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# NYSEG

**NEW YORK STATE ELECTRIC & GAS CORPORATION**
Corporate Drive, Kirkwood Industrial Park, P.O. Box 5224
Binghamton, New York 13902-5224

## INTERIM REMEDIAL MEASURES

# WORK PLAN

## FOR ACTIVITIES AT

**Mechanicville Central Avenue**
**Former Manufactured Gas Plant (MGP) Site**
**City of Mechanicville, Saratoga County, New York**

**OCTOBER 1999**

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Prepared By:

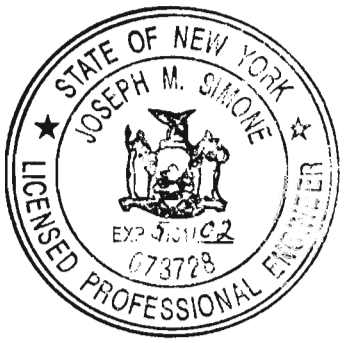
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List of Acronyms Referred to in the Document

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
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
CTS - coal tar soils
DEC - Department of Environmental Conservation
DI - deionized
ECL - Environmental Conservation Law
EEI - Edison Electric Institute
ELAP - Environmental Laboratory Approval Program
EMS - Emergency Medical Services
EPA - Environmental Protection Agency
EPRI - Electric Power Research Institute
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 - interim remedial measures
Kg - kilogram
L - liter
LGAC - liquid-phase granular activated carbon
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
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
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
RTS1 - Real-time Station 1
RTS4 - Real-time Station 4
SAP - Sampling and Analysis Plan
SCGs - Standards, Criteria, and Guidance
SGC - short-term guideline concentrations
SHSO - Site Health & Safety Officer
SPL - sound pressure level
STEL - short-term exposure limits
SVOCs - semivolatile organic compounds
SW - solid waste
T & A - time and activity
TAGM - technical and administrative guidance memorandum
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 Interim Remedial Measure Work Plan (Work Plan) describes the source removal interim remedial measure (IRM) proposed for the Mechanicville Central Avenue former manufactured Gas Plant (MGP) site (Site) located in the City of Mechanicville, Saratoga County, New York, as shown on Figure 1. The IRM will be undertaken by NYSEG (New York State Electric & Gas Corporation) and will involve excavation and disposal of free phase tar accessible to conventional excavation techniques and piping which may be a preferential pathway for non-aqueous phase liquids (NAPL). The purpose of this IRM is to reduce the discharges of NAPL to the adjacent Anthony Kill. This IRM is being proposed in accordance with Section III of the Order on Consent (Index No. DO-000209309, see Appendix F) between NYSEG and the New York State Department of Environmental Conservation (NYSDEC).

This Work Plan describes the techniques to be utilized for the sampling, excavation, material handling, waste characterization, transportation and disposal of MGP residues. This effort 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

NYSEG owns the Mechanicville Central Avenue former MGP site located at 85 North Central Avenue in the City of Mechanicville, Saratoga County, New York, as shown on Figure 1. The Site is a one acre parcel of land immediately west of Central Avenue crossing the Anthony Kill. The site is mostly paved or covered with crushed stone and is sparsely vegetated around its periphery. Access is controlled by fencing, except along the Anthony Kill. Buried structures include a relief holder foundation, distribution holder foundation and the old filtered bed.

### 1.2 Site History

The history of coal gas production at the Mechanicville Central Avenue Site dates from 1901. In that year, the Halfmoon Light, Heat & Power Company, founded in 1900, began distributing gas to the citizens of Mechanicville. Figure 2 shows layout of the gas plant in its first years of operations, circa 1910. The plant was expanded circa 1911 including the addition of a 100,000 cubic foot distribution holder.

In 1924, the Halfmoon Light, Heat & Power Company was acquired by the Associated Gas and Electric System and in 1928 it became part of the New York

State Electric & Gas Corporation (NYSEG). The plant layout in 1951 is depicted in Figure 2. Coal gas production continued at the Site until 1955, when the MGP was closed and torn down. NYSEG still owns the site and has used it along with the adjacent property to the west as a service center until 1990, when it moved to its current location in Halfmoon.

## 1.3 Nature of Potential Industrial Residues Located at the Site

For the purposes of this document, MGP residues refer to coal tar soils and coal tars. Coal tar soils (CTS) are typically nonhazardous waste, as defined by the Resource Conservation and Recovery Act (RCRA), and consists of a mixture of soil, coal tars, and demolition debris (i.e., brick, timbers, scrap metal, etc.). These materials generally contain varying concentrations of polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and heavy metals.

