will be the field engineer. Specific responsibilities of the construction quality control representative include:

- Review *Work Plan* for clarity and completeness so that the construction activities can be effectively implemented.
- Verifying that the remedial subcontractor's construction quality is in accordance with the *CQAP*.
- Performing on-site inspection of the work in progress to assess compliance with the *Work Plan*.
- Prepare and log material shipping manifests for transportation of non-hazardous and Hazardous materials.
- Perform the duties of the health & safety officer.
- Reporting the results of all observations and tests as the work progresses, modify materials and work to comply with the *Work Plan*. This includes:
    1. Providing reports on daily field construction, material shipments, and inspection results.
    2. Review and interpretation of all data sheets and reports.
    3. Identification of work that should be accepted, rejected, or uncovered for observation, or that may require special testing, inspection, or approval.
    4. Rejection of defective work and verification that corrective measures are implemented.
    5. Make observations and records that will aid in preparation of the Final Engineering Report.

- Reporting to the construction quality assurance officer results of all inspections including work that is not of acceptable quality or that fails to meet the *Work Plan*.

- Verifying that the equipment used in testing meets the test requirements and that the tests are conducted according to the proper standardized procedures.

- Verifying that materials are installed as specified, except where necessary field modifications were required.

The construction quality control representative will report directly to the quality assurance officer.

2.5 Sampling Representative: (to be determined), Sampling Technician

A sampling representative, supplemented as necessary by additional personnel, is to be on the work site at all times during the construction process. The sampling representative reports directly to the sampling quality assurance officer. Specific responsibility of the sampling representative include:

- Set up and operation of the weather station. Daily recording of meteorological data.

- Daily calibration and operation of real time total volatile organic compound and suspended particulate air monitoring equipment. Daily recording of real time air quality data. Informs construction supervisor and on-site New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) representatives when concentration of air contaminants approaches or exceeds action levels specified in the *Work Plan*. Faxing or e-mailing real-time air quality data to the (NYSDOH) representative and Sampling Quality Assurance Officer daily.

- Daily calibration and operation of the portable GC (Perkin-Elmer Voyager) per guidelines specified in the *QAPP* and *Work Plan*. Compiling calibration and results data into spreadsheets. E-mailing compiled data along with chromatograms to Sampling Quality Assurance Officer daily.

- Collection, packaging and shipment of soil and water samples per guidelines specified in the *QAPP* and *Work Plan*. Maintaining master log of all air, water and soil samples collected. Faxing copies of the chain of custody sheets to the Sampling Quality Assurance Officer daily. Tracking confirmation sample points and constructing a map depicting confirmation sample point locations.

- Consultation with Sampling Quality Assurance Officer for all technical questions, problems, considerations, or requests for supplies or equipment.

- Maintaining and organizing on-site field specialist equipment and supplies storage area.

- Performing the duties of Assistant Health & Safety Officer.

3.0 FIELD QUALITY CONTROL INSPECTIONS, TESTING, AND SAMPLING REQUIREMENTS

The definable features of work identified below are described in Section 4 of the *Work Plan*. This section of the *CQAP* describes the anticipated inspection, testing, and sampling requirements of these definable feature works.

3.1 Pre-Remediation Sampling and Analysis

Pre-Remediation sampling and analysis is covered in a separate plan contained in Appendix A.

3.2 Pre-Remediation Building Surveys

The Pre-Remediation Building surveys will be in accordance with the *Work Plan*.

3.3 Site Preparation

Elements of the site preparation, including clearing and grubbing, will be inspected as they occur to assure compliance with the *Work Plan*.

3.4 Equipment Set-up

All materials and equipment are designed to meet specific project needs. Each delivery of materials and/or equipment will be inspected upon arrival by the construction quality control representative and stored at a designated area of the site. Equipment will be set-up and tested per the *Work Plan* design and drawings. This includes the temporary wastewater treatment system, the permanent soil gas depressurization system, and the permanent groundwater treatment system.

3.5 Installation of Perimeter Cut-off Wall, Interior Sheeting, and Permanent Markles Flats Sheeting

Installation of the perimeter Cut-off wall and Interior sheeting will be in compliance with the *Work Plan*. The limits and depths of the steel sheeting will be measured by the construction quality control representative upon completion of the perimeter cut-off wall sheeting and all interior sheeting for documentation drawings.

3.6 Installation of Temporary Building and Air Handling/Treatment System

Installation of the temporary building (Sprung-type structure) and air handling/treatment system will be in compliance with the *Work Plan*. The structure and air handling system will be inspected upon initial set-up and after each move from one area to the next to assure compliance with the Work Plan.

3.7 Excavation of Tar Contaminated Soils and Subgrade Structures

Excavation and removal of the coal tar contaminated soils and subgrade structures will be in accordance with the *Work Plan.* Limits of the excavation will be measured by the construction quality control representative upon completion of the excavation for documentation drawings. Confirmation Sampling is covered in a separate sampling assurance plan. The disposition of the excavated materials (i.e. offsite disposal) will be documented for inclusion in the Final Engineering Report.

3.8 Loading of Soil and Subgrade Structures for Transportation

Soil and debris from subgrade structures will be loaded with a tracked excavator into dump trailers for transportation to designated stockpile areas and/or a permitted disposal facility. All loading will be performed inside the temporary building. Polyethylene sheeting, or other suitable material (e.g. plywood sheets), will be placed between the excavation and the truck to retain any material spilled. The spilled material will be added back to the excavation following completion of loading of each truck

3.9 Storm Water, Groundwater and Wastewater Management

All storm water, groundwater and wastewater will be managed in compliance with the *Work Plan*.

3.10 Markles Flats Groundwater Collection System

The groundwater collection system will be constructed to the dimensions and with the components required by the Work Plan. Limits of the vertical well point depths will be measured by the construction quality control representative for documentation drawings. Piping, pumping and concrete chambers will be inspected upon arrival by the construction quality control representative and installed per the Work Plan. Any imported backfill material gradation will be confirmed by a minimum of two (2) grain size tests on each backfill material. Completion of backfill material will be confirmed by visual inspection that each lift was achieved by the required number of compaction equipment passes, and any minimum density requirements tested by an in-place density test. Transfer pipe will be marked clearly and markings maintained to ensure the sheet pile cut off does not damage any such installed components.

3.11 Site Restoration

Site restoration will be observed by the construction quality control representative. The excavation noted above will be backfilled as specified in the *Work Plan*. The surface will be graded to match the surrounding ground surface. The upper six inches will consist of clean imported topsoil. The topsoil will be inspected upon arrival and the source documented. Backfilling and compacting of the excavation will be observed and documented by the construction quality control representative. No stockpiles will remain on-site at the end of the project. Visual inspections will confirm that the site surfacing meets owner approval. Additionally, an asphalt parking lot, equivalent in size to 180 feet x 180 feet, will be constructed in the southwest corner of the site as part of the overall site restoration activities. Additionally, the area between the Markles Flats Building and the permanent sheet pile will be covered with asphalt.

4.0 DOCUMENTATION AND REPORTING REQUIREMENTS FOR *CQAP* ACTIVITIES

The value of the *CQAP* will be assured by proper documentation techniques. The construction quality assurance plan inspection team will be guided by data sheets, schedules and checklists. The documentation of the inspection activities will facilitate the adherence to the design documents and maintain the level of reporting required by the parties involved in the project.

4.1 Inspection Reports

In general, documentation may involve daily summary and photographic reports including sketches of a particular section or activity, inspection log, corrective measure summary, or schedule summary. Specific documentation procedures are listed in the following subsections. The construction quality control representative will ensure that one set of full sized contract drawings are marked on a daily basis to record deviations from the contract drawings, including buried or concealed structures and utilities which are revealed during the course of site work. The construction quality control representative shall initial each variation or revision. The construction quality control representative shall, upon completion of site work, certify the accuracy of the record drawings, and submit them to the project manager.

4.2 Daily Field Construction Report

The construction quality control representative shall prepare a Daily Field Construction Report (DFCR) identifying work force and their labor hours, location and description of work performed, lost time accidents, equipment left on job site, equipment/materials received and if applicable, submittal status, non-compliance notices received, errors and/or omission in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information.

4.3 Photo Log

The photo log is designed to document construction activities by still photos. Photo log may also be used to photographically record activities recorded in a daily construction log or an as-built sketch log. Photos will be collected by the construction quality control representative.

4.4 Daily Sampling Log

The daily sampling log is designed to document all sampling activities and how they correspond to the *Work Plan*. All observations, field and/or laboratory tests will be recorded on a daily sampling log. It is important to note recorded field observations may take the form of notes, charts, sketches, or photographs. The daily sampling log will be completed by the sampling technician.

4.5 Material Disposition Log

The material disposition log is designed to document the disposition (i.e. offsite) of all materials excavated during the remediation and how it corresponds to the *Work Plan*. All observations, waste manifests and bills of lading will be recorded on a daily material disposition log. The daily material disposition log will be completed by the construction quality control representative.

4.6 Variances to *Work Plan*

Required changes to the *Work Plan* will be processed through the use of a variance log. Approval from the NYSEG project manager is required to recommend a change to the *Work Plan*. An amendment to the *Work Plan* will be developed for acceptance and approval by NYSDEC and NYSDOH.

4.7 Final Engineering Report

At the completion of the project the Project Manager/construction quality assurance officer will prepare and submit a Final Engineering Report to the NYSDEC. This report will include a summary of all of

the DFCR's, Photographic Log, Sampling Log, Material Disposition Log, and Variances to *Work Plan*. The Final Engineering Report will be signed and certified by a professional engineer that all activities that comprised the remedial design were performed in full accordance with NYSDEC approved *Work Plan* and the NYSDEC Order on Consent Index #D0-0002-9309.

APPENDIX D

QUALITY ASSURANCE PROJECT PLAN

(QAPP)

NYSEG

REMEDIAL DESIGN

QUALITY ASSURANCE PROJECT PLAN

(QAPP)

FOR

REMEDIATION OF THE ITHACA WEST COURT STREET
FORMER MANUFACTURED GAS PLANT SITE

City of Ithaca, Tompkins County, New York

Prepared By:
URS Corporation – New York
77 Goodell Street
Buffalo, NY 14203

Prepared For:
NEW YORK STATE ELECTRIC & GAS CORPORATION
James A. Carrigg Center, 18 Link Drive
Binghamton, New York 13902-5224

JUNE 2007

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ATTACHMENTS

1.0 INTRODUCTION

This *Quality Assurance Project Plan (QAPP)* provides a description of the sampling and laboratory procedures/protocols to be used in support of the *Remedial Design Work Plan (Work Plan)* associated with the Ithaca Court Street Former Manufactured Gas Plant (MGP) Site, City of Ithaca, Tompkins County, New York. The fundamental purpose of the QAPP is to ensure that quality analytical data will be generated to support the project in a manner consistent with the Data Quality Objectives (DQOs) as specified herein. This QAPP is designed to be used in conjunction with a New York State Department of Environmental Conservation (NYSDEC) approved Work Plan with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this QAPP and the Work Plan, the Work Plan shall control.

2.0 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) are statements, expressed in either qualitative or quantitative terms, which address the appropriate level of data quality for a project. The quality of data generated must be suitable to support the decisions used to achieve the overall goals as delineated in the Work Plan. The general project DQOs are summarized in this section, with detailed information given throughout this QAPP and associated sections of the specific project Work Plan. The overall DQOs of the project are:

- To ensure that samples collected are representative of the sample population.
- To provide detection limits for the selected analytical methods, which are below the established cleanup objectives or regulatory limits.
- To measure and document precision and accuracy using procedures established by the laboratories, the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) and U.S. Environmental Protection Agency (EPA) approved analytical methods.
- To ensure that all soil/residues and wastewater analyses will be conducted by a NYSDOH ELAP and NYSDOH ELAP Contract Laboratory Program (CLP) certified laboratory for all applicable parameters referenced in this QAPP.
- To ensure that all final site verification samples (confirmatory samples) are reported with NYSDEC Analytical Services Protocol (ASP) Category B data deliverables.

3.0 SAMPLE COLLECTION

3.1 Soils

Soil samples will be collected as described in the appropriate section of the *Work Plan* or the *Pre-remediation In Situ Sampling and Analysis Work Plan*. These sections describe the collection procedures, sampling equipment, locations and frequencies for the soil samples. These schedules are based on the requirements for soil disposal or confirmation of excavation endpoint.

All sampling equipment will be properly disposed or decontaminated before being reused (see Section 8.1.1). Samples will be collected and placed in pre-cleaned sample containers provided by the laboratory performing the analysis. All necessary preservations will be added to the sample containers at the laboratory prior to being shipped to the site (see Section 3.3). Samples will be stored at 4 degrees Centigrade until delivered to, and analyzed by the laboratory. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice. (When collecting composite samples for TCLP volatile analysis, volatilization will be minimized by covering the sample compositing container and placing it within a cooler filled with ice between grab sample additions.)

3.2 Wastewater Sampling

Wastewater samples will be collected as described in the appropriate sections of the *Work Plan*. These sections describe the collection procedures, sampling equipment, locations and frequencies before being discharged to local sanitary sewer or transported to a permitted facility for proper treatment and disposal.

Samples will be transferred directly into pre-cleaned sample collection containers which are supplied by the laboratory performing the analyses. All necessary preservatives will be added to the sample containers at the laboratory prior to being shipped to the site (see Section 3.3). Samples will be stored at 4 degrees Centigrade until delivered to, and analyzed by the laboratory. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice.

3.3 Sample Containers and Preservatives

Sample containers and preservatives will be provided by the contracted laboratories and stored on-site in a secure, clean, and dry location. Sample containers and preservatives by matrix and analysis are listed in the table below.

TABLE A

SAMPLE CONTAINERS & PRESERVATIVES

Analysis	Matrix	Container	Preservative
TCLP Semivolatiles	Soil	500 ml glass *	4 degrees C
TCLP metals	Soil	500 ml glass *	4 degrees C
TCLP Pesticides/Herbicides	Soil	500 ml glass*	4 degrees C
Reactive Cyanide	Soil	500 ml glass*	4 degrees C
Reactive Sulfide	Soil	500 ml glass*	4 degrees C
TCLP Volatiles	Soil	20 ml glass	4 degrees C
PAHs	Soil	250 ml glass	4 degrees C
Total BTEX (benzene, toluene, ethylbenzene, xylenes)	Soil	125 ml glass	4 degrees C
Metals (lead, mercury)	Soil	250 ml glass **	4 degrees C
Metals (23)	Water	500 ml plastic	HNO_3 to pH <2
Semivolatiles	Water	1000 ml amber glass	4 degrees C
Pesticides/Herbicides	Water	1000 ml amber glass	4 degrees C
Volatiles	Water	40 ml glass	4 degrees C or HCI to pH <2
Paint Filter	Water	500 ml glass	4 degrees C
Total Cyanide	Water	500 ml plastic	4 degrees C NaOH to pH >12
Percent Sulfur	Soil	250 ml glass **	4 degrees C
PCBs	Soil	500 ml glass ***	4 degrees C
Ignitability	Soil	500 ml glass ***	4 degrees C
Heat of Combustion	Soil	500 ml glass ***	4 degrees C
Reactivity (cyanide and sulfide)	Soil/Water	500 ml glass ***	4 degrees C
Corrosivity (as pH)	Soil/Water	500 ml glass ***	4 degrees C
Percent Solids	Soil	500 ml glass ***	4 degrees C
pH	Soil	500 ml glass ***	4 degrees C

* May be analyzed from same sample container and/or extract.
** May be analyzed from same sample container.
*** May be analyzed from same sample container.
Note: All glass containers will be sealed with Teflon lined caps. All waste samples for organic fractions will be collected in duplicate.

3.4 Sample Holding Times

The following identifies samples by type and matrix and their related holding times.

TABLE B

WASTE CHARACTERIZATION SAMPLES

Sample Type	Matrix	Holding Time *
TCLP Pest./Herb.	Soil	5 days (TCLP extraction); 7 days (preparative extraction); 40 days (after extraction)
TCLP Semivolatiles	Soil	5 days (extraction); 40 days (after extraction)
TCLP Mercury	Soil	5 days (TCLP extraction); 28 days (after extraction)
TCLP Metals	Soil	180 days (TCLP extraction)
TCLP Volatiles	Soil	7 days (TCLP extraction); 7 days (after extraction)
Reactive Sulfide	Soil	7 days
Reactive Cyanide	Soil	14 days
PCBs	Soil	5 days (extraction); 40 days (after extraction)
Ignitability	Soil	N/A
Reactivity	Soil	Cyanide 14 days Sulfide 7 days
Corrosivity (as pH)	Soil	2 days
Percent Solids	Soil	N/A
* Samples will be analyzed on a priority basis and reported within 10 days of collection or the maximum holding time, whichever is less. Holding times begin from validated time of sample receipt (VTSR) at the laboratory.		

TABLE C

WASTEWATER SAMPLES

Sample Type	Matrix	Holding Time *
Semivolatiles	Water	5 days (extraction); 40 days (after extraction)
Metals	Water	180 days
Total Cyanide	Water	14 days
Paint Filter	Water	N/A
Reactivity	Water	Cyanide 14 days Sulfide 7 days
Corrosivity (as pH)	Water	Analyze immediately
Volatiles	Water	7 days
* Samples will be analyzed on a priority basis and reported within 5 days of collection or the maximum holding time, whichever is less. Holding times begin from VTSR at the laboratory.		

TABLE D

POST REMEDIATION CONFIRMATORY SAMPLES

Sample Type	Matrix	Holding Time *
Benzene	Soil	7 days
PAHs	Soil	5 days (extraction); 40 days (after extraction)
TCL Volatiles	Soil	7 days
TCL Semivolatiles	Soil	5 days (extraction); 40 days (after extraction)
Mercury	Soil	26 days
Lead	Soil	180 days
1. ASP category B deliverables required. Duplicates, matrix spike, and matrix spike duplicate samples will be collected at a rate of ten percent. 2. Samples will be analyzed on a priority basis and reported within 48 hours or the maximum holding time, whichever is less. 3. TCL volatiles and semivolatiles will be determined at a minimum of 1 per every group of 10 confirmation samples or portion thereof.		

4.0 SAMPLE CUSTODY, IDENTIFICATION & TRACKING

4.1 Holding Times and Sample Transport

Since the samples will be analyzed at priority turn around, no exceedances of holding time are expected. Holding times will be calculated from the validated time of sample receipt (VTSR) to the subsequent extraction, if necessary, or analysis. All samples will be delivered to the laboratory by same day courier or overnight delivery in sealed coolers with ice.

4.2 Chain of Custody

All samples will be accompanied by a Chain of Custody (COC) from the point of sampling to delivery of the samples to the laboratory. The COC will be a record of the locations where the sample was collected, the date and time collected, number of containers collected, type(s) of analyses requested, special remarks or requests, and the signature of each custodian of the samples. The completed chain of custody will be included in all hard copies of reports. See Attachment 1 for a sample Chain of Custody Form.

Upon sample receipt, laboratory personnel will be responsible for sample custody. The laboratory sample custodian will verify sample integrity and compare the cooler contents against the field chain of custody. If a sample container is broken or leaking, it will be noted on the COC form and NYSEG project personnel will be immediately notified. If any labeling or descriptive errors are observed by the sample custodian, NYSEG project personnel will be contacted immediately to resolve any discrepancies. After all discrepancies (if any) are resolved, the laboratory will acknowledge receipt of the samples (i.e., by signing and dating the COC) and the completed chain of custody will be included in all hard copies of reports and become a permanent part of the project records.

4.2.1 Sample Identification

Each sample collected during the project will have a unique identification number. This number, date of collection and type of analysis will be placed on each sample container after the sample is collected. See Attachment 2 for sample identification naming convention for soil, water and confirmatory samples. A site map will be used throughout the project to denote the area or point that a confirmatory sample represents. Each confirmatory sample will be assigned a sample point number which will appear as characters 9 & 10.

4.3 Laboratory Sample Tracking

Each laboratory has an internal tracking mechanism to ensure that each sample received has a unique identification number and that results generated and reported for each sample correspond to the identification number assigned to the laboratory.

5.0 CALIBRATION PROCEDURES

Each analysis will be performed in accordance with NYSDOH ELAP sanctioned methods or equivalent U.S. EPA analytical procedures. Each procedure specifies the method and frequency of calibration necessary to perform accurate and precise analyses. Each analytical instrument verifies the Minimum Detection Limit at least every six months as prescribed by the NYSDOH ELAP. The calibration of the instruments are verified at the beginning and end of each auto sampler run. Gas Chromatograph/Mass Spectrometers are tunes and calibrated every 12 hours, at a minimum.

All field equipment, for real time and speciated real time air analyses will be calibrated daily, in accordance with manufacturer's recommendations. All equipment will be calibrated more frequently if conditions warrant. The TVA meter used to measure Volatile Organic vapors will be calibrated to a benzene standard. The Mini Ram used to measure particulates will be calibrated to zero with filtered air. The portable GC unit will be used to measure the BTEX (benzene, toluene, ethylbenzene and xylenes) compounds and will be calibrated to a BTEX standard.