Coal tars are a by-product from gas manufacturing at former MGP. These materials are typically defined as a Hazardous Waste by RCRA due to the leachable concentrations of benzene. These materials generally contain 10% or more of PAHs and VOCs. At Mechanicville Central Avenue Former MGP Site, the accessible coal tars are believed to be present in the former relief holder foundation, the area of the tar dehydrator, the filter beds and associated buried piping. Purifier waste, which consists of iron filings mixed with wood chips or corn cobs is also present along the road embankment on the eastern edge of the site. Purifier waste contains chemically stable forms of cyanide and sulfide compounds and has a characteristically blue color.

## 1.4 Previous Investigation

NYSEG has been studying environmental contamination at the Mechanicville Central Avenue former MGP site since 1986. Reports include the following: TASK 1 Preliminary Site Evaluation - August 1986, TASK 2 Initial Field Investigation Program - December 1987, TASK 3 Expanded Problem Definition Program - September 1989, TASK 4 Risk Assessment - August 1990, Phase II Remedial Investigation Report, Work Plan for Phase IIA Supplemental Remedial Investigation and Feasibility Study - Revised June 1992 and Phase IIA Supplemental Remedial Investigation and Feasibility Report - December 1993 .

Documents associated with the previous investigations and this IRM are available for public review at the following document repositories:

- Mechanicville District Public Library

15 South Main Street
Mechanicville, New York 12118
(518) 664-4646

- NYSEG
  Werner Road, Route 146
  Halfmoon, New York
  Attn.: James S. Salmon
  (518) 664-9534
  Monday - Friday, 8 a.m. - 4:30 p.m.

- New York State Department of Environmental Conservation
  Division of Environmental Remediation
  50 Wolf Road
  Albany, New York
  Attn.: David Crosby, P.E.
  (518) 457-9280

## 2.0 PROJECT OBJECTIVES

The overall goal of the proposed IRM will be to eliminate any source of NAPL that is accessible by normal excavation techniques and remove any preferential pathways for site contaminants to the Anthony Kill. It is believed that there is a substantial mass of NAPL in the fractured bedrock that is inaccessible to excavation and this NAPL will not be addressed by this IRM. However, by removing the "head pressure" of NAPL, it is anticipated that NAPL migration in the bedrock will be reduced. Since this inaccessible NAPL will continue to impact groundwater, this IRM will not attempt to remove all site soil that exceeds cleanup objectives established to protect groundwater.

The IRM is scheduled to be initiated on October 18, 1999 (see project schedule in Appendix G).

## 3.0 ORGANIZATIONAL STRUCTURE AND RESPONSIBILITY

NYSEG and New York State regulatory agencies will participate jointly in the remedial action for the Mechanicville Central Avenue Former MPG 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 IRM unless otherwise stated in Section 4.0, including: excavation safety;

construction personnel health and safety; implementation of contingency plans for odor control; management of wastewater and waste-handling operations; maintenance of Site controls (i.e., runoff, run-on); and the construction, excavation, and material handling activities associated with the remedial action. NYSEG is responsible for ensuring that the remedial program is implemented in accordance with this Work Plan; management of the soil sampling program associated with the remedial action; 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 action include:

NYSEG: Joseph M. Simone, P.E.: Program Manager
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New York State Department of Environmental Conservation
Bureau of Construction Services
Division of Environmental Remediation
50 Wolf Road
Albany, New York 12233-7010

NYSDEC: Eric Knapp: Construction Oversight
New York State Department of Environmental Conservation

Division of Hazardous Waste Remediation
615 Erie Blvd. West
Syracuse, New York 13204-2400

NYSDOH: Daniel R. Geraghty: Community H&S Oversight
New York State Department of Health
Center for Environmental Health
Flannigan Square
547 River Street
Troy, New York 12180

## 4.0 INTERIM REMEDIAL MEASURE PROGRAM

This Work Plan describes the sequencing of construction activities and details the components of the remedial program comprising the IRM at Mechanicville Central Avenue Former MGP Site. These activities will include:

- excavate former relief holder foundation and surrounding soils that have evidence of free phase NAPL.
- excavate the area of the former tar dehydrator.
- "chase" all pipes from the relief holder and tar dehydrator.
- excavate the former filter bed area.
- remove the two storm drains and piping which discharge to the Anthony Kill.
- excavate a test trench parallel to the Anthony Kill near the top of the bank in areas not excavated as described above in order to locate any additional pipes, or other preferential pathways
- remove all identified pipes which discharge to the Anthony Kill.
- remove any exposed surface soil that is visibly impacted by MGP residues including the purifier waste located along the road embankment on the eastern edge of the site..
- properly dispose off site all excavated soil which exceeds subsurface backfill limits.

Actual project data (i.e., community air monitoring, noise, dust control, etc.), obtained from NYSEG's previous remediation and material processing efforts at other MGP sites, have been used as guidance to design the procedures for directing the Mechanicville Central Avenue Former MGP Site IRM program and to minimize any potential impacts to the community. The following sections describe the procedures to be used for the remedial activities.

### 4.0.1 Definitions of MGP Materials

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

Coal Tar - Free phase tar.

Tarry Waste - Grossly contaminated soil, often with visible free phase coal tar present.

Coal Tar Soil (CTS) - Soil that exhibits evidence of coal tar staining, but no free phase tar. For purposes of this Work Plan, includes any soil excavated which cannot be used as subsurface backfill.

Subsurface Backfill ( to be used below two feet) - Excavated soil that meets chemical concentration limits described in Section 4.0.5, based upon pre-remediation in situ sampling and confirmation samples from stockpiles as described in Section 6.2.5, and has no visual staining.
Area of contamination (AOC) - Any area of the historic MGP site.

### 4.0.2 Pre-remediation Sampling and Analysis

NYSEG has conducted an in situ sampling event at the Mechanicville Central Avenue Former MGP Site. This sampling event was conducted in accordance with the Pre-remediation In Situ Sampling & Analysis Work Plan, Mechanicville Central Avenue Former MGP Site, approved by the New York, State Department of Environmental Conservation (NYSDEC). See Appendix A.

The results of the sampling and analysis will be used to designate sections of the soil into the following three (3) categories:

Hazardous Waste - CTS which exceeds the toxicity characteristic leaching procedure (TCLP) limits or reactivity limits.

Non Hazardous Waste - CTS which is below the TCLP limits and reactivity limits.

Subsurface Backfill - Soil which is below the TCLP limits and shall not exceed total benzene 0.6 ppm, total PAHs 500 ppm, total cPAHs 10 ppm, and naphthalene 13.0 ppm.

### 4.0.3 General Excavation Limits and Procedures

The maximum removal limits (depth and areal extent) of contaminated soils for the site will be as necessary to achieve project objectives. Removal of CTS below the water table will occur to a depth which can be excavated without active groundwater depression, which is typically two feet. If the groundwater within the excavated area has a LNAPL layer, it will be removed by vacuuming into a vac truck or tank. If a sheen on the groundwater is present, it will be removed by using absorbent pads. If this LNAPL continues to recharge into the excavation a passive recovery system will be installed as part of the backfill. This will include the installation of a large diameter slotted pipe vertically installed in permeable backfill such as pea gravel. If the bedrock is encountered and coal tar is present, the surface of the bedrock will be scraped with the excavator bucket to attempt to remove the accessible coal tar.

The removal of contaminated soils will be accomplished through open-cut excavation techniques which require sloping or benching of the excavation side walls to prevent sloughing or collapse of adjacent soils. A more extensive description of procedures and contingencies for excavation is contained in Section 4.4 of this Work Plan.

The former relief holder foundation will be broken up and removed with the soil. Any pipes encountered during excavation will be chased and excavated to the extent practicable along with any CTS encountered. If the pipes contain tarry waste, they shall be disposed as a hazardous waste.

The project may result in potential nuisance community impacts such as noise and traffic. However, all on-site work will be conducted so that public impact is minimized, to the extent practicable. Hours of construction operations will not begin prior to 7 a.m. or continue after 7 p.m., Monday through Friday. While not planned, work during the weekend will only be undertaken as necessary to meet the project completion schedule.

Construction activities undertaken during the IRM will be completed in accordance with the Construction Quality Assurance Plan (See Appendix C).

### 4.0.4 Cleanup Objectives and Rationale

The objective of this IRM is to eliminate any source of free phase NAPL that is accessible by normal excavation techniques and remove any preferential pathway. This should help reduce the discharge of NAPL from the site into the adjacent Anthony Kill. In order to meet the objective, excavation will continue to a depth

where there is either no visible NAPL or excavation cannot continue due to groundwater depth or encountering bedrock. Excavation will proceed laterally to remove any piping or other NAPL sources.