6.0 ANALYTICAL PROCEDURES

6.1 Laboratory Analyses

The following charts show the analytical method to be used for each analyte or group of analytes for the project:

TABLE E

ANALYTICAL METHODS

Analyte	Analytical Method
TCLP Extractions	SW 846 Method 1311
TCLP Volatiles	SW 846 Method 8260B
TCLP Semivolatiles	SW 846 Method 8270C
TCLP Metals	SW 846 Method 6010B/7470A
TCLP Pesticides/Herbicides	SW 846 Method 8081A/8151A
Polycyclic Aromatic Hydrocarbons (Table F)	SW 846 Method 8270C
Total Volatiles	SW 846 Method 8260B
Total Semivolatiles	SW 846 Method 8270C
Total Metals	SW 846 method 6010B/7470A
PCBs	SW 846 Method 8082
Reactive Sulfide	SW 846 Chapter 7.3.4.2
Reactive Cyanide	SW 846 Section 7.3.3.2
Percent Sulfur	ASTM D-129
BTU/lb	ASTM D-215
Flashpoint	ASTM D-93
Ignitability	SW 846 Method 1030
Reactivity	SW 846 Section 7
Corrosivity	SW 846 Section 7
Percent Solids	ASP Method D-V-Section IX
pH	SW 846 Method 9045C
Total Cyanide	SW 846 Method 9012
Paint Filter test	SW 846 9095

TABLE F

POLYCYCLIC AROMATIC HYDROCARBON (PAH) ANALYTE LIST

PARAMETER
Naphthalene
2-Methylnaphthalene
Acenaphthene
Acenapthylene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Dibenzofuran
Pyrene
Benzo (g,h,i) perylene
Benzo (a) anthracene *
Chrysene *
Benzo (b) fluoranthene *
Benzo (k) fluoranthene *
Benzo (a) pyrene *
Indeno (1,2,3 cd) pyrene *
Dibenzo (a,h) anthracene *
***Carcinogenic PAHs (cPAH)**

6.2 Laboratory Selection

The laboratory chosen for the project must be certified, and maintain certification, under the NYSDOH ELAP and NYSDOH ELAP CLP for analyses of solid and hazardous waste. Only analytical laboratories that have experience in MGP projects or similar projects will be considered for use. NYSEG has contracted with Severn Trent Laboratories (STL) to perform laboratory services for this *Work Plan*.

7.0 DATA REDUCTION VALIDATION AND REPORTING

7.1 Data Reduction

7.1.1 Field Data Collection

Real time field data collected during sampling events will include qualitative information regarding the texture, appearance, odors, and any other observations made while soil and water samples are being collected. Meteorological data and current site activity will be noted while collecting data for real time air monitoring. These observations will be recorded in the field logbook.

7.1.2 Laboratory Data Collection and Reduction

A significant portion of the analyses performed require the use of automated laboratory instrumentation. Raw data collected from the instrument detectors will be converted to standard units of mg/Kg for solid matrices and μg/L or mg/L for water. All raw data will be stored in electronic form and in laboratory notebooks, in case the analysis needs to be recreated. Raw data for all analyses will be archived for a minimum of four years.

7.2 Data Review

All analytical data will be verified for precision and accuracy utilizing the laboratory's in-house Quality Assurance/Quality Control programs. In addition, all data packages will be reviewed by NYSEG project personnel to ensure that all data deliverables have been properly provided.

7.3 Full Data Validation

The full third party data validation process consists of a formal systematic review of analytical results and quality control documentation with regards to the parameters cited in Section 8.2. On the

basis of this review, a third party data validator will make judgments and express concerns on the quality and limitations of the specific data and the validity of the data package as a whole. The data validator prepares documentation of his or her review using the standard USEPA Inorganics Regional assessment and Organics Regional assessment forms to summarize deficiencies and general laboratory performance. These forms are accompanied by appropriate supplementary documentation which identifies specific problems.

Since a full data validation would typically be used for the purpose of litigation, this level of review may surpass the scope of work necessary for the project. Therefore, any full data validation for analytical results of confirmatory samples will be performed at NYSEG's discretion. Confirmatory sampling data will be archived in the event that it becomes necessary to perform a full data validation at a future date.

7.4 Data Usability Summary Report (DUSR)

A Data Usability Summary Report (DUSR) provides a thorough review and evaluation of analytical data without the formality of a full third party data validation. A DUSR for the analytical results of confirmatory samples will be generated in lieu of a full data validation to verify that the proper data deliverables and procedures have been rendered in accordance with the data quality objectives of the *Work Plan*.

7.5 Reporting

Final reports for analytical data will be reviewed and accepted by NYSEG prior to submission to the NYSDEC. Reports for analyses performed under the NYSDEC ASP will contain a results sheet for the sample analyzed. These reports must include at a minimum:

- NYSEG sample ID number;
- Laboratory sample ID number;
- Sample collection date;

- Extraction or digestion date (if applicable);
- Data analyzed;
- Analytical method;
- Analytical results (with units clearly identified);
- Results of laboratory blank and field blanks;
- Results of spikes, matrix spikes, and duplicates;
- Surrogate recoveries (if applicable);
- Completed Chain of Custody forms; and
- Field log sheets (if available)

8.0 QUALITY CONTROL CHECKS

8.1 Confirmatory Sampling

8.1.1 Decontamination Procedures for Confirmation Sampling

The following decontamination procedure will be followed for all non-disposable sampling equipment before being reused:

- Equipment will be washed thoroughly with a non-phosphate detergent.
- The equipment will then be rinsed with analyte-free water.
- The equipment will be rinsed with a reagent grade methanol solution diluted with analyte-free water.
- If the equipment is being used for the collection of samples for metals analyses, it will then be rinsed with a 10% reagent grade nitric acid solution.
- The equipment will be rinsed with analyte-free water.

After decontamination, equipment will be carefully stored to avoid contamination between sampling events.

8.2 Laboratory Quality Control (QC)

Each laboratory is NYSDOH certified for the analyses they will perform. Each analyst must complete a start-up proficiency procedure to demonstrate their capability to perform accurate and precise analyses on each type of instrument they operate. In addition, each laboratory must accurately analyze samples provided by NYSDOH on a semi annual basis to maintain certification. The laboratories have internal quality control officers that review all methodologies and implement corrective action, including reanalyzing samples which do not pass established laboratory quality control (QC) criteria.

Laboratory quality control procedures are specified in the analytical methods. These specifications include the type of QC check required, compounds and concentrations to be used, and QC acceptance criteria. QC checks will include (where specified by method):

- Calibration Standards
- Methods Blanks
- Matrix Spike/Matrix Spike Duplicates
- Surrogate Spikes
- Internal Standards
- Laboratory Duplicates
- Calibration Check Standards
- Laboratory Control Samples

9.0 PREVENTATIVE MAINTENANCE

9.1 Field Instruments and Equipment

Equipment, instruments, tools, gauges, and other items requiring preventive maintenance will be serviced in accordance with the manufacturer's specified recommendations or written procedures developed by the operators. All field equipment service will be conducted by qualified personnel. Prior to any field sampling, each piece of field equipment will be inspected to ensure that it is operational. If the equipment is not operational, it must be repaired prior to use. All equipment which requires charging or batteries will be fully charged or have fresh batteries at the start of the project. An equipment repair/maintenance log will be kept for each field instrument. Any non-operational/non-repairable field equipment will be replaced.

9.2 Laboratory Instruments and Equipment

Each laboratory has an instrument/equipment maintenance program which includes procedures for daily, weekly, monthly, or annual routine maintenance. In addition, maintenance is performed if the accuracy and/or precision of the instrument is in question.

9.2.1 Instrument Maintenance

Preventative maintenance of laboratory instruments will be conducted in accordance with the manufacturer's guidelines or written procedures developed by the operators. All instrument service will be performed by qualified personnel. To minimize potential downtime, the laboratory will maintain a sufficient supply of critical spare parts for its instruments and, where practical, maintain a service contract for rapid instrument repair. Wherever possible, the laboratory will retain backup instrumentation. An instrument repair/maintenance log will be maintained for each instrument.

9.2.2 Equipment Monitoring

On a daily basis, the operation of the laboratory equipment (i.e., balances, ovens, refrigerators, water purification systems, etc.) will be checked and documented. Any discrepancies will be immediately reported to the appropriate laboratory personnel for resolution.

ATTACHMENT 1

NYSEG CHAIN OF CUSTODY RECORD Laboratory _____

Project Location: _____
Samplers: _____
Affiliation: _____

Sample ID Code	Type	Matrix	Collection Date/Time	No. of Containers											Remarks

Matrix Code: L=Liquid; S=Solid; A=Air

Relinquished by: _____ Loc: _____ Date: _____ Time: _____
Received by: _____ Loc: _____ Date: _____ Time: _____

Seals Intact
Y N N/A

Relinquished by: _____ Loc: _____ Date: _____ Time: _____
Received by: _____ Loc: _____ Date: _____ Time: _____

Seals Intact
Y N N/A

Special Instructions/Remarks: _____

Delivery Method: In Person Common Carrier (specify) Lab Courier Other (specify)

ATTACHMENT 2

SYSTEM CODING

SYSTEM CODING IS DERIVED FROM A 10 CHARACTER CODE WITH THE 11 CODE DECLARING SAMPLE TYPE.

HOW THE 10 CHARACTER CODING SYSTEM WORKS.

1 2	3	4	5 6	7 8	9 10

EX. OWEGO WELLPOINT 81-01 SH

O W G U S H 8 1 0 1 G
1 2 3 4 5 6 7 8 9 10

FIRST TWO CHARACTERS = SITE
THIRD CHARACTER = SOURCE
FOURTH CHARACTER = RELATIVE LOCATION
FIFTH AND SIXTH CHARACTER = YEAR OF LOCATION/WELL
(XX, IF NOT APPLICABLE)
NINTH AND TENTH CHARACTER = NUMBER OF SAMPLING POINT/
CONSECUTIVE #
IF MORE THAN ONE SAMPLE FROM SAME LOCATION
(XX, IF NOT APPLICABLE)

ENVIRONMENTAL QUALITY ANALYSIS SYSTEM
CLASS: SITE

CODE	DESCRIPTION
AC	AUBURN CLARK STREET MGP
AF	AFTON ASH DISPOSAL SITE
AG	AUBURN GREEN STREET MGP HOLDER
AL	ALBION MGP
AM	AUBURN MCMASTER STREET MGP
BC	BORDER CITY MGP
CA	CANADAIGUA MGP
CH	CORTLAND/HOMER MGP
CL	CLYDE MGP
CO	COOPERSTOWN MGP
CR	CORNING MGP
CS	CLIFTON SPRINGS MGP
DR	DAVIS ROAD ASH DISPOSAL SITE
DV	DANSVILLE MGP
EL	ELMIRA MGP
EW	ELMIRA WATER STREET MGP
GS	GOSHEN MGP
GV	GRANVILLE MGP
HN	HORNELL MGP
IC	ITHACA COURT ST MGP
IF	ITHACA FIRST STREET MGP
II	ITHACA CAYUGA INLET MGP STORAGE AREA
LP	LOCKPORT MGP
LS	LOCKPORT STATE STREET MGP HOLDER
LY	LYONS MGP
MC	MECHANICVILLE COONS CROSSING MGP DISPOSAL AREA
MD	MEDINA MGP
ME	MECHANICVILLE CENTRAL AVE MGP
MW	MECHANICVILLE WILLOW GLEN MGP DISPOSAL AREA
NO	NORWICH MGP
NW	NEWARK MGP
ON	ONEONTA MGP
OW	OWEGO MGP
PA	PALMYRA MGP
PB	PLATTSBURGH BRIDGE STREET MGP
PJ	PENN YAN JACKSON STREET MGP
PL	PLATTSBURGH SARANAC STREET MGP
PP	POZZOLANA PARK ASH DISPOSAL MGP
PY	PENN YAN MGP
RE	(FOR “REASON9999” LIMITS)
SF	SENECA FALLS MGP
WA	WARSAW MGP
WT	WATERVILLE MGP
WW	GENEVA WADSWORTH STREET MGP

ENVIRONMENTAL QUALITY ANALYSIS SYSTEM
CLASS: SOURCE

CODE	DESCRIPTION
A	AIR SAMPLE
D	DRINKING WATER
E	LEAK DETECTION SYSTEM
F	FLY ASH
G	GROUND WATER
H	LEACHATE COLLECTION SYSTEM
I	BIOLOGICAL
L	LABORATORY
M	STORMWATER DISCHARGE
O	(FOR “GROUND9999” LIMITS)
P	PROCESS STREAM
Q	LIQUID WASTE
S	SURFACE WATER
T	SEDIMENT SAMPLE
U	SURFACE SOILS
V	SUBSURFACE SOILS
W	SOLID WASTE
X	SLUDGE SAMPLE
Z	PIEZOMETER

ENVIRONMENTAL QUALITY ANALYSIS SYSTEM
CLASS: RELATIVE LOCATION

CODE	DESCRIPTION
A	AMBIENT
C	CROSSGRADIENT
D	DOWNGRADIENT
I	IN FILL (TAKEN OUT OF A PILE) OR IN SOURCE
L	LOWER
P	UPPER
S	(FOR “REASON9999” LIMITS)
U	UPGRADIENT
W	WASTEWATER
X	N/A

ENVIRONMENTAL QUALITY ANALYSIS SYSTEM
CLASS: LOCATION

CODE	DESCRIPTION
A-	DENOTES A WELL
AI	AIR INDOOR
AO	AIR OUTDOOR
AS	AIR SAMPLING LOCATION
B-	BORING
BD	BOTTOM ASH POND DISCHARGE – NOT TREATED
BI	SETTLING BASIN INFLUENT
CK	SINK
CN	CANAL
CR	COAL TAR TANK
D-	DEEP
DS	DISTRIBUTION SYSTEM
DU	REPLICATE
E-	EAST
FB	FIELD BLANK
FL	FLOOR DRAIN
FO	DRINKING WATER FOUNTAIN
GD	GROUND WATER DRAIN
GH	GAS HOLDER
I-	INSIDE LOCATION AREA
L-	LOWER
LA	LAGOON
LD	LEAK DETECTION DRAIN
LE	ASH LEACHATE
LS	LIFT STATION – PUMPING STATION
MD	MATRIX SPIKE DUPLICATE
MH	MANHOLE
MS	MATRIX SPIKE
N-	NORTH
ND	(FOR “GROUND9999” LIMITS)
ON	(FOR “REASON9999” LIMITS)
OS	OIL STORAGE AREA

ENVIRONMENTAL QUALITY ANALYSIS SYSTEM
CLASS: LOCATION

CODE	DESCRIPTION
PB	PURIFIER BOX
PD	PERIPHERAL DRAINAGE DITCH – AROUND LANDFILL, NO DIRECT DISCHARGE
PO	POND
PW	PROCESS WATER TREATMENT PLANT DISCHARGE – FINAL DISCHARGE FROM TREATMENT FACILITY
R-	DENOTES REPLACEMENT WELL
RF	ROLLOFF CONTAINER
RO	ROOF DRAIN
S-	SOUTH
SD	SEDIMENTATION POND DISCHARGE
SE	STORAGE PILE
SF	SURFACE
SP	SPRING
SH	SHALLOW
SP	SEDIMENTATION POND
SR	WATER
SS	STREAM
ST	SANITARY TREATMENT PLANT DISCHARGE
SW	DRAINAGE SWALE AREA – LOW SPOT FOR WATER COLLECTION
TB	TRIP BLANK
TD	TOE DRAIN
TK	TRUCK
TP	TEST PIT
TR	TRANSFORMER
TT	TELLTALE
U-	UPPER
UD	UNDERDRAIN
W-	WEST
WK	WATER TANK
WO	WASTE OIL CONTAINMENT STRUCTURE
WS	WATER SUPPLY WELL
WT	WATER TREATMENT WASTES
XX	N/A
YR	YARD ROOF DRAINS

ENVIRONMENTAL QUALITY ANALYSIS SYSTEM
CLASS: TYPE

CODE	DESCRIPTION
A	GAS SAMPLER
B	BAILER
C	COMPOSITE OVER THE TIME AT ONE LOCATION
D	PROBE
G	GRAB-SINGLE SAMPLE
H	HNU SAMPLE
L	COMPOSITE OF GRAB SAMPLES COLLECTED AT MULT. LOCATIONS
Q	QUALITY ASSURANCE SAMPLE
V	OVA SAMPLE

APPENDIX E

TRANSPORTATION OF SOLID AND/OR

LIQUID MATERIAL

NYSEG

REMEDIAL DESIGN

TRANSPORTATION OF SOLID AND/OR LIQUID WASTE

FOR

REMEDIATION OF THE ITHACA WEST COURT STREET FORMER MANUFACTURED GAS PLANT SITE

City of Ithaca, Tompkins County, New York

Prepared By:

URS Corporation – New York
77 Goodell Street
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James A. Carrigg Center, 18 Link Drive
Binghamton, New York 13902-5224

JUNE 2007

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1.0 SCOPE OF WORK

This specification is for the transportation of solid and/or liquid non-hazardous and hazardous waste for NYSEG's Ithaca Court Street Former Manufactured Gas Plant (MGP) Site, City of Ithaca, Tompkins County, New York as detailed herein. All transportation must be in accordance with the Order on Consent Index No. D0-0002-9309 with New York State Department of Environmental Conservation, and any other applicable Federal, State, and Local Laws.

2.0 WORK BY CONTRACTOR

2.1 The transporter shall provide all necessary supervision, training, permits, manifests (when required), labor, personal protective equipment (PPE), tools, equipment, consumable materials, and expendable materials, to transport solid and/or liquid wastes as detailed herein.

3.0 GENERAL WORK CONDITIONS

3.1 The transporter shall comply with all applicable provisions of New York State Department of Environmental Conservation Regulation, 6 NYCRR Part 364 "Waste Transporters Permit", Title 6 of the Official Compilation of Codes, Rules and Regulations.

3.2 The transporter shall comply with all applicable provisions of New York State Department of Environmental Conservation Regulation 6 NYCRR Part 372 "Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities", Title 6 of the Official Compilation of Codes, Rules and Regulations.

3.3 The transporter shall comply with all applicable provisions of New York State Department of Transportation (NYSDOT), the New York State Department of Motor Vehicle (NYSDMV), and/or any other applicable Federal, State, and Local Laws.

3.4 The transporter shall comply with applicable provisions of OSHA 29 CFR 1910.120 "Hazardous Waste Operations Health & Emergency Response".

3.5 The transporter shall develop and implement a written Health & Safety Plan for their drivers which addresses potential exposure to MGP residuals.

3.6 The transporter shall adhere to the following rules while working on an MGP Site and waste disposal facility.

3.6.1 Any truck found unacceptable by NYSEG's field representative and/or the Site's Health & Safety Officer will be rejected. Any cost for rejected trucks shall be born

by the transporter. If the NYSDEC representative finds any truck unacceptable, they should bring it to the attention of NYSEG field representative.

3.6.2 The truck drivers shall report their arrival to NYSEG's Field Representative and/or the MGP Site's Health & Safety Officer.

3.6.3 Truck drivers are restricted to their trucks and the designated waiting areas. Drivers are not permitted access to the MGP Site without express permission from a representative of NYSEG.

3.6.4 Truck drivers will don **hard hats, safety glasses, safety shoes, and gloves**, as a minimum for personal protection while on site. Additional PPE upgrades may be required inside the Sprung structure.

3.6.5 All trucks and roll off containers transporting hazardous solid material will have the driver line the entire box (to top of side boards) with 6-mil thick polyethylene sheets (poly sheets). Trucks transporting non-hazardous material may be lined as previously stated. All trucks will have watertight tailgates, which have a gasket between the box and tailgate.

3.6.6 All trucks require working audible and visual backup signals.

3.6.7 When loading or when directed by a representative on site, the truck engine should be shut off. Each truck may be restarted and driven away only after receiving the **"all clear"** direction from the loader operator, or a Site representative.

3.6.8 Truck engines are not allowed to idle in residential or other areas where the exhaust and/or noise could be a nuisance.

3.6.9 No trucks will be loaded above the side boards and no material will be spilling out of the truck. The trucks' exteriors will be cleaned (by others) from material being loaded before they leave the loading area.

3.6.10 NYSEG remedial workers will reposition the tarp bars over the loads. **Drivers will not be allowed to walk over loads.**

3.6.11 The drivers will cover trucks with tarps inside the loading area. **Drivers will not be allowed to walk over loads.**

3.6.12 Obey traffic signs and notices (obey the posted speed limit).

3.6.13 Obey rules posted on the site and/or any site specific Health & Safety Plan for all employees.

3.6.14 Report any accidents to the NYSEG's Field Representative and/or the MGP Site's Health & Safety Officer and cooperate with any subsequent accident investigation.

3.6.15 No children under 16 years of age are allowed on MGP Sites.

3.6.16 No passengers are allowed in the loading area.

3.6.17 Slow down and be extra cautious during times of poor weather (rain, fog, and snow).

3.6.18 Take extra care around blind corners (watch for construction equipment and pedestrians).

3.6.19 Smoking, eating, and/or drinking is **not permitted** within the security fence (Contamination Reduction Zone and Exclusion Zone). Smoking, eating, and/or drinking is permitted only in designated areas.

3.6.20 After disposal of material, the transporter is responsible for properly decontaminating their truck or tractor, trailer or tanker.

3.6.21 All trucks to be used inside the temporary building are to be powered by a diesel engine and equipped with an exhaust/muffler system and scrubber in good condition.

3.6.22 All trucks are to be properly decontaminated prior to leaving the temporary building and/or the site.

3.6.23 All trucks are to travel only on designated routes when traveling to or from the site.

APPENDIX F

NEW YORK STATE DEPARTMENT OF

ENVIRONMENTAL CONSERVATION ORDER ON CONSENT

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of the Development and Implementation of a Former Manufactured Gas Plant (MGP) Sites Investigation and Remediation Program by New York State Electric & Gas Corporation

ORDER ON CONSENT
Index #D0-0002-9309

WHEREAS:

1. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of the Environmental Conservation Law, which, inter alia, requires the Department to carry out the environmental policy of the State set forth of the ECL 1-0101. ECL 3-0301.1.

2. The New York State Electric & Gas Corporation ("Respondent") is a business corporation organized under the laws of the State of New York.

3. Respondent is aware of former manufactured gas plant ("MGP") sites at the locations listed in Table "A" of Paragraph I of this Order at which coal tar and associated hazardous substances ("MGP wastes") were, or which may have been, disposed at various times in the past by Respondent or its predecessors or affiliates (individually, "the Site;" collectively, "the Sites"). Respondent also is the owner of other former MGP sites.

4. The Department asserts that its authority to require abatement and remediation of releases of, inter alia, hazardous substances as that term is defined in 42 U.S.C. 9601(14), including MGP wastes, that are in violation of law or that exceed State environmental quality standards (as those set forth in 6 NYCRR Part 703) ("hazardous substances"), is varied, including, but not limited to, ECL 1-0101, 3-0301, 71-1929, 71-2703, and 71-2705. In addition, the Department asserts that it has the power, inter alia, to provide for the prevention and abatement of all water, land, and air pollution caused by, inter alia, the release of hazardous substances into the environment. ECL 3-0301.1.i. Furthermore, the Department asserts that it has authority to require abatement and remediation of significant threats to the public health or the environment caused by threatened releases of hazardous substances that are hazardous wastes as that term is defined in ECL 27-1301.

5. The Department and Respondent agree that the goals of this Order are for Respondent to (i) gather and provide data pertaining to each of the Sites (other than Mechanicville [Central Avenue] and Owego) sufficient to constitute a Preliminary Site Assessment ("PSA") that will enable the Department to characterize hazardous

substances, as that term is defined in 42 USC 9601(14) (including MGP wastes) which are or may be present at the Site and to enable the Department to determine whether such hazardous substances constitute a significant threat to public health or the environment necessitating remediation; (ii) develop and implement a Remedial Investigation ("RI") and prepare a Feasibility Study ("FS") for any Site the Department determines, based upon the results of the PSA, to require the more comprehensive evaluations and assessments that would be provided through the Remedial Investigation/Feasibility Study ("RI/FS") process; (iii) remediate each Site that the Department determines is in need of remediation on a schedule and to an extent acceptable to the Department, including authorizing Respondent to develop and implement Interim Remedial Measures ("IRMs") that the Department determines to be appropriate; (iv) develop and implement acceptable methods of treating and disposing of nonhazardous coal tar soils ("CTS") that minimize any future impacts on public health and the environment and minimize cost, including, as appropriate, the burning of CTS in Respondent's existing utility steam generating facilities including but not limited to Respondent's Hickling and Jennison Stations; and (v) pay for the State's reasonable administrative and oversight costs associated with implementation of this Order.

6. Respondent, without admitting or denying the Department's authority to require investigation and remediation of hazardous substances at the sites listed in Table "A" of Paragraph I of this Order and having waived its right to a hearing herein as provided by law, and having consented to the issuance and entry of this Order, agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Order; and agrees not to contest the validity of this Order or its terms. However, should the Department request that this Order be revised, Respondent reserves all of its rights provided by law and the New York Environmental Conservation Law.

7. Respondent and the Department agree that Respondent shall not be responsible under this Order to investigate, gather data concerning, or remediate those hazardous substances that may exist at or originate from any Site listed in Table "A" of Paragraph I of this Order if, respecting that Site, all the following criteria are met:

a. Respondent no longer owns or controls the Site where the hazardous substances are found;

b. the original disposal and release of the hazardous substances occurred after Respondent or its predecessors or affiliates sold or returned control of the Site to its owner;

c. the hazardous substances were not generated, stored, treated, or disposed at the Site while Respondent or its predecessors or affiliates owned or controlled the Site; and

d. investigation and remediation of the hazardous substances would require Respondent to perform activities and incur costs not necessary to study, characterize, and remediate hazardous substances at the Site that were generated, treated, stored, or disposed at the Site during the ownership or control of Respondent or any of its predecessors or affiliates.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. Initial Submittals

Unless otherwise agreed with respect to specific Sites, no later than 45 days after the effective date of this Order, Respondent shall submit to the Department all data and information it has respecting each Site listed in Table "A" of this Paragraph. The data and other information shall include, at a minimum:

A. A brief history and description of the Site, including the types, quantities, physical state, location, and, if applicable, dates of disposal of MGP wastes, including methods of disposal and spillage of such wastes;

B. A comprehensive list and copies of all existing relevant reports with titles, authors, and subject matter, as well as a description of the results of all previous investigations of each Site and areas in the vicinity of each Site, including copies of all available topographic and property surveys, engineering studies and aerial photographs; and

C. An 8.5 inch by 11 inch portion of a United States Geological Survey topographic map of the Site which contains the name of the quadrangle and an arrow indicating the orientation of a northern compass point.

TABLE "A"

1. Auburn (Clark Street)
2. Auburn (Green Street)
3. Auburn (McMaster Street)
4. Clyde
5. Cortland/Homer
6. Dansville
7. Elmira (Madison Avenue)
8. Elmira (Water Street)
9. Geneva (Border City)
10. Geneva (Wadsworth Street)
11. Goshen
12. Granville
13. Ithaca (Cayuga Inlet)

14. Ithaca (Court Street)
15. Ithaca First Street)
16. Lockport (State Road)
17. Lockport (Transit Road)
18. Lyons
19. Mechanicville (Central Avenue)
20. Mechanicville (Coon's Crossing)
21. Newark
22. Norwich
23. Oneonta
24. Owego
25. Palmyra
26. Penn Yan (Jackson Street)
27. Penn Yan (Water Street)
28. Plattsburgh (Bridge Street)
29. Plattsburgh (Saranac Street)
30. Seneca Falls
31. Warsaw
32. Waterloo
33. Waterville

II. Preliminary Site Assessment

A. The Department shall review the data and information Respondent shall submit under Paragraph I of this Order for the purpose of determining whether additional data need to be obtained to enable it to characterize the nature and extent of distribution of any hazardous substances at the Site and to determine whether such substances constitute a significant threat to public health or the environment necessitating remediation. For those Sites pertaining to which the Department determines that there exist sufficient data to enable it to make such characterization and determination, the Department shall inform Respondent of its determination, and if the Department determines that the hazardous substances found at the Site constitute a significant threat to the environment, Respondent shall undertake an RI/FS for such Site as described in this Order. For those Sites pertaining to which the Department determines that more data must be acquired to enable it to make such characterization and determination, the Department shall inform Respondent in writing of its determination and identify the information which must be obtained, and Respondent shall undertake such additional investigation (referred to below as a "Preliminary Site Assessment," or "PSA") as the Department shall require in accordance with a schedule the Department shall determine in consultation with Respondent. Such schedule shall include the date by which Respondent shall submit to the Department a work plan to acquire the information the Department shall require and a date by which field work necessary to develop such information shall commence ("PSA Work Plan").

B. The Department may revise the PSA Work Plan submittal date and the field work start date, or either of them, for any Site identified in Table "A" of Paragraph I if information is developed, or otherwise becomes available, indicating the existence of a condition or circumstance justifying immediate or near-term evaluation or response at that Site which otherwise would not be addressed until a later time.

C. Each Site's PSA Work Plan shall describe the methods and procedures to be implemented in undertaking a study at the Site to which it pertains that will cause the generation of information sufficient to enable the Department to characterize the nature and extent of distribution of any hazardous substances at the Site and to determine whether such substances constitute a significant threat to public health or the environment necessitating remediation. Hence, each Site's PSA Work Plan shall include, but not be limited to, the following:

(1) A chronological description of the anticipated investigative activities together with a schedule for the performance of these activities. Such schedule shall take into account, at a minimum, the submission of draft documents, Department review of such documents, and submission of final approvable documents;

(2) A Sampling and Analysis Plan that shall include:

(a) A quality assurance project plan that describes the quality assurance and quality control protocols necessary to achieve the initial data quality objectives. This plan shall designate a data validation expert and must describe such individual's qualifications and experience, and

(b) A field sampling plan that defines sampling and data gathering methods in a manner consistent with appropriate provisions of the "Compendium of Superfund Field Operations Method" (EPA/540/P-87/001, OSWER Directive 9355.0-14, December 1987) as supplemented by the Department; and

(3) A health and safety plan to protect persons at and in the vicinity of the Site during the performance of the investigation, which shall be prepared in accordance with 29 CFR 1910 and all other applicable standards by a certified health and safety professional. Respondent shall add supplemental items to this plan if necessary to ensure the health and safety of all persons at or in the vicinity of the Site during the performance of any work pursuant to this Order.

D. If after review of the data generated during and after implementation of the Department-approved PSA Work Plan for a particular Site the Department determines that the hazardous substances found at the Site constitute a significant threat to the environment and that response actions are needed in addition to any IRMs the Department may approve or may have approved for the Site under Paragraph III of this Order to address adverse environmental conditions at the Site, the Department shall

notify Respondent of that determination and within 90 days after receipt of that notification, Respondent shall submit to the Department a work plan for that Site that shall incorporate all appropriate elements of an RI/FS as set forth in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA") [42 USC 9601 et seq.], as amended; the National Contingency Plan ("NCP") of March 8, 1990 [40 CFR Part 300]; the USEPA guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," dated October 1988 and any subsequent revisions to that guidance document in effect at the time the RI/FS Work Plan is submitted; and appropriate USEPA and Department technical and administrative guidance documents (the "RI/FS Work Plan" for that particular Site). (However, Respondent shall undertake RI/FSs for Mechanicville [Central Avenue] [546033] and Owego [754008] under the terms of, respectively, Department Orders on Consent A5-0276-91-10 dated 23 February 1993 and A7-0150-88-09 dated 2 January 1991.)

III. IRMs

A. (1) Respondent may propose one or more IRMs for any Site. Respondent may propose a treatability study as an IRM.

(2) In proposing each IRM, Respondent shall submit to the Department a work plan that includes a chronological description of the anticipated IRM activities together with a schedule for performance of those activities (an "IRM Work Plan" for that Site).

(3) Upon the Department's determination that the proposal is an appropriate IRM and upon the Department's approval of such work plan, the IRM Work Plan shall be incorporated into and become an enforceable part of this Order; and Respondent shall submit to the Department for its review and (as appropriate) approval, in accordance with the schedule contained in the Department-approved IRM Work Plan, detailed documents and specifications prepared, signed, and sealed by a professional engineer to implement the Department-approved IRM. Such documents shall include a health and safety plan, contingency plan, and (if the Department requires such) a citizen participation plan that incorporates appropriate activities outlined in the Department's publication, "New York State Inactive Hazardous Waste Citizen Participation Plan," dated August 30, 1988, and any subsequent revisions thereto. Respondent shall then carry out such IRM in accordance with the requirements of the approved IRM Work Plan, detailed documents and specifications, and this Order. Respondent shall notify the Department of any significant difficulties that may be encountered in implementing the Department-approved work plan, detailed documents, or specifications and shall not modify any obligation unless first approved by the Department.

(4) During implementation of all construction activities identified in the Department-approved IRM Work Plan, Respondent shall have on-Site a full-time

representative who is qualified to supervise the work done.

(5) Within the schedule contained in the Department-approved IRM Work Plan, Respondent shall submit to the Department a final engineering report prepared by a professional engineer that includes a certification by that individual that all activities that comprised the IRM were performed in full accordance with the Department-approved IRM Work Plan, detailed documents and specifications, and this Order.

(i) If the performance of the Department-approved IRM encompassed construction activities, the final engineering report shall include a detailed post-remedial operation and maintenance plan ("O & M Plan"); "as-built" drawings and a final engineering report (each including all changes made to the Remedial Design during construction); and a certification by a professional engineer that the IRM was implemented and all construction activities were completed in accordance with the Department-approved detailed documents and specifications for the IRM. The O & M Plan, "as built" drawings, final engineering report, and certification must be prepared, signed, and sealed by a professional engineer.

(ii) Upon the Department's approval of the O & M Plan, Respondent shall implement the O & M Plan in accordance with the requirements of the Department-approved O & M Plan.

(6) After receipt of the final engineering report and certification, the Department shall notify Respondent in writing whether the Department is satisfied that the IRM was completed in compliance with the Department-approved IRM Work Plan and design.

B. (1) In implementing any IRM approved by the Department under this Order, Respondent shall be exempt from the requirement to obtain any permit issuable by the Department for an activity satisfying the criteria set out in Subparagraph III.B(2) of this Order.

(2) The following criteria must be met:

(i) The activity is conducted on the Site. For purposes of this Order, an activity is on the Site:

(a) if it is conducted on the same premises as the Site, or

(b) if it is conducted on different premises that are under common control or are contiguous to or physically connected with the Site and the activity manages exclusively hazardous substances for which Respondent is liable (except

in situations where the PSA discloses the existence of off-Site hazardous substance deposits derived from, or otherwise related to materials deposited on-Site, in which case such deposits shall be deemed "on-Site" and subject to this Order to the extent Respondent is able to obtain access for purposes of investigation and/or removal); and

(c) the activity is conducted in a manner which satisfies all substantive technical requirements applicable if the activity were conducted pursuant to a permit issued by the Department.

IV. Performance and Reporting of PSA and of Remedial Investigation

A. (1) In accordance with the schedule contained in a Site's Department-approved PSA Work Plan, Respondent shall commence that Site's PSA.

(2) Respondent shall perform the PSA in accordance with that Site's Department-approved PSA Work Plan.

(3) During the performance of that Site's Department-approved PSA, Respondent shall have at such Site a full-time representative who is qualified to supervise the work done. Respondent's designated representative may be a qualified employee of a consultant or contractor.

(4) In accordance with the schedule contained in a particular Site's Department-approved PSA Work Plan, Respondent shall prepare a PSA Report pertaining to that Site that shall:

(i) include all data generated and all other information obtained during the investigation of that Site;

(ii) provide all appropriate assessments and evaluations set forth in CERCLA, the NCP, and the guidance documents identified in Subparagraph II.D of this Order; and

(iii) include a certification by the individual or firm with primary responsibility for the day to day performance of the PSA for that Site that all activities that comprised the Investigation were performed in full accordance with the Department-approved PSA Work Plan for that Site.

B. This Subparagraph applies only to those Sites identified in Table "A" of Paragraph I of this Order concerning which the Department determines under this Order that an RI/FS must be prepared. (Respondent shall undertake RI/FSs for Mechanicville [Central Avenue] [546033] and Owego [754008] under the terms of, respectively, Department Orders on Consent A5-0276-91-10 dated 23 February 1993 and A7-0150-88-09 dated 2 January 1991.)

(1) In accordance with the schedule contained in a particular Site's Department-approved RI/FS Work Plan, Respondent shall commence that Site's Remedial Investigation.

(2) Respondent shall perform the Remedial Investigation in accordance with that Site's Department-approved RI/FS Work Plan.

(3) During the performance of that Site's Remedial Investigation, Respondent shall have at such Site a full-time representative who is qualified to supervise the work done. Respondent's designated representative may be a qualified employee of a consultant or contractor.

(4) In accordance with the schedule contained in a particular Site's Department-approved RI/FS Work Plan, Respondent shall prepare a Remedial Investigation Report pertaining to that Site that shall:

(i) include all data generated and all other information obtained during the remedial investigation of that Site;

(ii) identify any additional data that must be collected; and

(iii) provide all appropriate assessments and evaluations set forth in CERCLA, the NCP, and the guidance documents identified in Subparagraph II.D of this Order; and

(iv) include a certification by the individual or firm with primary responsibility for the day to day performance of the Remedial Investigation at that Site that all activities that comprised the Remedial Investigation were performed in full accordance with the Department-approved RI/FS Work Plan for that Site.

C. As an element of the Feasibility Study pertaining to a Site, Respondent may undertake a treatability study of remedial alternatives for potential use at such Site, including two EPRI-sponsored demonstration projects, one involving a clean soil process and another involving a contaminated groundwater biotreatment demonstration project (the "study"). The Department agrees with Respondent that the data generated during the course of the study will be beneficial to both Respondent and the Department. In implementing the study, Respondent shall be exempt from the requirement to obtain any permit issuable by the Department for an activity that is conducted on the Site. For purposes of this Order, an activity is on the Site:

1. if it is conducted on the same premises as the Site, or

2. if it is conducted on different premises that are under common control or are contiguous to or physically connected with the Site and the activity

The ROD shall be incorporated into and become an enforceable part of this Order.

VI. Remedial Design

This Paragraph applies only to those Sites concerning which the Department determines under this Order that an RI/FS must be prepared, and to Mechanicville (Central Avenue) (546033) and Owego (754008).

A. Unless the ROD selects the "no action" alternative, within 180 days after the ROD is signed, or as otherwise specified in the ROD, Respondent shall submit to the Department a remedial design to implement the remedial alternative for the Site selected by the Department in the ROD (the "Remedial Design"). The Remedial Design shall be prepared by and have the signature and seal of a professional engineer who shall certify that the Remedial Design was prepared in accordance with this Order.

B. The Remedial Design shall include the following:

(1) A detailed description of the remedial objectives and the means by which each essential element of the selected remedial alternative will be implemented to achieve those objectives, including, but not limited to:

(i) the construction and operation of any structures;

(ii) the collection, destruction, treatment, and/or disposal of hazardous substances and their constituents and degradation products, and of any soil or other materials contaminated thereby;

(iii) the collection, destruction, treatment, and/or disposal of contaminated groundwater, leachate, and air;

(iv) physical security and posting of the Site;

(v) health and safety of persons living and/or working at or in the vicinity of the Site;

(vi) quality control and quality assurance procedures and protocols to be applied during implementation of the Remedial Design; and

(vii) monitoring which integrates needs which are present on-Site and off-Site during implementation of the Department-selected remedial alternative.

(2) "Biddable quality" documents for the Remedial Design including, but not limited to, documents and specifications prepared, signed, and sealed

by a professional engineer. These plans shall satisfy all applicable local, state and federal laws, rules and regulations;

(3) A time schedule to implement the Remedial Design;

(4) The parameters, conditions, procedures, and protocols to determine the effectiveness of the Remedial Design, including, if the Remedial Design encompasses groundwater monitoring, a schedule for periodic sampling of groundwater monitoring wells on-Site and off-Site;

(5) A description of operation, maintenance, and monitoring activities to be undertaken after the Department has approved construction of the Remedial Design, including the number of years during which such activities will be performed;

(6) A contingency plan to be implemented if any element of the Remedial Design fails to achieve any of its objectives or otherwise fails to protect human health or the environment;

(7) A health and safety plan for the protection of persons at and in the vicinity of the Site during construction and after completion of construction. This plan shall be prepared in accordance with 29 CFR 1910 by a certified health and safety professional; and

(8) A citizen participation plan which incorporates appropriate activities outlined in the Department's publication, "New York State Inactive Hazardous Waste Citizen Participation Plan," dated August 30, 1988, and any subsequent revisions thereto.

VII. Remedial Construction

This Paragraph applies only to those Sites concerning which the Department determines under this Order that an RI/FS must be prepared, and to Mechanicville (Central Avenue) (546033) and Owego (754008).

A. Within such time as identified in the Department's approval of the Remedial Design (such time being determined in consultation with Respondent), Respondent shall commence construction of the Remedial Design. The Department will extend this period if reasonably necessary to accommodate weather-related limitations or other restrictions upon the construction season.

B. Respondent shall implement the Remedial Design in accordance with the Department-approved Remedial Design.

4. include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Respondent's obligations under the Order, and efforts made to mitigate those delays or anticipated delays; and

5. include any modifications to any work plans that Respondent has proposed to the Department or that the Department has approved. Respondent shall submit these progress reports to the Department with respect to each Site by the 10th day after the end of the month to which the report pertains.

B. Respondent shall allow the Department to attend, and shall provide the Department at least seven days advance notice of the occurrence of, any of the following: prebid meetings, job progress meetings, substantial completion meeting and inspection, and final inspection and meeting; provided, however, that if circumstances are such as to prevent Respondent from providing the Department with such seven day notice period, Respondent shall provide as much advance notice as possible, under the circumstances.

IX. Review of Submittals

A. (1) The Department shall review each of the submittals Respondent is required to make pursuant to this Order to determine whether it was prepared, and whether the work done to generate the data and other information in the submittal was done, in accordance with this Order and generally accepted technical and scientific principles. Respondent shall include all results of sampling and tests and all other data received or generated by Respondent or Respondent's contractors or agents, including quality assurance/quality control information, whether conducted pursuant to this Order or conducted independently by Respondent, in the submittal to which such sampling, tests, and other data pertain. The Department shall notify Respondent in writing of its approval or disapproval of the submittal, except for the health and safety plans identified in Paragraph III and in Subparagraphs II.C(3) and VI.B(7) of this Order. All Department-approved submittals shall be incorporated into and become an enforceable part of this Order.

(2) (i) If the Department disapproves a submittal, it shall so notify Respondent in writing and shall specify the reasons for its disapproval. Within 30 days after receiving written notice that Respondent's submittal has been disapproved, Respondent shall make a revised submittal to the Department that addresses and resolves all of the Department's stated reasons for disapproving the first submittal.