There is a substantial mass of NAPL which is inaccessible to normal excavation and will remain at the site following completion of this IRM. This remaining NAPL may be addressed by the installation of passive LNAPL collection systems as described in Section 4.0.3 or a horizontal slotted pipe in the test trench as described in Section 4.5. In any case, any remaining NAPL as well as other site contamination issues will be addressed in the final remedy for the site.

### 4.0.5 Disposal Protocol

Pre-remediation in situ soil samples were collected in accordance with the Pre-remediation In Situ Sampling and Analysis Work Plan, Mechanicville Central Avenue Former MGP Site (Appendix A). Based on the analytical results, which are summarized at the end of Appendix A, of the in situ samples which represent sectional layers of soil, each respective layer of soil will be handled according to the following guidelines:

- If the analytical results of the in situ samples collected in the 0-4' interval of Areas 1 and 2 indicate that the analytes listed in Tables 4-1, 4-2, 4-3, 4-4, and 4-5 are within their specified limits, then the respective soil may be stockpiled, sampled ex situ and analyzed in accordance with Section 6.2.5 of the Work Plan. If the analytical results of the ex situ samples are within the limits specified in Tables 4-4 and 4-5, then the respective soil may be reused as subsurface backfill. If the analytical results of ex situ samples are not favorable, then the respective soil will be sent to a permitted disposal facility. If, during the course of excavation, soil with visual evidence of coal tar contamination is encountered, it will be segregated and sent to a permitted disposal facility.

- If the analytical results of a soil sample collected for waste characterization indicate that the analytes listed in Tables 4-1, 4-2, and 4-3 are within their specified limits, then its respective soil may be sent to an industrial nonhazardous waste landfill or approved thermal treatment facility. If, during excavation, seams of free phase coal tar not characterized by in situ sampling are encountered, then this material will either be (1) segregated and sent to a hazardous waste facility; or (2) placed in a rolloff, sampled and analyzed for waste

characterization parameters and disposed accordingly.

- If the analytical results of a soil sample collected for waste characterization indicate that any analyte listed in Tables 4-1, 4-2, and 4-3 exceeds it specified limit, then its respective soil will be sent to a permitted hazardous waste treatment facility for de-characterization and thermal treatment or thermal treatment only.

**TABLE 4-1** **(Continued on next page)**
**COMPOSITE SAMPLE TCLP ANALYTES AND LIMITS**

| TCLP ANALYTE | REGULATORY LIMIT (mg/L) [6 NYCRR Part 371] |
|---|---|
| Arsenic | 5.0 |
| Barium | 100.0 |
| Benzene | 0.05 |
| 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 |

**TABLE 4-1** (Continued from previous page)
**COMPOSITE SAMPLE TCLP ANALYTES AND LIMITS**

| TCLP ANALYTE | REGULATORY LIMIT (mg/L) [6 NYCRR Part 371] |
|---|---|
| Silvex | 1.0 |
| Tetrachloroethylene | 0.7 |
| Nitrobenzene | 2.0 |
| Pentachlorophenol | 100.0 |
| Pyridine | 5.0 |
| Selenium | 1.0 |
| Silver | 5.0 |
| Toxaphene | 0.5 |
| Trichloroethylene | 0.5 |
| 2,4,5-Trichlorophenol | 400.0 |
| 2,4,6-Trichlorophenol | 2.0 |
| Vinyl chloride | 0.2 |

**TABLE 4-2: COMPOSITE 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**

**COMPOSITE SAMPLE ANALYTES AND ACTION LIMITS**
**OTHER RCRA CHARACTERISTICS AND LANDFILL ANALYTICAL REQUIREMENTS**

| ANALYTE | LIMIT |
|---|---|
| Corrosivity (pH) | Non-Corrosive (pH must be >2 or <12.5) |
| Flashpoint | Must be >60 Deg. C |
| PCBs (total) | 50 mg/Kg |
| % Solids | Must be › 20% |

**TABLE 4-4**

**Subsurface Backfill Criteria**

**TOTAL BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES**

| PARAMETER | LIMIT (PPM) |
|---|---|
| Benzene | 0.6 |

## TABLE 4-5

**Subsurface Backfill Criteria**

**POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)**

**TOTAL PAHs SHALL NOT EXCEED 500 PPM**

**TOTAL cPAHs SHALL NOT EXCEED 10 PPM**

**TOTAL NAPHTHALENE SHALL NOT EXCEED 13.0 PPM**

| PARAMETER |
|---|
| Naphthalene |
| 2-Methyl naphthalene |
| Acenaphthene |
| Acenaphthylene |
| Fluorene |
| Phenanthrene |
| Anthracene |
| Fluoranthene |
| Dibenzofuran |
| Pyrene |
| Benzo (A) Anthracene* |
| Chrysene* |
| Benzo (B) Fluoranthene* |
| Benzo (K) Fluoranthene* |
| Benzo (A) Pyrene* |
| Indeno (1,2,3 CD) Pyrene* |
| Dibenzo (A,H) Anthracene* |
| Benzo (G,H,I) Perylene |
| *Carcinogenic PAHs (cPAH) |