(ii) Within a reasonable time after receipt of the revised submittal so as to not cause Respondent to be unable to comply with subsequent obligations and schedule deadlines as presented in Department-approved work plans, the Department shall notify Respondent in writing of its approval or disapproval. If the Department disapproves the revised submittal, Respondent shall be in violation of this

Order and the Department may take any action or pursue whatever rights it has pursuant to any provision of statutory or common law, unless Respondent exercises the dispute resolution procedure described in Subparagraph XVII.A of this Order. If the Department approves the revised submittal, it shall be incorporated into and become an enforceable part of this Order.

B. The Department may require Respondent to modify and/or amplify and expand a submittal if the Department determines, as a result of reviewing data generated by an activity required under this Order or as a result of reviewing any other data or facts, that further work is necessary.

X. Penalties

A. Respondent's failure to comply with any term of this Order constitutes a violation of this Order and the ECL.

B. Respondent shall not suffer any penalty under this Order or be subject to any proceeding or action for enforcement of this Order if it cannot comply with any requirement hereof because of war, riot, or an unforeseeable disaster which the exercise of ordinary human prudence could not have prevented. Respondent shall, within five days of when it obtains knowledge of any such condition, notify the Department in writing. Respondent shall include in such notice the measures taken and to be taken by Respondent to prevent or minimize any delays and shall request an appropriate extension or modification of this Order. Failure to give such notice within such five-day period constitutes a waiver of any claim that a delay is not subject to penalties. Respondent shall have the burden of proving that an event is a defense to compliance with this Order.

XI. Entry upon Site

Subject to conditions that may be described in a particular Site's health and safety plan, Respondent hereby consents to the entry upon the Site or areas in the vicinity of the Site which may be under the control of Respondent by any duly designated employee, consultant, contractor, or agent of the Department or any State agency for purposes of inspection, sampling, and testing and to ensure Respondent's compliance with this Order.

XII. Payment of State Costs

The Department shall establish an interest-bearing account into which the Department shall place all monies received from Respondent under the provisions of this Paragraph in order to pay for the State's expenses (including, but not limited to, direct labor and fringe benefits, overhead, travel, analytical costs, and contractor costs) incurred by the State of New York to fund environmental monitors for work associated with

reviewing and revising submittals made pursuant to this Order, overseeing activities conducted pursuant to this Order, collecting and analyzing samples, and administrative costs associated with administering the requirements of this Order. Respondent shall make payments to the Department as follows:

A. Respondent shall submit to the Department the sum of $310,000, which shall represent the State's estimate of the first year expenses (including, but not limited to, direct labor and fringe benefits, overhead, travel, analytical costs, and contractor costs) incurred by the State of New York to fund environmental monitors for work associated with reviewing and revising submittals made pursuant to this Order to date, overseeing activities conducted pursuant to this Order, collecting and analyzing samples, and administrative costs associated with administering the requirements of this Order. The $310,000 shall be submitted as follows: $110,000 on or before the effective date of this Order; $100,000 on or before the 60th day after the effective date of this Order; and $100,000 on or before the 120th day after the effective date of this Order. Respondent shall make subsequent quarterly payments to the Department for the duration of this Order in order to maintain an account balance sufficient to meet the next nine months' anticipated above-described State costs, however, not exceeding on an annual basis $310,000 (which amount may be increased on an annual basis based upon increases in the Consumer Price Index). Each quarterly billing will be based on expenditures incurred to date. The quarterly billing will take into account matters such as inflation, salary increases, accrued interest to be applied to the balance, changes in operating hours and procedures and the need for additional personnel and supervision of such personnel by full-time supervisors. Costs and expenses to be covered by this account include:

(1) Direct personal service costs and fringe benefits of the State's staff assigned to work associated with reviewing and revising submittals made pursuant to this Order, overseeing activities conducted pursuant to this Order, collecting and analyzing samples, and administrative costs associated with administering the requirements of this Order, including their supervisors and including the costs of replacement personnel for the persons regularly assigned to these duties;

(2) Direct non-personal service costs, including but not limited to purchase of a vehicle if necessary and its full operating costs, any appropriate chemical sampling and analysis, travel, supplies, and contractual costs;

(3) Indirect support or overhead costs at the annually approved indirect support cost rate; and

(4) Consultant services.

B. The Department shall notify Respondent in writing when a quarterly payment is due by submitting a quarterly billing. Respondent shall make such payment

in the form of a check payable to the order of the New York State Department of Environmental Conservation and shall submit such payment to the Department at the following address no later than 30 days from receipt of such billing:

New York State Department of Environmental Conservation
50 Wolf Road, Room 608
Albany, NY 12233-1510
ATTENTION: Director of Environmental Monitors

Payments are to be in advance of the period in which they will be expended. Respondent may dispute a quarterly billing by informing the Department in writing within 30 days of receipt of such billing that the amount of such billing is unreasonable. For purposes of this Order, the sole grounds for determining that a billing is unreasonable are that it contains clerical errors; and that all or a portion of a billing cannot be substantiated by the documentation identified in Subparagraph XII.D or XII.E, as appropriate, of this Order. The procedures contained in Subparagraph XVII.A of this Order shall be used to resolve such dispute, and Respondent shall pay the amount as those procedures shall determine Respondent shall pay, within the time period they shall require.

C. Upon the later termination of this Order and upon payment of any outstanding costs and expenses, the Department shall return the unexpended balance, including interest, to Respondent.

D. Actual personal service costs will be based on Site-specific time and activity ("T&A") costs. Non-personal service costs will be prorated based on the type of cost incurred: general costs (such as, supplies and equipment) will be prorated evenly among the Sites subject to this Order; while other project-related costs will be prorated based on the percentage of T&A incurred for each Site subject to this Order for that time period.

E. Actual costs incurred will be documented by quarterly T&A reports for personal service costs. Copies of actual invoices will not be provided but shall be made available for auditing purposes.

XIII. Department Reservation of Rights

A. Nothing contained in this Order shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights.

B. Nothing contained in this Order shall be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

XIV. Indemnification

Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages, and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent, and/or Respondent's directors, officers, employees, servants, agents, successors, and assigns; provided, however, that Respondent shall not indemnify the Department, the State of New York, and their representatives and employees in the event that such claim, suit, action, damages, or cost relate to or arise from any unlawful, willful, grossly negligent, or malicious acts or omissions on the part of the Department, the State of New York, or their representatives and employees.

XV. Public Notice

A. Within 30 days after the effective date of this Order with respect to each Site Respondent owns as of the effective date of this Order, or within 30 days after Respondent acquires ownership in any Site, Respondent shall file, with respect to each Site, a Declaration of Covenants and Restrictions with the Clerk of the County within which each such Site is located to give all parties who may acquire any interest in such Site notice of this Order.

B. If Respondent proposes to convey the whole or any part of Respondent's ownership interest in any Site, Respondent shall, not fewer than 60 days before the date of conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed date of the conveyance of the Site in question and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order and shall accompany such notification with a copy of this Order.

XVI. Communications

A. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered as follows:

Communication from Respondent shall be sent to:

(1) Charles N. Goddard, P.E.
Assistant Director
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

(2) Director, Bureau of Environmental
Exposure Investigation
New York State Department of Health
2 University Place
Albany, New York 12203

(3) Department Regional Director in whose
Region the Site in question is located

(4) Charles E. Sullivan, Jr.
Division of Environmental Enforcement
New York State Department of
Environmental Conservation
50 Wolf Road, Room 609
Albany, New York 12233-5500

B. Copies of work plans and reports shall be submitted as follows:

(1) Six copies (one unbound) to Mr. Goddard

(2) Two copies to the Director, Bureau of
Environmental Exposure Investigation

(3) One copy to Mr. Sullivan

C. Within 30 days of the Department's approval of any report submitted pursuant to this Order, Respondent shall submit to Mr. Goddard a computer readable magnetic media copy of the approved report in American Standard Code for Information Interchange (ASCII) format. This requirement shall not apply to past reports that will be submitted to the Department but have already been completed by Respondent.

D. Communication to be made from the Department to Respondent shall be sent to:

Phillip M. Murphy, Manager--Alternative Methods
Environment & Research Department
New York State Electric & Gas Corporation
Corporate Drive, Kirkwood Industrial Park
P.O. Box 5227
Binghamton, New York 13902-5227

E. The Department and Respondent reserve the right to designate additional or different addressees for communication or written notice to the other.

XVII. Miscellaneous

A. (1) This Subparagraph applies only to those Sites identified in Table "A" of Paragraph I of this Order concerning which the Department determines under this Order that an RI/FS must be prepared.

(2) If after conferring in good faith, there remains a dispute between Respondent and the Department concerning a provision of this Order identified as subject to this Subparagraph's procedures, within the time period provided in that provision Respondent serve on the Department a request for an appointment of an Administrative Law Judge ("ALJ"), and a written statement of the issues in dispute, the relevant facts upon which the dispute is based, and factual data, analysis, or opinion supporting its position, and all supporting documentation on which Respondent relies (hereinafter called the "Statement of Position"). The Department shall serve upon Respondent its Statement of Position, including supporting documentation no later than ten (10) business days after receipt of Respondent's Statement of Position. Respondent shall have five (5) business days after receipt of the Department's Statement of Position within which to serve upon the Department a reply to the Department's Statement of Position, and in the event Respondent serves such a reply, the Department shall have five (5) business days after receipt of Respondent's reply to the Department's Statement of Position within which to serve upon Respondent the Department's reply to Respondent's reply to the Department's Statement of Position. In the event that the periods for exchange of Statements of Position and replies may cause a delay in the work being performed under this Order, the time periods may be shortened upon and in accordance with notice by the Department as agreed to by Respondent.

(3) The Department shall maintain an administrative record of any dispute being addressed under this Subparagraph. The record shall include the Statement of Position of each party served pursuant to Subparagraph XVII.A(2) and any relevant information. The record shall be available for review of all parties and the public.

(4) Upon review of the administrative record as developed pursuant to this Subparagraph, the ALJ shall issue a final decision and order resolving the dispute. If the matter in dispute concerns a submittal,

(i) Respondent shall revise the submittal in accordance with the Department's specific comments, as may be modified by the ALJ and except for those which have been withdrawn by the ALJ, and shall submit a revised submittal. The period of time within which the submittal must be revised as specified by the Department in its notice of disapproval shall control unless the ALJ revises the time frame in the ALJ's final decision and order resolving the dispute.

(ii) After receipt of the revised submittal, the Department

shall notify Respondent in writing of its approval or disapproval of the revised submittal.

(iii) If the revised submittal fails to address the Department's specific comments, as may be modified by the ALJ, and the Department disapproves the revised submittal for this reason, Respondent shall be in violation of this Order and the ECL.

(5) In review by the ALJ of any dispute pursued under this Subparagraph, Respondent shall have the burden of proving by a preponderance of the evidence that the Department's position should not prevail.

(6) a deadline involving any matter that is the subject of the dispute resolution process described in this Subparagraph shall be held in abeyance while it is the subject of the dispute resolution process unless the Department and Respondent otherwise agree in writing. The invocation of the procedures stated in this Subparagraph shall constitute an election of administrative remedies by Respondent, and such election of this remedy shall constitute a waiver of any and all other administrative remedies which may otherwise be available to Respondent regarding the issue in dispute.

B. All activities and submittals required by this Order shall address both on-Site and off-Site contamination resulting from the disposal of hazardous substances at each Site.

C. Respondent shall retain professional consultants, contractors, laboratories, quality assurance/quality control personnel, and data validators acceptable to the Department to perform the technical, engineering, and analytical obligations required by this Order. Within 30 days after completion of Respondent's retainer process resulting in the selection of a particular firm or individual to perform any of such obligations, Respondent shall submit to the Department a summary of the experience, capabilities, and qualifications of the firm or individual retained. Respondent must obtain the Department's approval of these firms or individuals before the initiation of any activities for which Respondent and such firms or individuals will be responsible.

D. The Department shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by Respondent, and the Department also shall have the right to take its own samples. Respondent shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by the Department, and Respondent also shall have the right to take its own samples. Respondent shall make available to the Department the results of all sampling and/or tests or other data generated by Respondent with respect to implementation of this Order, including a tabular summary of any such results in any report submitted pursuant to this Order requiring such results.

E. Respondent shall notify the Department at least 10 working days in

advance of any field activities to be conducted pursuant to this Order. The Department's project manager is hereby authorized to approve any modification to an activity to be conducted under a Department-approved work plan in order to adapt the activities to be undertaken under such work plan to the conditions actually encountered in the field.

F. Respondent shall use reasonable efforts to obtain whatever permits, easements, rights-of-way, rights-of-entry, approvals, or authorizations are necessary to perform Respondent's obligations under this Order. If Respondent is unable, after exhaustion of such reasonable efforts, to obtain any such permissions, the Department will exercise whatever authority is available to it, in its discretion, to obtain same. In no event will Respondent be determined to be in violation of this Order if it fails to obtain any such permissions after exhausting reasonable efforts to obtain same. This is in recognition of the fact that, with respect to certain Sites, the New York State Electric and Gas Corporation is the current owner of only part of the potential area of disposal of MGP wastes, and may in fact, as to certain Sites, not be the owner of any portion of the Site. Significant impediments may, therefore, be encountered as to Respondent's ability to obtain access for purposes of carrying out the requirements of this Order.

G. If Respondent determines, in connection with any given Site, that a valid claim exists in favor of Respondent as against any other potentially responsible party, for contribution toward response costs deemed necessary by the Department in connection with such Site (or for recovery of an appropriate portion of such costs previously incurred by Respondent), the Department shall provide, in a timely manner, information responsive to any reasonable request (otherwise in conformity with Freedom of Information Law requirements) by such party related to conditions at the Site and any other relevant information that may be helpful in substantiating Respondent's claim. Similarly, if Respondent requests access to non-privileged and otherwise disclosable information in the Department's possession and relevant to the potential liability of any person or entity who may be subject to such claim by Respondent for contribution or cost recovery, the Department will take reasonable steps to expedite Respondent's access to such information.

H. Respondent and its successors and assigns shall be bound by this Order. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall in no way alter Respondent's responsibilities under this Order. Respondent's officers, directors, employees, servants, and agents shall be obliged to comply with the relevant provisions of this Order in the performance of their designated duties on behalf of Respondent.

I. Respondent shall provide a copy of this Order to each contractor hired to perform work required by this Order and to each person representing Respondent with respect to the Site and shall condition all contracts entered into hereunder upon performance in conformity with the terms of this Order. Respondent or Respondent's contractors shall provide written notice of this Order to all subcontractors hired to

perform any portion of the work required by this Order. Respondent shall nonetheless be responsible for ensuring that Respondent's contractors and subcontractors perform the work to be done under this Order in accordance with this Order.

J . All references to "professional engineer" in this Order are to an individual licensed and registered to practice professional engineering in accordance with Article 145 of the New York State Education Law.

K. All references to "days" in this Order are to calendar days unless otherwise specified.

L. The section headings set forth in this Order are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Order.

M. (1) The terms of this Order shall constitute the complete and entire Order between Respondent and the Department concerning the Site. No term, condition, understanding, or agreement purporting to modify or vary any term of this Order shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department regarding any report, proposal, plan, specification, schedule, or any other submittal shall be construed as relieving Respondent of Respondent's obligation to obtain such formal approvals as may be required by this Order. However, in the event that Respondent determines that it cannot continue burning CTS at either its Jennison Station or Hickling Station, then Respondent may request that the Department modify its obligations regarding the Sites listed in Table "A" of Paragraph I of this Order. The Department's decision on whether to grant Respondent's request shall not be unreasonably denied and shall consider, but not be limited to, Respondent's costs of proceeding with its obligations under this Order.

(2) If Respondent desires that any provision of this Order be changed, Respondent shall make timely written application, signed by the Respondent, to the Commissioner setting forth reasonable grounds for the relief sought. Copies of such written application shall be delivered or mailed to Messrs. Goddard and Sullivan.

N. The effective date of this Order shall be the date it is signed by the Commissioner or his designee.

DATED: Albany, New York
March 30, 1994

J. LANGDON MARSH
Acting Commissioner
New York State Department
of Environmental Conservation

CONSENT BY RESPONDENT

Respondent hereby waives its right to a hearing herein as provided by law; consents to the issuance and entry of this Order; and agrees to be bound by its terms, not to contest the authority or jurisdiction of the Department to issue or enforce this Order, and not to contest the validity of this Order or its terms.

NEW YORK STATE ELECTRIC & GAS CORPORATION

by: Vincent W Rider

Typed name of signer: Vincent W. Rider

Title of signer: Vice President - Electric Generation

Date signed: March 25, 1994

STATE OF NEW YORK)
) ss:
COUNTY OF Broome)

On this 25th day of March, 1994, before me personally appeared Vincent W. Rider, to me known, who, being duly sworn, did depose and say that he resides in Endwell, New York; that he is Vice President-Electric Generation of the New York State Electric & Gas Corporation; that he executed the foregoing instrument on behalf of the New York State Electric & Gas Corporation; that he knew the seal of said corporation; that the seal affixed to said instrument was such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Gail A. Marion
Notary Public State of New York
Registration number: 5003473
My commission expires: 10/26/94

GAIL A. MARION
Notary Public, State of New York
No. 5003473
Residing in Broome County
My commission expires Oct 26 1994

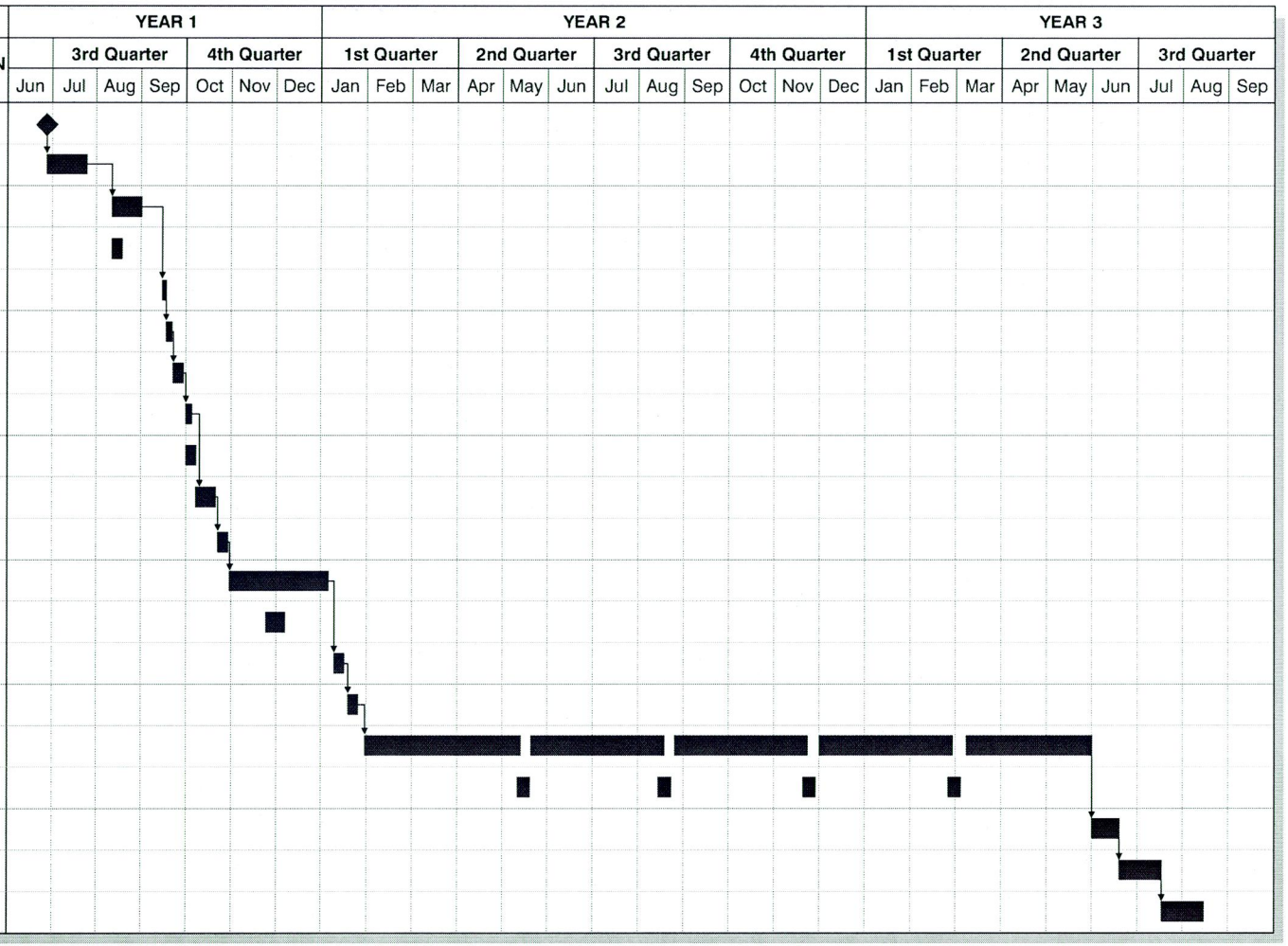
APPENDIX G

PROJECT SCHEDULE

REMEDIATION CONSTRUCTION SCHEDULE

Ithaca Court Street MGP Site

TASK NAME	DURATION (DAYS)
Bid MGP Site Remediation	0
Award MGP Site Remediation	20
Renovate Markles Flats Building for Construction Offices	15
Move Food Refrigeration Units from Markles Flats Building	5
Move Equipment and Materials from Yard Area	2
Move Equipment and Materials from Metal Butler Building	3
Asbestos Removal Metal Butler Building	5
Demolish Metal Butler Building	3
Move Equipment, Materials and Personnel from Maint. Building	5
Asbestos Removal Maintenance Building	10
Demolish Maintenance Building	5
Start Installing Sheetpiling	50
Setup Wastewater Treatment Plant	10
Setup Temporary Structure	5
Setup Air Handling Equipment for Temporary Structure	5
Excavate, Load, Transport & Backfill	310
Move Temp. Building (Cells)	21
Decontaminate	10
Site Restoration & Permanent GWT System	21
Demobilization	21