### 4.0.6 Post Excavation Sampling Requirements

Sampling and analysis of soils will be conducted after the excavation of accessible tarry waste and CTS. Samples will be collected through the duration of the remedial action. Soil samples will be collected under material storage areas (subsurface backfill stockpile area and waste water storage area) and equipment decontamination reduction pad. Procedures for post excavation soil sampling are presented in Section 6.2.1 of this Work Plan.

### 4.0.7 Use of Post Excavation Sampling Results to Guide Additional Excavation

After the excavation of all accessible tarry waste and coal tar soil, NYSEG in consultation with the DEC will determine if additional excavation is warranted. This decision will be based on several factors including the following: the presence of a significant mass of MGP residue which cannot be excavated, the volume of the soil, the project schedule, the depth below ground surface, and the actual concentration of contaminants.

## 4.1 Site Set Up

### 4.1.1 Site Security

A 6-foot high, chain-link fence will be installed around the perimeter of the site with a 30'-0" main entrance gate at the west side of the site onto Ferris Lane (see Figure 4A). Orange construction fence will be placed along the top of the bank of the Anthony Kill. During daily operations, admittance requirements and visitor monitoring will be in effect, as specified in the Health and Safety Plan.

### 4.1.2 On-Site Construction Office

An office trailer will be mobilized to the site, blocked and leveled, and equipped with supplies (see Figure 4A). The trailer will serve as office space for NYSEG, construction personnel, and DEC. DEC will be provided with a dedicated desk with a phone line and will have access to a fax machine. Also, space will be available for records storage, personal protective equipment, monitoring equipment, first aid location, and sample preparation and storage. The trailer will be approximately 12 feet wide by 50 feet long. The trailer will be equipped with electric and telephone service, and have facsimile capabilities. In addition, site personnel will utilize the

office for daily safety meetings, project office tasks, and changing area. A portable toilet will be staged outside the trailer for use by project personnel.

### 4.1.3 Subsurface Backfill Stockpile Area

An area of the site will be prepared as a stockpile area for subsurface backfill. The location will be selected based upon the location of the area being excavated, but in no case will it be located within 20 feet of Ferris Lane. Ten-mil reinforced polyethylene sheeting will be placed prior to stockpiling subsurface backfill. The poly will be draped over 8" x 8" timbers to create a berm. The stockpiled soil will be covered with six-mil polyethylene sheeting.

### 4.1.4 Equipment Contamination Reduction Area

An equipment contamination reduction area (see Figure 4C) will be constructed using 10" X 10" timbers along the perimeter. Two inches of medium sand will be placed on existing asphalt and blended to the top inside edge of the timbers. Then 10 mil reinforced polyethylene sheeting will be placed over the sand and timbers. The sheeting will be secured by nailing wooden battens to the timbers. An additional two inches of medium sand will be placed on the sheeting. Four inches of #2 stone will be placed on the sand. A sump will be constructed using a twelve inch diameter slotted PVC pipe will be set in the stone to collect water. A submergible pump will be placed in the sump as required. The submergible pump will transport wastewater via hose to 1,500 gallon water tanks. The sand and stone will be disposed of at a permitted landfill.

### 4.1.5 Exclusion Zone

The Exclusion Zone will be the immediate area of excavation and will change as the project progresses. Also the Exclusion Zone will include the roll-off storage area. A four foot high orange construction fence will be placed along the perimeter of the Exclusion Zone (see Figure 4A).

### 4.1.6 Contamination Reduction Zone

The Contamination Reduction zone as a minimum will be a lane 10 feet wide outside the Exclusion Zone. Also the Contamination Reduction zone will include the equipment contamination reduction area, personnel contamination reduction area,

wastewater storage area, truck loading area, and stockpile subsurface backfill area. Yellow caution tape will be placed along the perimeter of the Contamination Reduction Zone (see Figure 4A).

### 4.1.7 Support Zone

The Support Zone will be the areas outside the Contamination Reduction Zone. The area where the construction trailer is located will also be the support zone (see Figure 4A).