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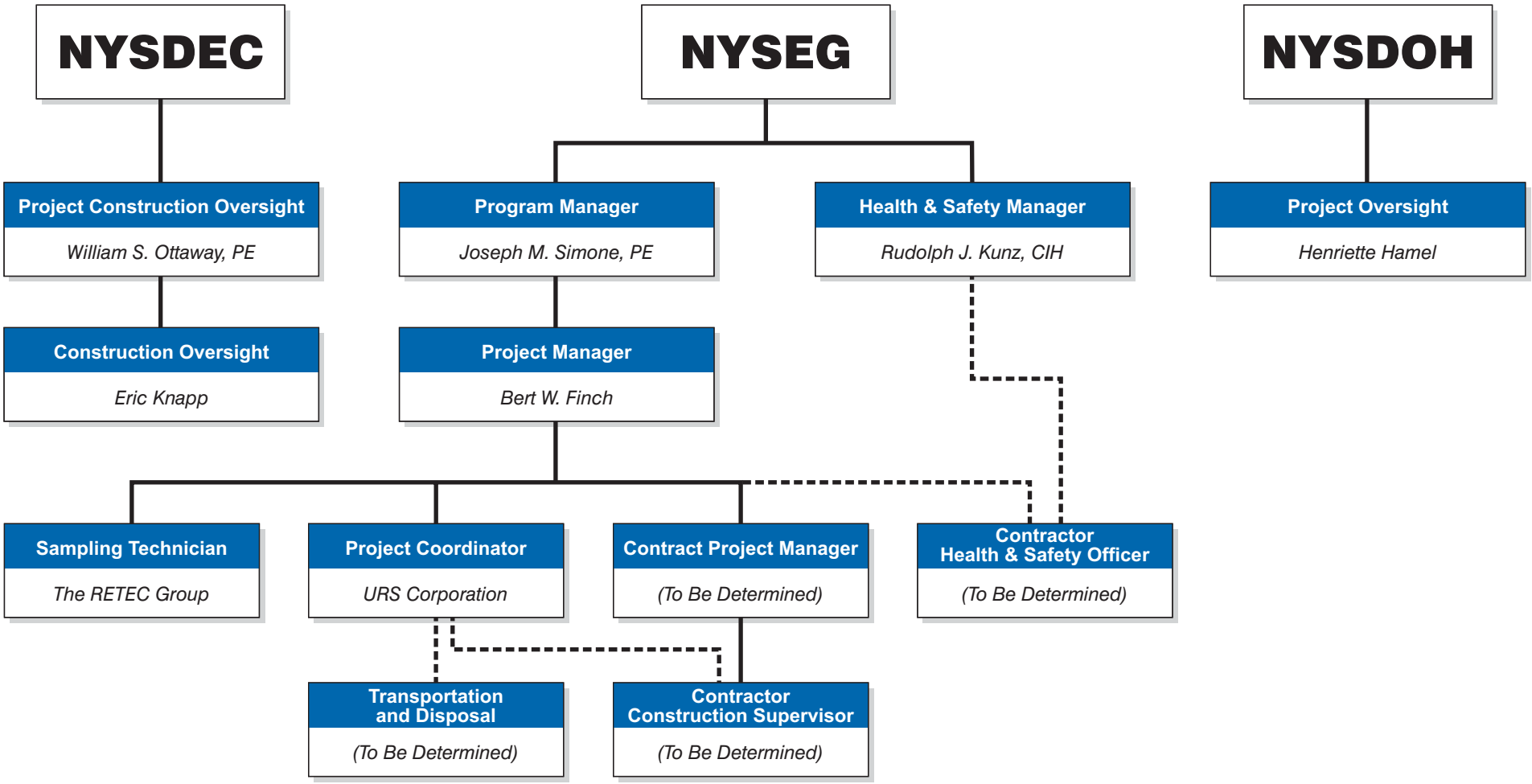
APPENDIX H

ORGANIZATION STRUCTURE

ORGANIZATION STRUCTURE

Remedial Action at the
Ithaca Court Street Former MGP Site



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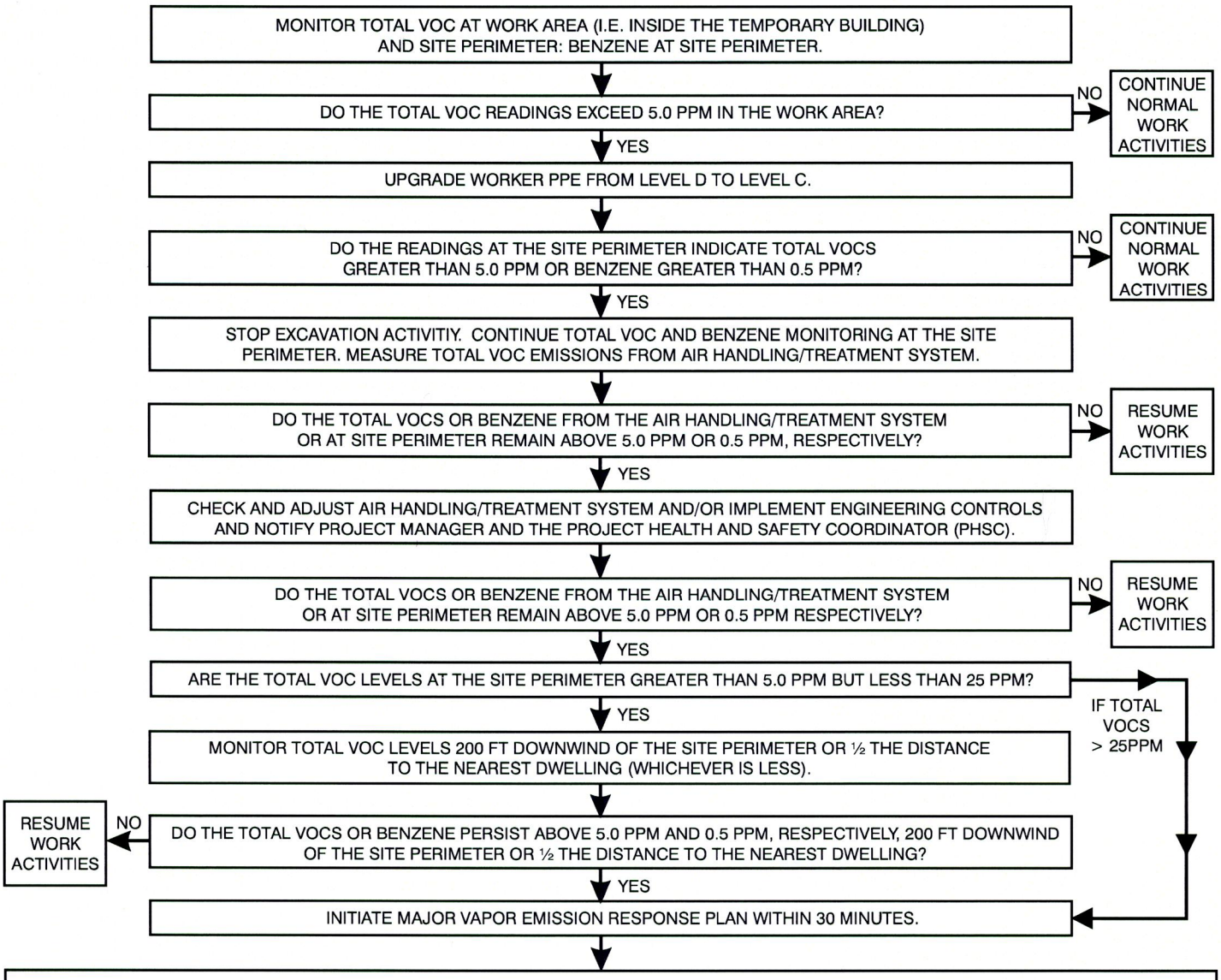
APPENDIX I

ITHACA COURT STREET MGP

SITE VAPOR EMISSION RESPONSE PLAN

ITHACA COURT STREET MGP SITE
VAPOR EMISSION RESPONSE PLAN



1. COVER THE EXCAVATED AREA WITH POLYETHYLENE SHEETING. SHUTDOWN THE AIR HANDLING/TREATMENT SYSTEM IF EMISSIONS FROM SYSTEM FOR TOTAL VOCS OR BENZENE EXCEED 5.0 PPM OR 0.5 PPM, RESPECTIVELY.
2. NOTIFY THE NYSDOH, HENRIETTE HAMEL (315) 477-8163: TOMKINS COUNTY HEALTH DEPARTMENT, STEVE MAYBEE (607) 274-6688: NYSDEC, WILLIAM OTTAWAY (518) 402-9662: AND THE ITHACA POLICE BUREAU, (607) 272-3245.
3. TOTAL VOC AND BENZENE LEVELS WILL BE MONITORED WITHIN 20 FEET OF THE NEAREST DOWNWIND RESIDENTIAL OR COMMERCIAL STRUCTURE (20 FOOT ZONE).
4. CONTINUE AIR MONITORING AT 15-MINUTE INTERVALS IN THE 20 FT ZONE. IF TWO SUCCESSIVE READINGS BELOW ACTION LEVELS ARE MEASURED, AIR MONITORING INTERVALS MAY BE HALTED OR MODIFIED BY THE PHSC, WITH APPROVAL OF THE NYSDEC AND NYSDOH.
5. IF TOTAL VOC AND/OR BENZENE LEVELS PERSIST ABOVE 5.0 PPM AND 0.5 PPM, RESPECTIVELY, WITHIN THE 20 FT ZONE, THE CONSTRUCTION SUPERVISOR, THE PHSC AND NYSEG MANAGER WILL CONSULT WITH EACH OTHER AND THE EMERGENCY RESPONSE AGENCIES TO DETERMINE APPROPRIATE ACTIONS TO BE IMPLEMENTED. NYSEG HAS ULTIMATE AUTHORITY DURING MAJOR VAPOR EMISSION EMERGENCIES

URS

APPENDIX J

CONTINGENCY PLAN

NYSEG

REMEDIAL DESIGN
CONTINGENCY PLAN

FOR

REMEDIATION OF THE ITHACA WEST COURT STREET
FORMER MANUFACTURED GAS PLANT SITE

City of Ithaca, Tompkins County, New York

Prepared By:

URS Corporation – New York
77 Goodell Street
Buffalo, New York 14203

Prepared For:

NEW YORK STATE ELECTRIC & GAS CORPORATION
James A. Carrigg Center, 18 Link Drive
Binghamton, New York 13902-5224

JUNE 2007

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Section **Page**

1.0 CONTINGENCY PLAN

This *Contingency Plan* is designed to address potential emergencies that may arise as a result of operations during the Remedial Action to be completed at NYSEG's (New York State Electric and Gas Corporation's) Ithaca Court Street Former Manufactured Gas Plant (MGP) site, City of Ithaca, Tompkins County, New York. This Plan supplements the *Work Plan* and the *Health and Safety Plan*.

The Site Safety Officer (SSO) will be made aware of the emergencies and coordinate any response activities carried out at the site. The SSO will serve as the overall Project Emergency Coordinator (PEC) and have the ultimate authority in specifying and facilitating any contingency action.

If the SSO is not able to perform these duties, he will specify another senior individual to serve in this capacity. The PEC will become familiar with contingency plans developed by each contractor and subcontractor.

1.1 Identifying the Hazards and Assessing the Risk

The objectives during any emergency shall be to protect human health and safety and then the environment. Possible hazards to human health or the environment that may result from any emergency situation will be identified by the PEC. The PEC must take into consideration both direct and indirect effects of the incident.

The PEC will then assess the possible risks to human health or the environment that may result from the emergency (e.g., release, fire, explosion, or severe weather conditions). He will make this assessment by:

- identifying the materials involved in the incident;
- consulting the appropriate Occupational Health Guideline or MSDS to determine the potential effects of exposure/release, and appropriate safety precautions; and
- identifying the exposure and/or release pathways and the quantities of materials involved.

Based on this information the PEC will determine the best course of action for dealing with the emergency, and possible follow-up requirements that may result from implementing those actions (e.g., equipment repair, material disposal, etc.).

If the incident cannot be controlled by operating personnel without incurring undue risk, the PEC will implement the Site Evacuation Procedures (Section 2.1); if off-site neighboring population is at risk the Off-Site Evacuation Procedures (Section 2.2) will be implemented. The PEC will notify NYSEG project manager and the appropriate government agencies and departments that a situation resulting in evacuation has occurred. Should emergency assistance in treating injuries or carrying out the evacuation be required, the PEC will request assistance of the appropriate parties.

1.2 Conditions for Implementing a Contingency Plan

Some of the conditions under which the contingency plan would be implemented are:

- fire or explosion;
- occurrence of a spill or material release;
- severe weather conditions; and
- physical or chemical injury to a worker.

1.2.1 Fire and/or Explosion Conditions

Contingency procedures will immediately be implemented upon notification that any of the following scenarios involving fire and/or explosion is imminent or has occurred:

- a fire that causes, or could cause, the release of toxic fumes;
- a fire that could possibly ignite nearby flammable materials or could cause heat-induced explosions;

- a fire that could possibly spread to off-site areas;
- a danger exists that an explosion could occur causing a safety or health hazard; and
- an explosion has occurred.

1.2.2 Spill or Material Release Conditions

Any of the following scenarios involving a spill or material release, whether imminent or having already occurred, will cause implementation of contingency procedures:

- a spill or material release that could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard;
- a spill or material release that could cause the release of toxic vapors or fumes into the atmosphere in concentrations higher than the OSHA Permissible Exposure Limits (PELs);
- a spill or material release that can be contained on-site where a potential exists for groundwater or surface water contamination; and
- a spill or material release that cannot be contained on-site, resulting in a potential for off-site soil contamination and/or groundwater or surface water pollution.

The PEC (or sub-contractor's emergency coordinator) will immediately identify the character, source, amount, and extent of any release. Spills or material releases shall be reported immediately to the PEC. Initial identification will be based on visual analysis of the material and location of the release. If the release material cannot be identified, samples will be taken for analysis.

1.2.3 Severe Weather Conditions

The following severe weather conditions, whether imminent or having occurred, may cause implementation of contingency procedures.

- a tornado has been sighted in the area;
- a tornado warning is in effect for the area;
- a lightning storm is underway in the area (storm center less than 5 miles away); and
- other severe weather or weather induced conditions (e.g., hurricane or flood).

1.2.4 Physical or Chemical Injury Conditions

The following worker injuries may cause implementation of the Contingency Plan:

- major physical injuries;
- chemical injuries; and
- severe symptoms of chemical overexposure.

1.3 Contingency Procedures

If any of the aforementioned conditions for implementing the Contingency Plan are met, the appropriate following contingency procedure(s) shall be performed.

1.3.1 Contingency Procedures for Fire/Explosion

When fire or explosion appear imminent or have occurred, all normal activity in affected areas will cease. The PEC will make an assessment of the potential risk and severity of the situation to decide whether the emergency event will or will not be readily controllable with existing portable fire extinguishers or site equipment and materials at hand. Fire fighting will not be done at the risk to site workers. Local fire departments will be contacted in all situations in which fires and/or explosions have occurred. The following steps will be taken for localized fire.

- contact local fire departments;

- move all personnel to an upwind location at an appropriately safe distance away;
- determine if fire is within on-site personnel capabilities to attempt initial fire fighting;
- determine if smoke and/or fumes from fire are potentially impacting offsite areas;
- if the fire is not impacting offsite areas and is within on-site personnel capabilities, utilize most appropriate means of extinguishing fire (e.g., fire extinguishers, water, covering with soil, etc.); and
- once fire is extinguished, containerize and properly dispose of any spilled material, runoff, or soil.

If the situation appears uncontrollable and poses a direct threat to human life, fire departments will be contacted and the Evacuation Plan will be implemented. If the chances of an impending explosion are high, the entire area within a 1,000-foot radius of the fire source will be evacuated. The PEC will alert personnel when all danger has passed, as determined by the chief fire fighter from the responding fire department. All equipment used in the emergency will be cleaned and refurbished as soon as possible after the emergency has passed so that it will be ready for use in the event of any future emergency.

1.3.2 Contingency Procedures for Spills or Material Releases

If a hazardous waste spill or material release or process upset resulting in probable vapor release is identified, the PEC will immediately assess the magnitude and potential seriousness of the spill or release based upon;

- MSDS for the material spilled or released;
- source of the release or spillage of hazardous material;
- an estimate of the quantity released and the rate at which it is being released;
- the direction in which the spill or air release is moving;

- personnel who may be or may have been in contact with the material, or air release, and possible injury or sickness as a result;
- potential for fire and/or explosion resulting from the situation; and
- estimates of area under influence of the release.

If the spill or release is determined to be within the on-site emergency response capabilities, the PEC will ensure implementation of the necessary remedial action. If the accident is beyond the capabilities of the operating crew, all personnel not involved with emergency response activity will be evacuated from the immediate area and the appropriate emergency response group(s) will be contacted.

1.3.3 Contingency Procedures for Severe Weather

When a tornado is sighted in the area, when a tornado warning has been issued, or when a lightning storm occurs, the information will be immediately relayed to the PEC. In the case of a tornado sighting, the PEC will then institute emergency shutdown procedures, and all personnel will be directed to proceed indoors after completing appropriate shutdown procedures. In the case of a tornado warning, or lightning storm, the PEC will have operations stopped and direct all personnel to stand by for emergency procedures. Other types of weather or weather induced conditions (e.g., hurricane or flooding) for which long range prediction is available may also require positive action as identified herein.

When the severe weather has passed, the PEC will direct all contractors to inspect on-site equipment to ensure its readiness for operation prior to restarting operations.

If an inspection indicates a fire, explosion, or release has occurred as the result of a severe weather condition, the procedures for those events will be followed.

1.3.4 Contingency Procedures for Physical Injury to Workers

Regardless of the nature and degree of the injury, the PEC will be apprised of **all** injuries requiring first aid of any kind. A report of the injury or incident will be completed as required by the *Health and Safety Plan*.

Upon notification that a worker has been injured, the PEC will immediately determine the severity of the accident, and whether the victim can be safely moved from the incident site. Appropriate medical assistance will be summoned immediately.

Minor injuries sustained by workers will be treated on-site using materials from the first aid kits. Whenever possible, such treatment will be administered by trained personnel in a "clean zone". Examples of minor injuries include small scrapes and blisters. Minor injuries would not be expected to trigger implementation of the contingency plan.

Major injuries sustained by workers will require professional medical attention at a hospital. The PEC will immediately summon an ambulance and contact the hospital to which the injured worker will be transported. The PEC will notify NYSEG project manager as soon as practical. The hospital and ambulance should be advised of:

- the nature of the injury;
- whether the injured worker will be decontaminated prior to transport;
- when and where the injury was sustained; and
- the present condition of the injured worker (e.g., conscious, breathing).

1.3.5 Contingency Procedures for Chemical Injury to Workers

Injuries involving hazardous chemicals or symptoms of severe chemical overexposure will automatically trigger implementation of the contingency plan. Upon notification that a chemical injury has

been sustained or severe symptoms of chemical exposure are being experienced, the PEC will notify the hospital and ambulance of the occurrence. The PEC will provide, to the extent possible, the following information:

- the nature of the injury (e.g., eyes contaminated);
- the chemical(s) involved;
- the present condition of the injured worker (e.g., conscious, breathing);
- whether the injured worker will be decontaminated prior to transport; and
- when and where the injury was sustained.

Steps will immediately be taken to remove the victim from the incident site using whatever personal protective equipment (PPE) and safety equipment is necessary. Rescuers will check for vital signs and, if possible, remove contaminated outer clothing. If the victim's eyes have been contaminated, personnel trained in administering first aid will flush the victim's eyes with eyewash solution until the emergency response team arrives.

Details on the nature of the contaminant and methods for treating exposure or injury can be obtained from the MSDSs or Occupational Health Guidelines as provided in the *Health and Safety Plan*.

2.0 EMERGENCY EVACUATION PROCEDURES

2.1 Site Evacuation Procedures

If an emergency occurs that requires the evacuation of an area to ensure personnel safety, including (but not limited to) fire, explosion, severe weather or hazardous waste/material spills, or a significant release of vapors into the atmosphere, an air horn will be sounded on the site by the nearest person aware of the event. The horn will sound continuously for approximately 15 seconds, signaling that immediate evacuation of all personnel from the area is necessary as a result of some existing or impending danger. In areas where only two or three people are working side by side, and the need to evacuate can be communicated verbally by the nearest person aware of the event, the air horn will not be necessary.