### 4.1.8 Erosion and Sedimentation Control

Erosion and sedimentation control techniques will be implemented, including installation of siltation fence and hay bales along the top bank of the Anthony Kill. (see Figure 4A). Special care will be taken when excavation is planned on the bank of the Anthony Kill. This will include not scheduling any excavation work on the bank if significant rainfall is forecast and restoring the area as soon as excavation is complete. If required, NYSEG may install additional erosion and sedimentation controls during construction. Erosion and sedimentation control measures will be maintained in place until final restoration of the site has been achieved and then they will be removed.

## 4.2 Mobilization

Mobilization to the Site will be sequential in nature to accommodate the general requirements and specific operations to be undertaken. Materials and equipment to be mobilized to the site may include: two (2) 1,500 gallon tanks, two (2) roll off containers, one (1) excavator, one (1) articulated wheel loader, miscellaneous portable equipment, and hand tools. Equipment and mode of operation will be described in further detail in the following sections.

## 4.3 Notification

Prior to any on-site construction activities, the Underground Facility Protection Organization (UFPO) will be notified, and all on-site underground utilities will be marked in the field. Local police and fire departments will also be notified. The Citizen Participation Plan addresses notification of adjacent property owners and local officials.

## 4.4 Excavation of Contaminated Soil

NYSEG conducted waste characterization per the Pre-Remediation In Situ Sampling & Analysis Work Plan , Mechanicville Former MGP Site. The site has been divided into five sections, Areas 1 - 5. (See Fig. 3) Areas 1 and 2 represent the former relief holder, Area 3 represents the former tar dehydrator, Area 4 represents an area of visible surface purifier waste, and Area 5 represents the former filter bed area. Composite samples for waste characterization analysis were collected to represent four foot depth intervals developing a layered in situ soil profile. In addition, grab samples for benzene and PAH analysis were collected from Areas 1 and 2 to determine the potential for shallow subsurface soil reuse as subsurface fill.

The procedures that will be implemented during all excavation activities are as follows. The excavation of soil will be accomplished through open cut excavation techniques which require sloping or benching of the excavation side walls over four feet deep at a minimum of one and one-half horizontal to one vertical ratio to minimize sloughing or collapse of adjacent soils. Shoring may be used if necessary. Excavation will be supervised by a competent person (29 CFR 1926.650) to maintain compliance with the Occupational Safety and Health Administration's (OSHA's) excavation standards.

In the event that a particular area becomes impractical or unsafe to continue to excavate, NYSEG will collect samples to determine the concentrations of MGP residuals by utilizing the post excavation sampling criteria described in Section 6.2.1.

The soil will be removed in layers using a track hoe. The soil then will either be stockpiled in the excavation, placed into dump trailers, placed into roll off containers, or placed on the subsurface backfill storage area by an articulated wheel loader. During excavation, visual and odorous observations will also be used to segregate soil. For example, all tarry waste will be excluded from soil being sent to a non-hazardous waste landfill and soil with any staining will be excluded from soil to be used as subsurface backfill. Only soil from Areas 1 and 2 which meets the reuse criteria established in Section 4.0.5 and the Pre-Remediation In Situ Sampling & Analysis Work Plan, Mechanicville Central Avenue Former MGP Site will be placed on the subsurface backfill storage area.

If Tarry Waste (grossly contaminated soil, with visible free phase coal tar present)

is encountered in a section of the excavation classified as nonhazardous waste, it will either be disposed as hazardous waste or it will be placed in roll off containers lined with polyethylene liners, sampled and covered with 6 mil reinforced polyethylene sheeting. Caution will be taken during segregation of such tarry waste to ensure that excavation techniques will not be used to dilute the tarry waste for the purpose of disposal at a non-hazardous waste landfill.

If soil with little or no evidence of coal tar contamination is encountered in a section of the excavation classified as hazardous waste, it maybe stockpiled within the AOC or placed in a separate roll off container, sampled to determine if it is non hazardous waste and covered with 6 mil reinforced polyethylene sheeting.

Odors or fugitive vapors which could potentially emanate from this excavation will be actively controlled by misting the working area with BIO SOLVE® and by covering the excavation with polyethylene sheeting in inactive areas and overnight. The BIO SOLVE® will be applied using a pressure washer. A worker will be available for dedicated operation of this equipment if required.

Dust will be actively controlled by misting the excavated area and asphalt service road with water or BIO SOLVE® .