All heavy equipment in the area will be shutdown. Under no circumstances will incoming visitors (other than emergency response personnel) be allowed to enter any area where an emergency is occurring. Visitors or observers and all non-essential personnel present in the area of an emergency will be instructed to evacuate the area immediately.

Contractor and subcontractor emergency coordinators and/or health and safety officers (as designated) will be responsible for ensuring that emergency response requirements specific to their own operations are carried out. These parties will report their activities to the PEC. The PEC, however, has final authority regarding all emergency response activities.

All non-essential personnel shall evacuate the emergency areas and notify personnel in adjacent areas to evacuate also. The evacuated workers will assemble at the primary assembly area at the site construction office trailer, where the PEC will give directions for implementing necessary actions. In the event that the primary assembly area is involved, unapproachable, or unsafe due to the event, evacuated workers shall assemble at the alternate assembly area at the intersection of North Albany Street and Esty Street. The PEC will phone for backup assistance.

Personnel are to avoid encountering smoke/gas plumes as practicable during evacuation and assembling.

The PEC will take charge of all emergency response activities and dictate the procedures that will be followed until emergency personnel arrive. The PEC will assess the seriousness of the situation, and direct whatever efforts are necessary until the emergency response units arrive.

After initiating emergency response procedures, the PEC will assign appropriate personnel to check and attempt to ensure that access roads are not obstructed. If traffic control is necessary, as in the event of a fire or explosion, personnel who have been trained in these procedures and designated at the project safety meeting will take over these duties until emergency units arrive.

The PEC will remain at the site to provide any assistance requested by emergency-response squads as they arrive to deal with the situation. The PEC will have the authority to shut down any part or all of the project after an emergency until he deems it safe to continue operations. He will dictate any changes in project safety practices which are made necessary by the emergency that has occurred or are required for preventing further emergencies.

2.2 Off-Site Evacuation Procedures

If the PEC deems that humans outside of the site are at risk, he will notify the appropriate agencies and departments (e.g., NYSEG project manager, Tompkins County Department of Health, Ithaca Police Department, New York State Department of Environmental Conservation and New York State Department of Health, etc.) of the need, or potential need, to institute off-site evacuation procedures. The PEC will provide, at a minimum, the following information:

- his or her name and telephone number;
- name and address of facility;
- time and type of incident (e.g., release, fire, etc.)

- name and quantity of materials or materials involved, to the extent this information is known;
- the extent of injuries, if any; and
- the possible hazards to human health or environment, and cleanup procedures.

APPENDIX K

BIOSOLVE® PRODUCT INFORMATION

biosolve

MULTI-PURPOSE HEAVY DUTY CLEANER

dispar

Product line of Vetoquinol N.-A. Inc. 2000, chemin Georges, Lavaltrie, QC, Canada J0K 1H0 www.vetoquinol.ca

biosolve*

MULTI-PURPOSE HEAVY DUTY CLEANER

- Powerful cleaning concentrate
- Superior degreasing properties
- For use in food processing, hatcheries & on farm premises
- Biodegradable

APPLICATION:
For the removal of organic soiling especially fats and greases. Biosolve is ideal for the removal of faecal matter and soiling on farms and in the hatchery. Biosolve will remove stubborn fats and grease from all processing equipment such as shackles and cutting blades.

COMPOSITION:
Pale yellow liquid. An alkaline blend of non-ionic and amphoteric surfactants in an aqueous solution incorporating a biodegradable sequestrant for superior hard water performance.

DIRECTIONS FOR USE:

■ SPRAYING:
Manually prepare a 0.5% (1:200) solution of Biosolve or use dosing equipment to achieve this dilution. Spray using a low-pressure lance onto all surfaces at an application rate of 500 mL/m^2. Hot water (60-65 °C) will improve the effectiveness of the product particularly in high grease situations. Allow contact time of 15-20 minutes prior to thoroughly rinsing all surfaces with water at high pressure. Higher concentrations may be required under heavy soiled conditions.

■ FOAMING:
Manually prepare a 2% (1:50) solution of Biosolve or use dosing equipment to achieve this dilution. Apply using a foam lance onto all surfaces at an application rate of 250 mL/m^2. Allow a contact time of 15-20 minutes prior to thoroughly rinsing all surfaces with water at high pressure. Higher concentrations may be required under very heavy soiled conditions.

HEALTH HAZARDS:
Corrosive to eyes and skin. Inhalation of mists of the diluted product may cause irritation to nose and respiratory tract.
Biosolve contains Sodium Hydroxide.

PRECAUTIONS:
Wear a mask when working in spray mists. Wear safety glasses and gloves.

FIRST AID:
In case of contact: immediately flush eyes or skin with water for at least 10 minutes.

SEE MATERIAL SAFETY DATA SHEET

NET CONTENTS: 20 L

PRODUCT CODE: 02353008

Manufactured by: Antec International www.antecint.com

Distributed in Canada By:
Syndel International Inc.
9211 Shaughnessy Street
Vancouver, BC V6P 6R5
Tel:(604)321-7131 or (800)663-2282
Fax:(604)321-3900

Insitu Bioremediation

BioSolve® offers tremendous advantages to insitu bioremediation projects. Many projects can be enhanced by utilizing BioSolve's® ability to desorb and emulsify the hydrocarbon in the substrate. When applied through injection wells, BioSolve® can enhance the microbe's ability to metabolize the contaminate by stripping the hydrocarbon off the soil particles and emulsifying it into the pore space.This action creates a large interfacial surface area allowing the bacteria to quickly metabolize the contaminate.

BioSolve® and Desorption

The surfactants in BioSolve® desorb or strip the hydrocarbon from the soil particles during the emulsification process. During the desorption process it is expected that the TPH levels will increase shortly after application. This is due to the fact that the BioSolve® has emulsified the contaminate off the soil particle and increased the total recoverable hydrocarbon.

The hydrocarbon, in the pump and treat process, becomes mobile, and is carried with the water to the recovery wells where it can be removed from the environment.

In bioremediation projects, shortly after the TPH increase, there will be a dramatic decrease in TPH levels.

BioSurfactants

BioSolve® has been tested by leading universities for it's ability to enhance the biodegradation of hydrocarbons. These tests by universities, independent laboratories, and actual field use conclude that BioSolve® can play an important role in helping to accelerate the bioremediation of hydrocarbon contaminated wastes.

BioSolve® is continually being utilized as the biosurfactant of choice for many bioremediation projects worldwide. According to "Petroleum Microbiology", not all surfactants are effective for biodegradation....."In some cases (microbial) growth is enhanced; in other cases, growth is inhibited...." (Whitworth et al., 1973)

BioSolve® and Desorption

The surfactants in BioSolve® desorb or strip the hydrocarbon from the soil particles during the emulsification process. While the advantages of desorption are numerous, two main features are critical to the biodegradation process:

- A dramatic increase of surface area is exposed to the bacteria.
- The emulsion separates and reduces the size of the hydrocarbon particles.

These two factors combine to create conditions that are favorable for bacteria to degrade the hydrocarbon at a greatly accelerated rate. Whether BioSolve® is used with indigenous bacteria, or in conjunction with commercial bacteria cultures, the end result is that the time and costs related to extended treatments can be greatly reduced.

Vapor Suppression - Spill Response

BioSolve® has an amazing ability to suppress or eliminate Volatile Organic Compounds (VOC's). Unlike a foam that suppresses vapor only as long as the blanket lasts, BioSolve's® *unique* properties encapsulate and emulsify the hydrocarbon giving long term vapor suppression.

BioSolve®, diluted to a 3% to 6% solution can be applied with any water applicator. Special equipment is not required. Since BioSolve® is not a foam, it can be applied on high wind days as well as hillsides. for large sites, applicators can include foam eductors, water trucks, and sprinkler systems, for smaller jobs, a hand pump sprayer, water extinguisher, or garden hose with a fertilizer attachment on the nozzle works quite will.

Because BioSolve® applies like water, it's applications are almost endless. In underground storage tanks (USTs), BioSolve® is used in the "Triple Rinse" washing procedure. BioSolve® eliminates the recurrence of vapor release often associated with UST removals. Because BioSolve® is a unique biosurfactant, it not only suppresses the vapor but cleans the tank right down to the metal. BioSolve® can be used with any pressure washer with tremendous efficiency. Drum washers/recyclers find that BioSolve® is ideal to handle a wide range of contaminated drums. A 6% solution of BioSolve® is high pressure sprayed into the drums to wash them out. BioSolve's® double action of encapsulation and cleaning, effectively cleans the drums in a one step application. BioSolve® is so effective it is even used to clean out mercaptan drums with little to no odor release. Because BioSolve® enhances the bioremediation of organic compounds it makes it possible to dispose of wash water to a plant's activated sludge pond. In refinery and on oil production platforms, BioSolve® is proving an effective agent for suppressing VOC vapor in open drain systems during Turnarounds and Workover Operations. BioSolve® is also being utilized in bilge cleaning, vessel cleanups, cutting washers, soil and sludge washing, and more.

BioSolve® is commonly utilized by HazMat, Emergency Response, and fire departments nationwide to suppress VOC vapors and odors. Many departments report that BioSolve® inducted into the sanitary sewers effectively eliminates the explosion hazard when gas leaks into the municipal sewer systems. (NOTE: Always follow State and Federal guidelines and approvals before using in sewers.) We have on file a variety of letters from Fire Departments and Sanitation Districts regarding this procedure. these are available upon request.

Petrochemical Division

During clean-up operations BioSolve® has wide range application. BioSolve's® unique properties emulsify the hydrocarbon into solution making the tank bottoms pumpable.When pumped to holding tanks and allowed to settle, BioSolve® will release the oil from solution, separating the oil from the solids. This unique property of BioSolve® allows the oily sludge from tank bottoms to be recovered into sellable oil with a low BS&W. (Basic Sediment & Water)

Ashphaltenes

Ashphaltene's present cleaning problems due to their high molecular weight and their extremely high viscosity and adhesion. Normal cleaning procedures included the use of solvents or hot caustics. The

rinsate then becomes an additional expensive problem having to be disposed of as hazardous.

Now there's BioSolve®. Following a similar procedure as hot caustic cleaning, a 6% solution of BioSolve® takes the ashphaltene's into solution and the emulsion can then be pumped out and sent to the plant's activated sludge pond. (Protocol available)

NWFF Environmental
1-800-942-4614

MSDS Biosolve®

Section I - Identity

Name:	Biosolve®
CAS#:	138757-63-8
Formula:	Proprietary
Chemical Family:	Water Based, Biodegradable, Wetting Agents & Surfactants
HMIS Code:	Health 1, Fire 0, Reactivity 0
HMIS Key:	4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Significant

Section II - Hazardous Ingredients

This product does not contain any hazardous ingredients as defined by CERCLA

Section III - Physical - Chemical Characteristics

Boiling Point:	265°F	Specific Gravity:	1.006 +/- .(
Melting Point:	32°F	Vapor Pressure mm/Hg:	NA
Surface Tension - 6% Solution:	29.1 Dyne/cm at 25°C	Vapor Density Air = 1:	NA
Reactivity with Water:	No	Viscosity Concentrate:	490 Centip
Evaporation Rate:	>1 as compared to Water	Viscosity 6% Solution:	15 Centipc
Appearance:	Clear Liquid unless Dyed	Solubility in Water:	Complete
Odor:	Pleasant Fragrance	pH:	8.81 +/- .5
Pounds per Gallon:	8.37		

Section IV - Fire and Explosion Data

Special Fire Fighting Procedures:	NA	Percent Volatile by Volume:	NA
Unusual Fire & Explosion	None	Flammable Limit:	NA
Hazards:	Water	Auto Ignite Temperature:	NA
Solvent for Clean-Up:	NA	Fire Extinguisher Media:	NA
Flash Point:			

Section V - Special Precautions and Spill/Leak Procedures

Precautions to be taken in Handling and Storage: Use good normal hygiene

Precautions to be taken in case of Spill or Leak-

Small spills: in an undiluted form, contain. Soak up with absorbent materials

Large spills: in an undiluted form, dike and contain. Remove with vacuum truck or pump to storage/sa vessel.

Soak up residue with absorbent materials.

Waste Disposal Procedures: Dispose in an approved disposal area or in a manner that complies with all l and federal regulations.

Section VI - Health Hazards

Threshold Limit Values: NA
Signs and Symptoms of Over Exposure-
Acute: Moderate eye irritation. Skin: Causes redness, edema, drying of skin.
Chronic: Pre-existing skin and eye disorders may be aggravated by contact with this product.
Medical Conditions Generally Aggravated by Exposure: Unknown
Carcinogen: No
Emergency First Aid Procedures-
Eyes: Flush thoroughly with water for 15 minutes. Get medical attention.
Skin: Remove contaminated clothing. Wash exposed areas with soap and water. Wash clothing bef
Get medical attention if irritation develops.
Ingestion: Get medical attention.
Inhalation: None considered necessary.

Section VII - Special Protection Information

Respiratory Protection:	Not Necessary
Local Exhaust Required:	No
Ventilation Required:	Normal
Protective Clothing:	Gloves, safety glasses. Wash clothing before reuse.

Section VIII - Physical Hazards

Stability:	Stable	Incompatible Substances:	None knov
Polymerization:	No	Hazardous Decomposition:	NA

Section IX - Transport & Storage

DOT Class:	Not Regulated/Non	Storage:	35°F - 120
Freeze Temperature:	Hazardous	Shelf Life:	Unlimited
Freeze Harm:	28°F		
	None		

Section X - Regulatory Information

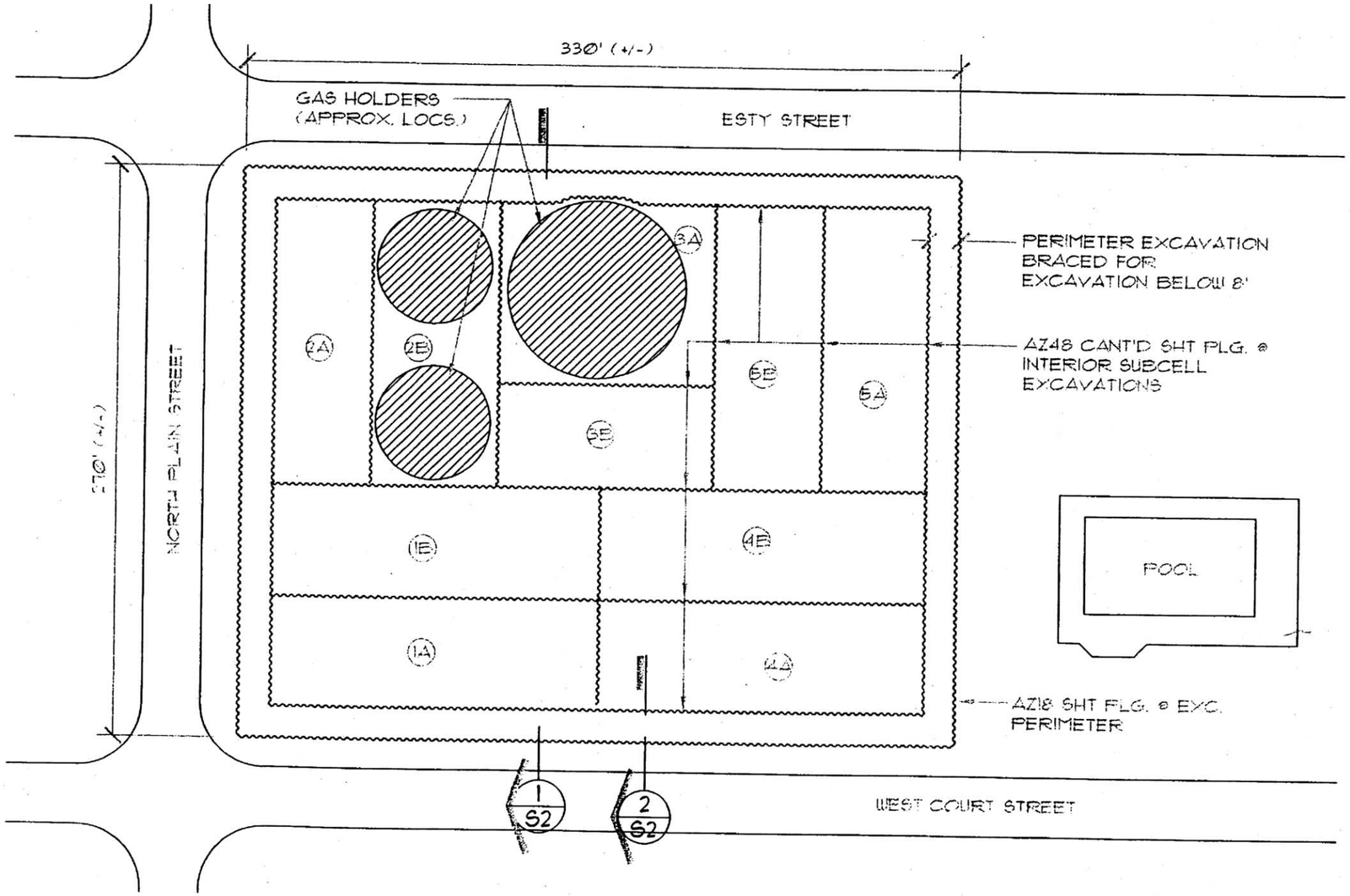
The information on this Material Safety Data Sheet reflects the latest information and data that we have c hazards, properties, and handling of this product under the recommended conditions of use. Any use of th product or method of application, which is not described on the Product label or in this Material Safety D is the sole responsibility of the user. This Material Safety Data Sheet was prepared to comply with the OS Hazardous Communications Regulation and Massachusetts Right to Know Law.

Home | About Us | Services | Training | Products | Contact Us

APPENDIX L

PRELIMINARY DESIGN

CUTOFF WALL SHEETING



LEGEND:

- SEQUENTIAL SUBCELL
- SEQUENCED BLDG. SETUP

A/S1 SITE / EXCAVATION PLAN

SCALE: 1" = 60'-0"

NOTES:

DESIGN SHALL LIMIT DEFLECTION OF PERIMETER SHEET PILING TO 1" MAX. PERIMETER SHEET PILING WALL SHALL BE BRACED FOR EXCAVATION DEPTHS EXCEEDING 7' (+/-) SEE SECTION 2 AND PROCEDURES ON SHT. S2.

PERIMETER SHEET PILING WALL SHALL BE INSTALLED TO A DEPTH OF 30' TO CUT OFF GROUNDWATER INTO THE EXCAVATION AND THE EXCAVATION SHALL BE DEWATERED TO BELOW THE BOTTOM OF EXCAVATION (BOE).

GGC
CIVIL · STRUCTURAL · GEOTECHNICAL
MATERIALS TESTING · CONSULTING
GLYNN GEOTECHNICAL ENGINEERING
415 S. TRANSIT STREET
LOCKPORT, NEW YORK 14094
www.glynngroup.com
VOICE (716)625 - 6933/FAX(716)625 - 6983

GGE PROJ.: 03-1154
FILE NAME: 021204rev.dwg
DATE: 08.13.03
DRAWN BY: WJ/JMH
CHECKED BY: JEG

PROJECT: NYSEG
COURT STREET MGP SITE
ITHACA, NY

TITLE: EXCAVATION PLAN - CANTILEVERED
INTERNAL SHEET PILING - REV. 2.20.04

CLIENT: Sevenson Environmental Services, Inc.

DWG: 1 - S1

APPENDIX M

WORK PLAN

NYSDEC APPROVAL LETTER

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **FAX:** (518) 402-9679
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

November 6, 2007

Bert Finch
New York State Electric & Gas
Corporate Drive, Kirkwood Industrial Park
Binghamton, NY 13902

Re: Remedial Design Work Plan - Plant Site
NYSEG Ithaca Court Street MGP, Site No. 7-55-008
Ithaca (C), Tompkins County

Dear Mr. Finch:

The New York State Departments of Environmental Conservation (Department) and Health (NYSDOH) have reviewed the Remedial Design for the above referenced site dated above referenced report, dated July 2007. This work plan is hereby approved. Please make a copy of this document available at the site office (Markles Flat Building) for the use of the Department inspector(s).

Please keep us informed as you continue in your efforts to implement this remedy. If there is any way we can assist your efforts to secure access to this site, please contact me at (518) 402-9686 or at the address listed above.