After collecting post excavation samples, the deep excavated areas will be first filled with on-site soil that has been accepted for subsurface backfill. The remainder of the excavation will be filled with clean imported fill. Geofabric will be placed over all sections of the streambank that were excavated.

## 4.5 Excavation of Test Trench and Pipe Removal

A test trench will be excavated along the top of the bank of the Anthony Kill. The primary purpose of this test trench is to locate any pipes or other preferential pathways for NAPL migration. All pipes and associated bedding material will be removed. If other preferential pathways are discovered, such as highly permeable soils, they will also be removed to the maximum extent practical.

If soil or piping removed form the test trench or pipe removal has visible evidence of coal tar or purifier waste, the material will be placed into roll offs or dump trailers, and disposed as Hazardous Waste. If the soil or piping does not have evidence of coal tar or purifier waste, it may be stockpiled on 10 mil poly, sampled to determine

waste characteristics, as described in Section 6.2.4 and 6.2.5 covered with poly and disposed or revised as subsurface backfill in accordance with the criteria in Section 4.0.5.

NYSEG will attempt to excavate the test trench down to the bedrock interface. NYSEG will install a DNAPL collection system unless the trench does not intersect a competent confining layer which can be graded to collection points. If there is evidence of LNAPL on the groundwater in the trench, then the collection system will be installed regardless of the presence of a confirming layer. This will be accomplished by placing a six-inch or larger slotted pipe in the bottom of the trench which will be sloped toward Central Avenue. A manhole structure will be installed as close to Central Avenue as possible. The trench will be filled with stone at least to the depth where NAPL seeps are evident.

## 4.6 Stormwater

NYSEG will employ various techniques to reduce amount of surface water entering into open excavations. NYSEG will have a stockpile of clean soil readily available to construct berms around the excavations when the need arises. Other options may include sandbags, hay and siltation fencing. Under no circumstances will NYSEG pump water from the excavated area into the storm drains or the Anthony Kill. NYSEG will pump storm water from excavation area only if required to maintain schedule. Normal rainwater will not be collected. Storm water pumped will be stored in 1,500 gallon tanks. The tank's contents will be sampled and characterized in accordance with the acceptance requirements of the facility permitted to accept the wastewater. Upon receipt of favorable laboratory analytical results, the wastewater will be disposed of at the City of Mechanicville Municipal Waste Water Treatment Facility or transferred into a tank truck and transported off-site for disposal at another properly permitted facility.

## 4.7 Wastewater Management

The wastewater generated during equipment decontamination will be collected and stored in 1,500 gallon tanks. The tank's contents will be sampled and characterized in accordance with the acceptance requirements of the facility permitted to accept the wastewater. Upon receipt of favorable laboratory analytical results, the wastewater will be disposed of at the City of Mechanicville Municipal Waste Water Treatment Facility or transferred into a tank truck and transported off-site for disposal at another properly permitted facility.

## 4.8 Construction Equipment, Tools and Trucks Decontamination

The tires, tracks, undercarriages, and excavation buckets of all construction equipment (excavator, wheel loaders, dozer, etc.) and tools which enter the Exclusion Zone will be decontaminated at the Contamination Reduction Zone prior to entering the Support Zone. Decontamination procedures include the physical/mechanical removal of soil, etc., including high-pressure washing. If tarry waste is encountered during excavation the equipment will be decontaminated before excavating non hazardous soil. At a minimum, this would include decontaminating the excavation bucket.

Trucks transporting soil off site will be staged in the Contamination Reduction Zone and placed on 6 mil polyethylene sheeting. Care will be exercised when loading trucks not to spill material on the outside of the trucks. Prior to leaving the Contamination Reduction Zone, each truck will be visually inspected (i.e. box sidewalls, box tailgate, and tires, etc.) and cleaned with brushes as required. In addition trucks will be tarped in the Contamination Reduction Zone. Before staging another truck, the 6 mil polyethylene sheeting will be either cleaned by brooms or replaced.

No soil, either contaminated or clean will be permitted to accumulate on city streets. NYSEG will clean these areas as required to assure soil does not remain on the city streets.

## 4.9 Waste Transportation and Disposal

The transportation of soil will be accomplished by a transportation contractor in accordance with the NYSEG specification for the Transportation of Solid/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 three mils thick polyethylene sheets (poly sheets) per NYSEG's discretion. Trucks transporting non hazardous waste may be lined as previously stated. All trucks will also have a gasket between the box and tailgate.

Trucks will leave the site either by exiting directly onto Central Avenue or, during excavation of the relief holder, exit through the west end of the site onto the adjacent property, then exit south onto Burke Street to Mabbitt Street, make a left, take Mabbitt Street to Central Avenue.