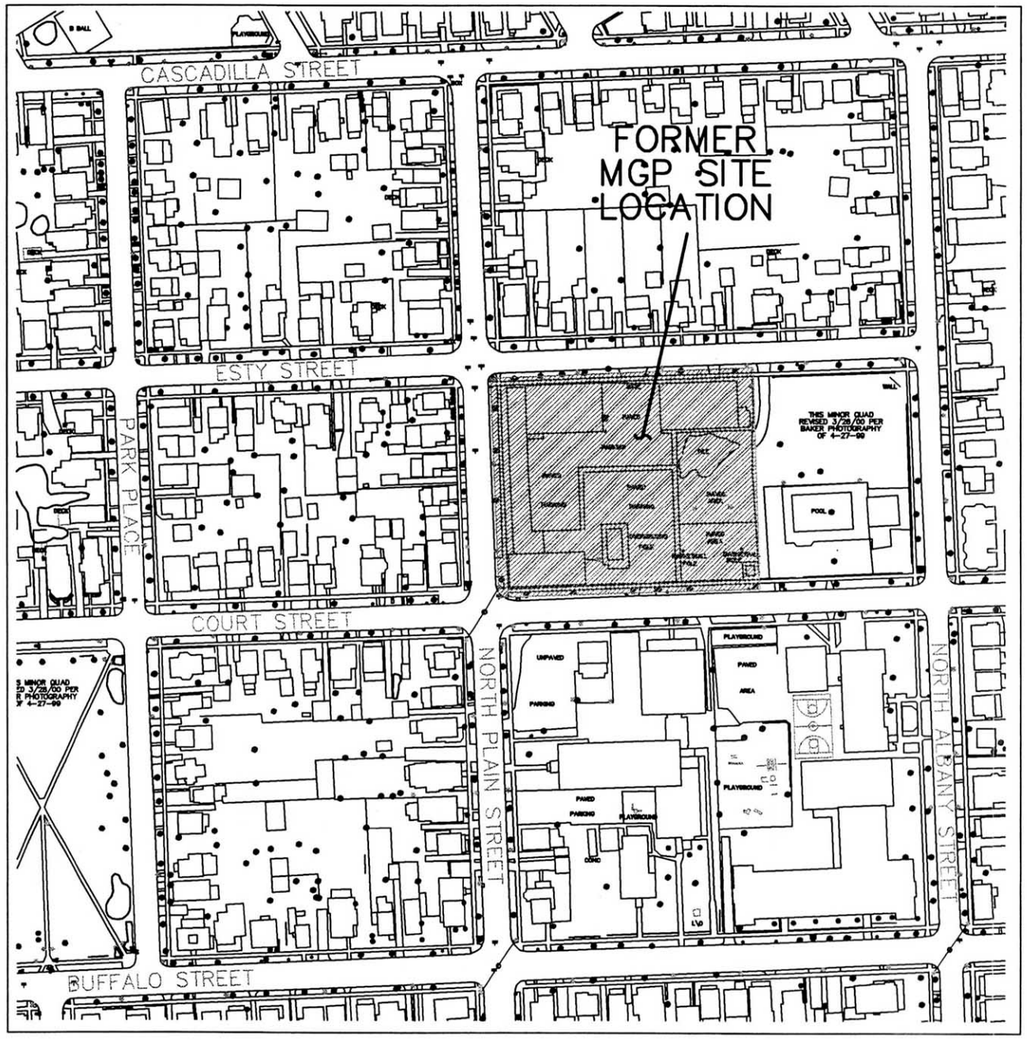
Sincerely,

William Ottaway

William Ottaway, P.E.
MGP Remedial Section
Division of Environmental Remediation

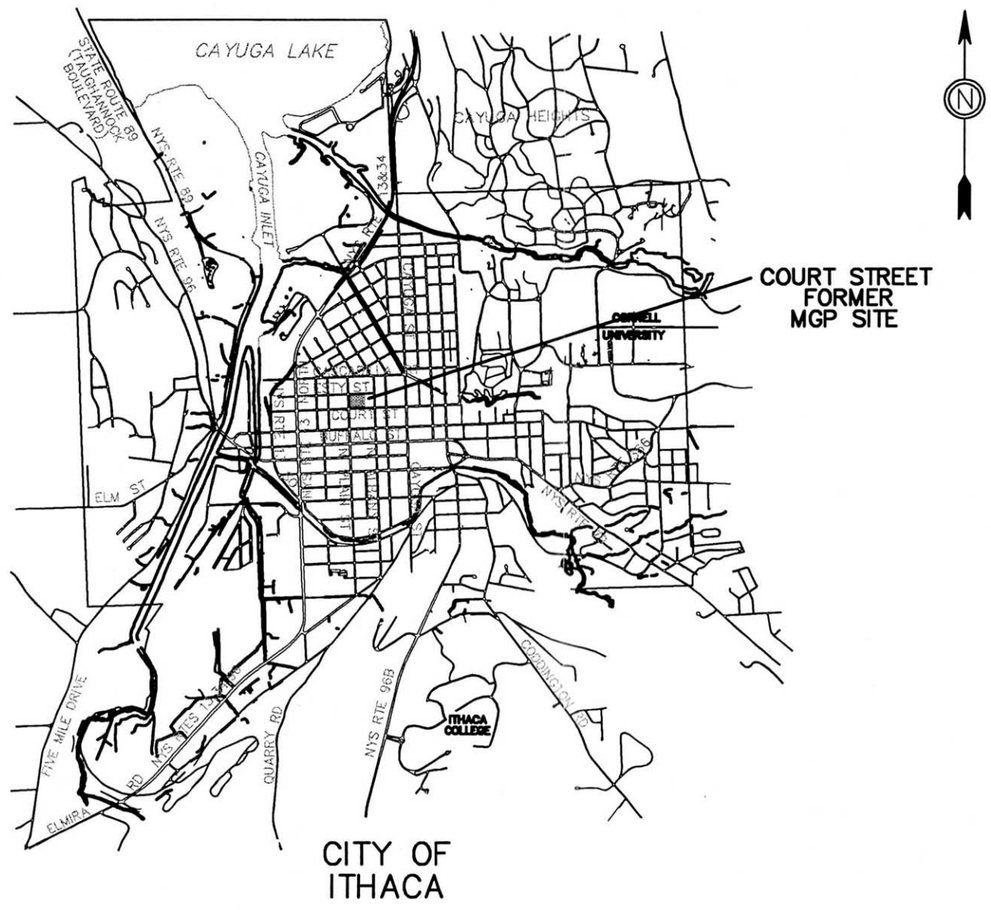
ec: H. Hammel, NYSDOH
G. Townsend, NYSDEC Reg 7
G. Cross, NYSDEC
J. Simone, NYSEG

FIGURES



0 100 200 300
Scale Feet
SCALE REFERENCE

BASE MAP DIGITIZED FROM AERIAL PHOTOS DATED APRIL, 1992 BY MICHAEL BAKER JR. BEAVER, PA.



NOTES:

1. Drawing information provided to URS by NYSEG.

NOTES:

1. UNAUTHORIZED ALTERATION OR ADDITION TO ANY SURVEY, DRAWING, DESIGN, SPECIFICATION, PLAN, OR REPORT IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
2. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED BY AN EXAMINATION OF SUCH.

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: ___
DRAWN BY: PAL
CHECKED BY: RJP
PROJ. ENGR. JEW

URS Corporation
New York
77 Goodell Street Street, Buffalo, New York 14203
(716)856-5636 - (716)856-2545 fax

JOB NO. 11173183

NYSEG
CITY OF ITHACA NEW YORK

ITHACA COURT STREET MGP SITE

SITE LOCATION MAP

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 1

N:\11173183.00000\CAD\12-06\ithctbfloc.dwg, FIG 1, 1:2, 6/6/07, 1-EJH

ESTY STREET

NORTH ALBANY STREET

NORTH PLAIN STREET

IRON GAS HOLDER

COAL SHED

PURIFIERS

BARRELS

COAL SHED

GAS WASHER

OFFICE

RETORT

RETORT

WORK SHOP

WEST MILL STREET
(NOW COURT STREET)

0 20 40 60
Scale SCALE REFERENCE Feet

NOTES:
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NYSEG
CITY OF ITHACA NEW YORK

ITHACA COURT STREET
MGP SITE

FORMER OPERATIONS
LAYOUT CIRCA 1888

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 2A

N:\11173183.00000\CAD\12-06\ithothist.dwg, FIG2A, 1:1, 2/12/07, 1-EJH

ESTY STREET

APPROX. SITE BOUNDARY

OIL PUMP

OIL TANK

OIL TANK

STEEL GASOMETER

STEEL GASOMETER

COAL SHED

PURIFIERS

WASH ROOM

OXIDE ROOM

METER ROOM

PURIFYING HOUSE

COALTAR STORAGE VESSEL

SCRUBBER

TAR SEPARATOR

COALTAR STORAGE VESSEL

ENGINE ROOM

RETORTS

WAREHOUSE

TRANSFORMER HOUSE

NORTH PLAIN STREET

NORTH ALBANY STREET

N

0 20 40 60

Scale SCALE REFERENCE Feet

APPROX. SITE BOUNDARY

WEST MILL STREET

(NOW COURT STREET)

NOTES:

1. Drawing information provided to URS by NYSEG.

NOTES:

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NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

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DRAWN BY: PAL
CHECKED BY: RJP
PROJ. ENGR. JEW

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New York
77 Goodell Street Street, Buffalo, New York 14203
(716)856-5636 - (716)856-2545 fax

JOB NO. 11173183

NYSEG

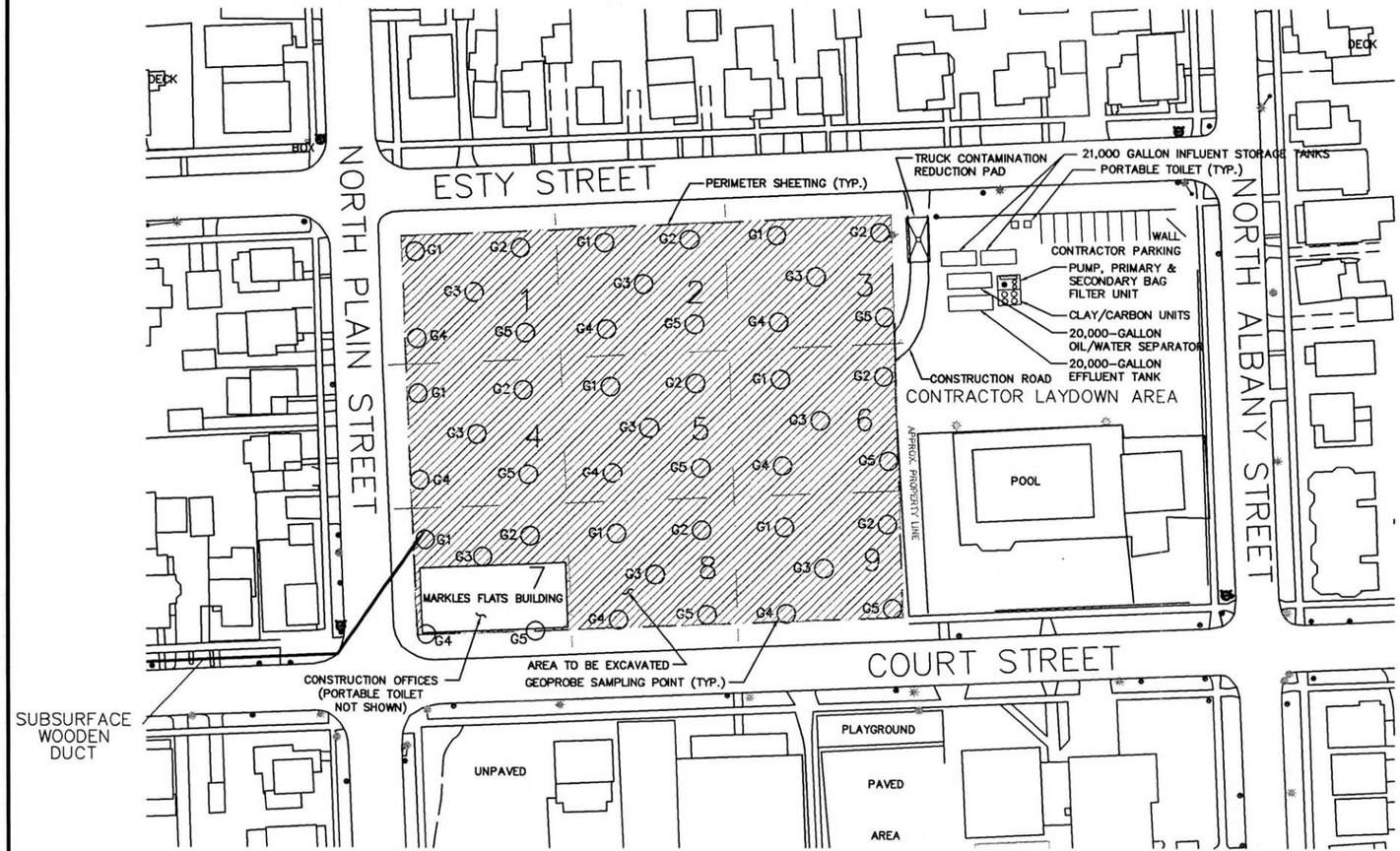
CITY OF ITHACA NEW YORK

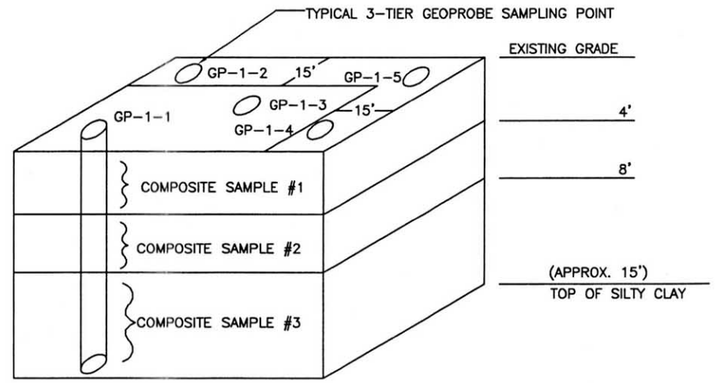
ITHACA COURT STREET MGP SITE

FORMER OPERATIONS LAYOUT CIRCA 1888

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 2B

N:\11173183.0000\CAD\12-06\ithchist.dwg, FIG2B, 1:1, 2/12/07, 1-EJH





SAMPLING PROTOCOL PER AREA (TYP. BAL)

GEOPROBE	AREA (SF)	SOIL LAYER AND VOLUME REPRESENTED (CY) 0-4'	4'-8'	8'-15'	# SAMPLE LOCATIONS	# SAMPLES GRAB	# SAMPLES COMPLETED
1	2000	296	296	519	3	9	3
2	2000	296	296	519	3	9	3
3	2000	296	296	519	3	9	3
4	2000	296	296	519	3	9	3
5	2000	296	296	519	3	9	3
TOTAL	10,000	1,480	1,480	2,595	15	45	15

LEGEND:

GP-1-1 — GEOPROBE BORING/SAMPLING LOCATION (AREA 1, BORING NO. 1)

LIMITS OF EXCAVATION AREA

NOTES:

1. Base drawing information provided to URS by NYSEG.
2. Utility information not shown. Contractor to verify utility locations and coordinate relocation and/or abandonment with utility owner/operator.
3. Contractor Laydown Area and temporary facilities shown are conceptual. Contractor to submit its layout for approval.
4. Borings around site perimeter are to be located less than 15' from site perimeter.
5. Location of permanent groundwater treatment system is shown of figure 5B.

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

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CHECKED BY: ___
PROJ. ENGR. JEW

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77 Goodell Street Street, Buffalo, New York 14203
(716)856-5636 - (716)856-2545 fax

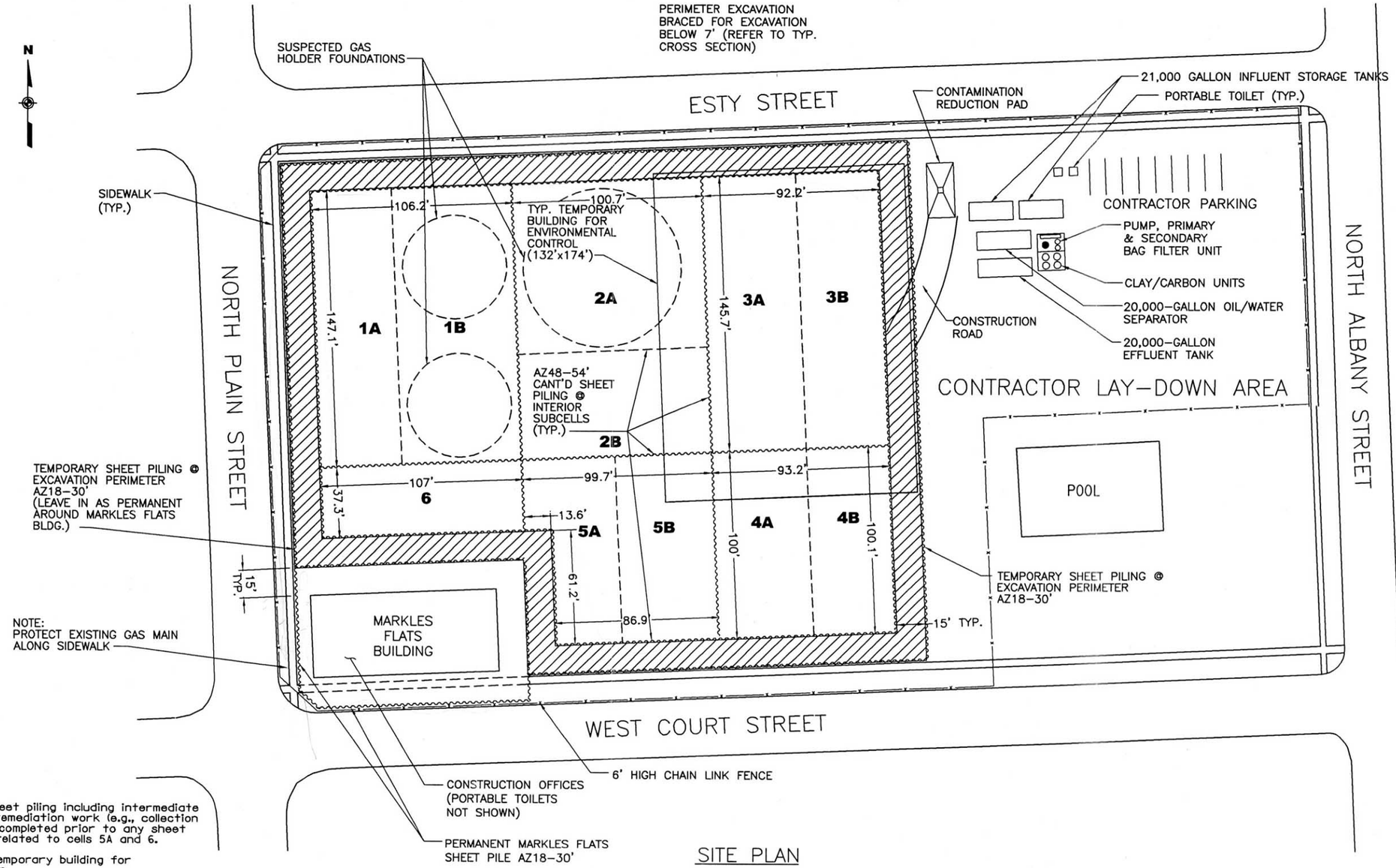
JOB NO. 11173183

NYSEG
CITY OF ITHACA NEW YORK

ITHACA COURT STREET MGP SITE

PROJECT LAYOUT

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 3



SITE PLAN

30' 0 30'
SCALE IN FEET

NOTES:

1. Contractor to install perimeter sheet piling including intermediate piling and bracing. Markles Flats remediation work (e.g., collection wells and AZ18 sheet pile) shall be completed prior to any sheet pile, excavation and backfill work related to cells 5A and 6.
2. Contractor to place and secure temporary building for environmental containment as shown.
3. Contractor to do bulk excavation loading and decontamination within temporary building. Haul vehicles to be cleaned at wheel wash/contamination-reduction station prior to leaving site.
4. Groundwater control methods to be determined by contractor and approved by Engineer. Groundwater extracted during the course of the work to be pumped into site holding tanks and processed through multi-stage filtration system prior to discharge.
5. Processed groundwater effluent to be monitored and documented in accordance with approved work plan.
6. 6' high chain link fence to be installed along inside edge of curb line on Esty, North Plain and West Court Streets. Fence to be installed along inside edge of sidewalk on North Albany Street.

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

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JOB NO. 11173183

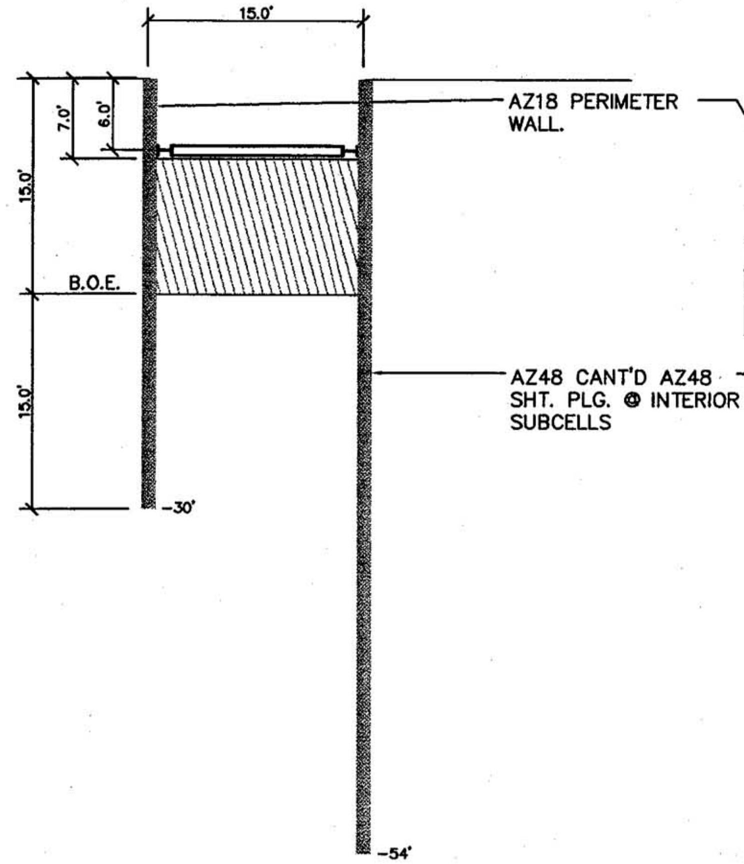
NYSEG
CITY OF ITHACA NEW YORK

ITHACA COURT STREET MGP SITE

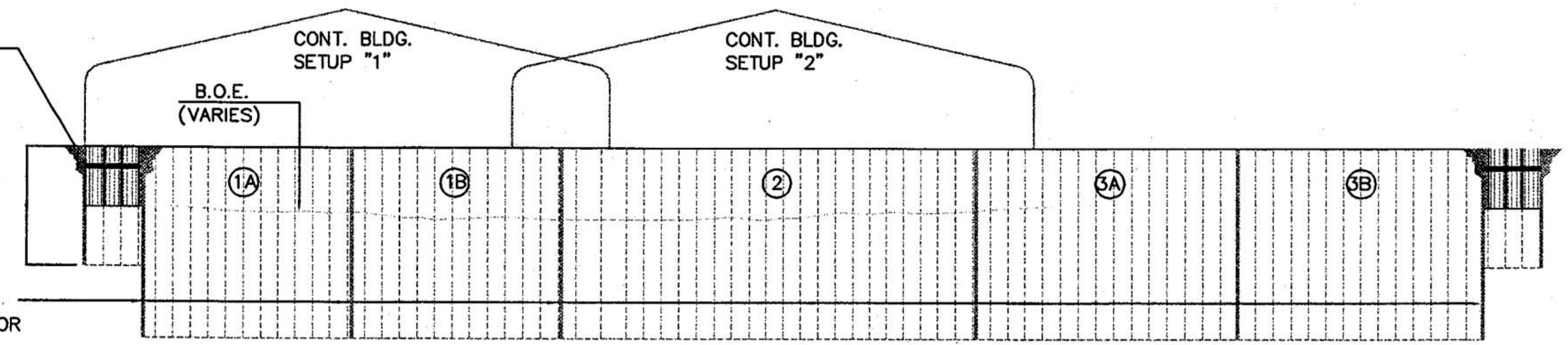
SITE EXCAVATION PLAN

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 4A

N:\IT\73\83\00000\CADV\2-06\FIGURE 4A@2g 1:2 6/19/07 - 2 RAL



PERIMETER EXCAVATION – SECTION (TYP.)
N.T.S.



EXCAVATION – SECTION (TYP.)
N.T.S.

CONSTRUCTION PROCEDURES:

1. DRIVE WATERTIGHT AZ18 SHEET PILING ALONG THE PERIMETER OF THE EXCAVATION AND DEWATER EXCAVATION AREA TO BELOW EXC. LIMITS.
2. INSTALL AZ48 SHEET PILING FOR CANTILEVERED EXCAVATION SUPPORT AT 15' INSIDE OF THE PERIMETER WALL AND AT ALL INTERIOR SUBCELLS.
3. AT LOCATIONS WHERE THE EXCAVATION DEPTH EXCEEDS 7' ALONG THE PERIMETER WALL, INSTALL INTERNAL BRACING BETWEEN THE EXTERIOR AND INTERIOR WALLS BEFORE ADVANCING THE EXCAVATION BELOW 7'.
4. COMPLETE PERIMETER EXCAVATION AS FOLLOWS:
   A. ADVANCE PERIMETER EXCAVATION TO A DEPTH OF 7'. AND INSTALL WALERS AND STRUTS @ 6.0'.
   B. COMPLETE EXCAVATION WITHIN BRACED SHEET PILING TO DESIGN LIMITS (BOE). THE MAX. EXCAVATION DEPTH SHALL BE LIMITED TO APPROX.. 15'.
   C. BACKFILL THE PERIMETER EXCAVATION TO 7' BELOW FIN. GRADE AND REMOVE BRACING.
5. COMPLETE THE INTERIOR EXCAVATIONS AND BACKFILL SEQUENTIALLY WITHIN SUBCELLS DELINEATED BY THE CANTILEVERED AZ48 SHEET PILING.

NOTES:

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NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

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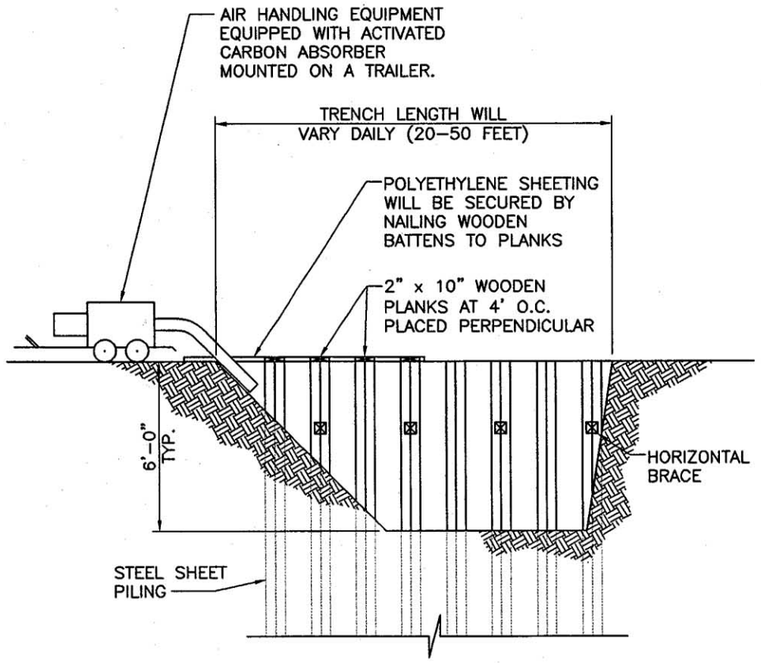
NYSEG
CITY OF ITHACA NEW YORK

ITHACA COURT STREET MGP SITE

EXCAVATION SECTIONS

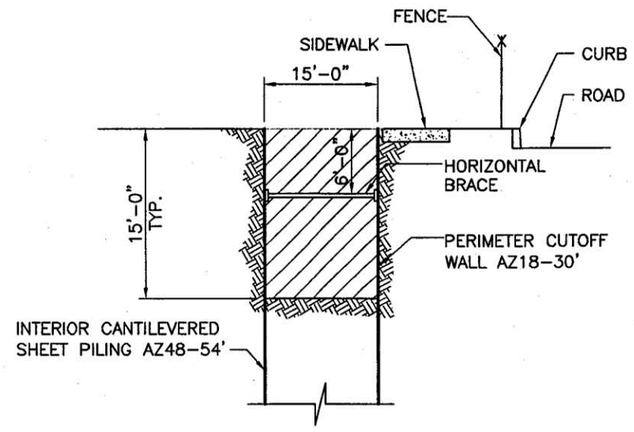
Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 4B

N:\11173183.00000\CAD\12-06\FIGURE 4B.dwg, FIG 4B, 1:2, 2/13/07, 1-EJH



TYPICAL VAPOR CONTROL SYSTEM
(FOR BRACED WALL EXCAVATION)

NOT TO SCALE



TYPICAL CROSS SECTION OF
BRACED PERIMETER WALL

NOT TO SCALE

NOTES:

AFTER EXCAVATING A SECTION OF THE TRENCH, PLACE PLANKS AND POLYETHEYNE SHEETING OVER THAT AREA.

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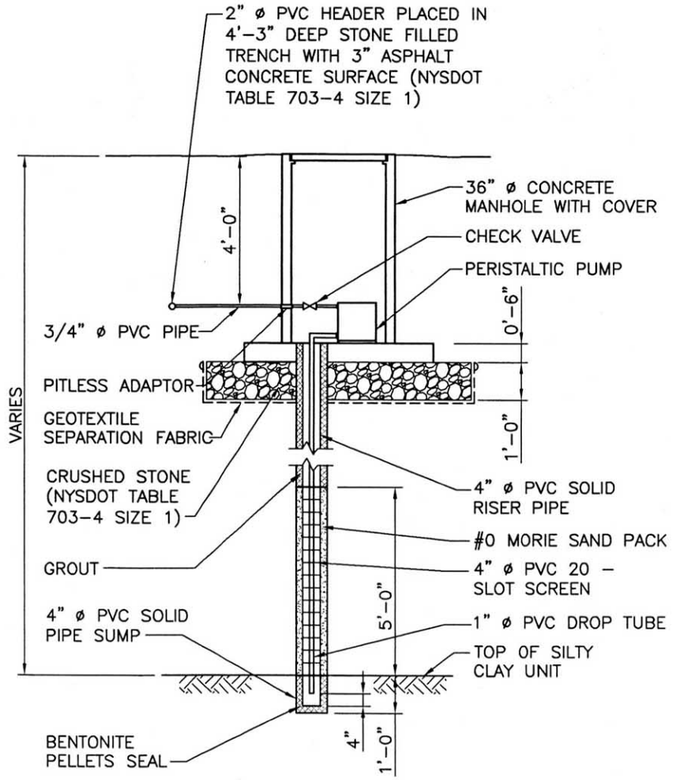
ITHACA COURT STREET MGP SITE

EXCAVATION DETAILS

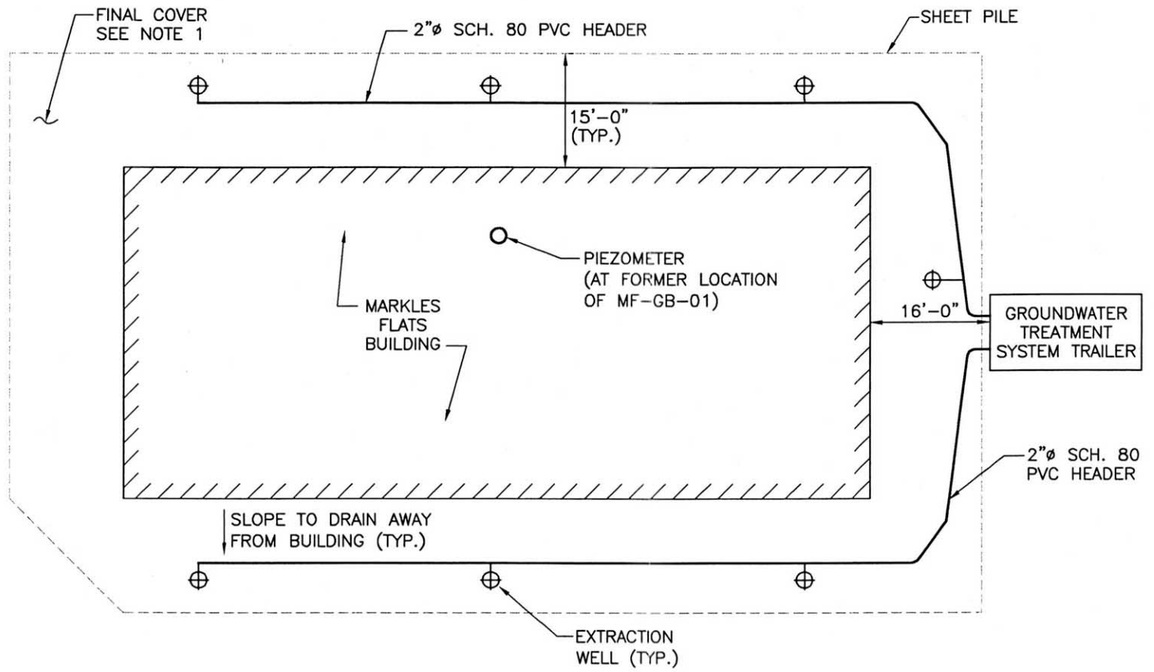
Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 5A

v:\11173183.00000\CAD\12-06\bh2.dwg, FIG 5A, 1:2, 6/6/07, 1-EJH



TYPICAL EXTRACTION WELL DETAIL

NOT TO SCALE



COLLECTION WELL PLAN VIEW

SCALE: 1" = 20'

20' 0 20'

SCALE IN FEET

NOTES:

1. FINAL COVER SHALL BE 3" THICK ASPHALT CONCRETE SIDEWALK (NYSDOT ITEM 608.020101) OVERLYING 6" THICK SUBBASE (NYSDOT ITEM 304.15).

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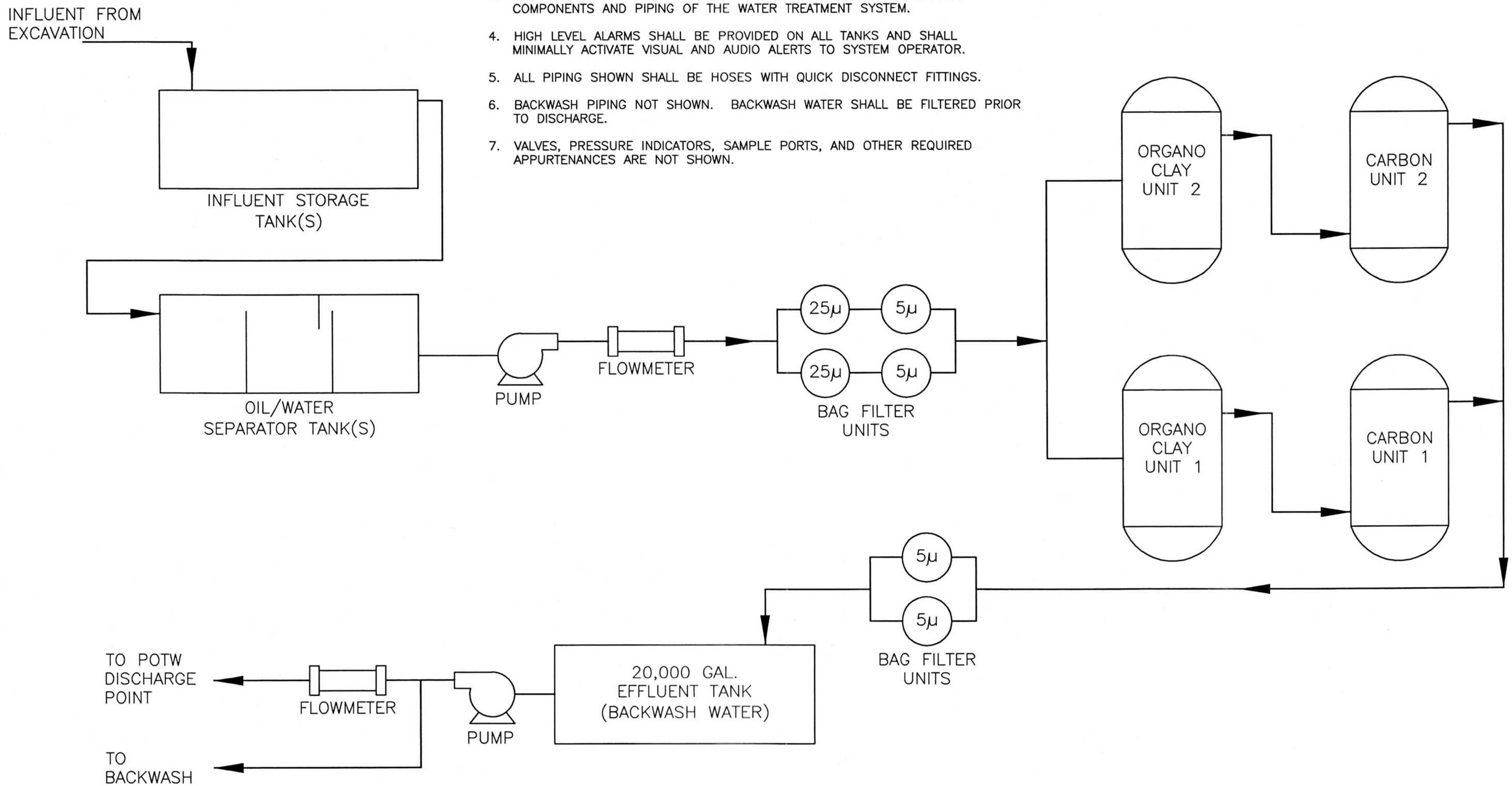
COLLECTION WELL DETAILS

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 5B

N:\11173183.00000\CAD\12-06\bh2.dwg, FIG 5B, 1:2, 6/7/07, 1-EJH

NOTES:

1. ONLY ONE INFLUENT STORAGE TANK, OIL/WATER SEPARATOR, FEED PUMP AND ONE DISCHARGE PUMP ARE SHOWN FOR CLARITY. THE CONTRACTOR MAY BE REQUIRED TO INSTALL MULTIPLE UNITS TO MEET THE DESIRED FLOW RATE AND TREATMENT REQUIREMENTS.
2. THE CONTRACTOR MAY ELECT TO INSTALL ADDITIONAL ORGANO CLAY AND/OR CARBON UNITS AS REQUIRED TO MEET THE FLOW REQUIREMENTS FOR THE SYSTEM.
3. THE CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT FOR ALL COMPONENTS AND PIPING OF THE WATER TREATMENT SYSTEM.
4. HIGH LEVEL ALARMS SHALL BE PROVIDED ON ALL TANKS AND SHALL MINIMALLY ACTIVATE VISUAL AND AUDIO ALERTS TO SYSTEM OPERATOR.
5. ALL PIPING SHOWN SHALL BE HOSES WITH QUICK DISCONNECT FITTINGS.
6. BACKWASH PIPING NOT SHOWN. BACKWASH WATER SHALL BE FILTERED PRIOR TO DISCHARGE.
7. VALVES, PRESSURE INDICATORS, SAMPLE PORTS, AND OTHER REQUIRED APPURTENANCES ARE NOT SHOWN.



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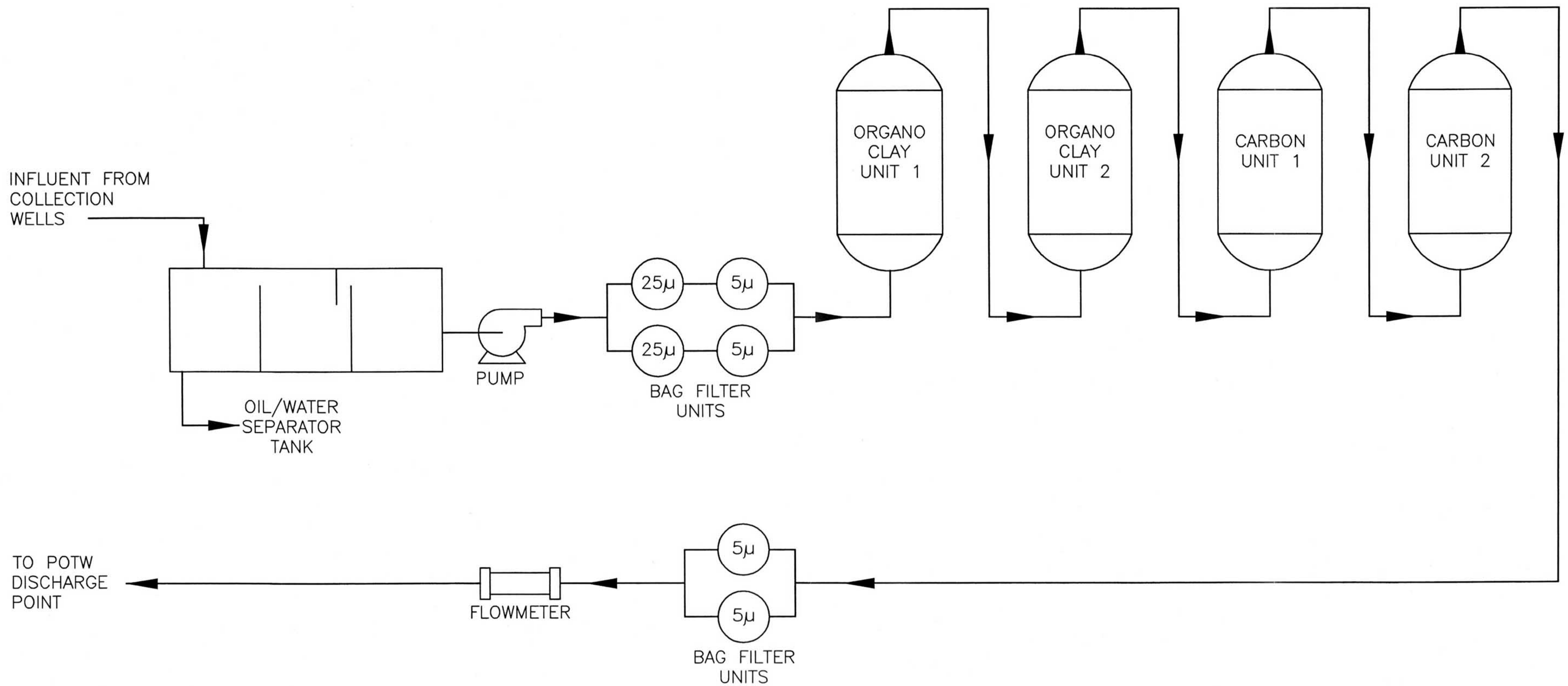
PROCESS FLOW DIAGRAM TEMPORARY WASTEWATER TREATMENT SYSTEM

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 6

N:\11173183.00000\CAD\12-06\ithctwdpl.dwg,FIG6 1:1 2/12/07 - 2 RAL

N:\11173183.00000\CAD\12-06\ithctwdpl.dwg, FIG7, 1:1, 2/12/07, 1-EJH



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PROCESS FLOW DIAGRAM
PERMANENT GROUNDWATER TREATMENT SYSTEM

Scale: AS SHOWN | Date: JUNE 2007 | FIGURE 7