The nonhazardous waste will be disposed of at a non-hazardous waste industrial landfill or ESMI of New York's approved thermal treatment facility. NYSEG may send nonhazardous waste to be processed into cold mix asphalt at Clean Waters of America's facility, pending a beneficial use determination by NYSDEC. Hazardous waste will be disposed as a RCRA hazardous waste at Casie/Mart thermal desorption facility in Vineland, N.J. (USEPA I.D. No. NJD045995693).

## 4.10 Snow Management

Non-contact snow (to a 2-inch thick layer) will be stockpiled within the fenced area at the southwest end of the project site by clean equipment or by equipment decontaminated, as per Section 4.8. Remaining snow in contact with contaminated material will either be excavated with the material or left in the excavation area. Snow will not be intentionally melted.

## 4.11 Site Restoration

Upon completion of the remedial action, restoration of the site will be undertaken to:

- Place geotextile fabric and rip rap consisting of six inch to eighteen inch stones along the disturbed portion of the bank of the Anthony Kill.
- Place four inches of crushed stone or asphalt pavement over the common fill.
- Remove and dispose of materials used to prepare decontamination pad and stockpile areas.
- Remove and dispose of the hay bales and siltation fencing.
- Remove all site security fencing that was installed during construction.

All waste material generated during site restoration will be characterized and disposed of in accordance with applicable regulations. The liner used to prepare the stockpile storage area, contaminated personal protective equipment (PPE) and plastic sheeting used to cover soil stockpiles will also be characterized and disposed of appropriately.

## 4.12 Documentation Of Site Activities

### 4.12.1 Daily Logbook

A designated logbook will be used to document daily on-site activities. The daily logbook will be kept in the field office.

### 4.12.2 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.

### 4.12.3 Chain-of-Custody Record

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

### 4.12.4 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.

### 4.12.5 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.

### 4.13 Demobilization

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

### 4.14 Project Schedule

A Project Schedule is provided in Appendix G.

### 4.15 Permits

NYSDEC Waste Transporter permits (6NYCRR Part 364) will be obtained by the Transportation Contractor for the vehicles used for transportation of waste as specified in subsection 4.9 of this Work Plan. No other permits are required for this project.

## 5.0 AIR-QUALITY MONITORING PLAN

### 5.1 Overview

The objective of this Air-Quality Monitoring Program (AQMP) is to provide direct measurement of total suspended particulates (0.1 to 10 microns) and chemical compounds 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 area (exclusion zone) air-monitoring for evaluating construction worker health and safety; and (2) community air-monitoring to determine the levels of volatile compounds at the perimeter of the site. Real-time air monitoring and speciated real-time data will be used to guide appropriate action to reduce/minimize air emissions to acceptable levels.

### 5.2 Work Zone Air-Monitoring Program

The air quality within the work area will be monitored to ensure worker health and safety in accordance with requirements specified in 29 CFR 1910.120, as described in the Mechanicville Central Avenue Former MGP Site Health and Safety Plan, and as outlined below.

## 5.3 Community Air-Monitoring Program

### 5.3.1 Overview

NYSEG will undertake a community air-monitoring program during the IRM project to provide direct measurement of volatile organic compounds and total suspended particulates (0.1 to 10 microns) which may be released during excavation and handling of MGP residues and activities associated with the IRM project. This air-monitoring program is directed toward evaluating and documenting the migration of potential emissions to the site perimeter. Results will be used to confirm the maintenance of safe air quality surrounding the site during the handling of contaminated soils. If contaminant levels in the air exceed the air-quality action levels detailed in Section 5.3.2, the site construction supervisor will be promptly alerted to the results of the monitoring and the need for the implementation of additional measures (as described in Section 5.3.2.1) to further control emissions from the site.

Real-time air quality monitoring for volatile organic compounds and total suspended particulates as well as speciated BTEX (benzene, toluene, ethylbenzene and xylenes) real-time air monitoring will provide the site construction supervisor with immediate data concerning air quality at the site during the project. The procedures for monitoring and the short-term air quality action levels are subsequently described in this section. Real-time air quality data will be collected throughout the duration of soil excavation activities. Background data will be collected over a one-day period prior to soil excavation when no soil handling work is being performed.

### 5.3.2 Real-Time Air Monitoring -Volatile Organic Compounds

Real-time air quality data will be collected from the downwind perimeter of the work area and the site perimeter using portable instrumentation in accordance with a periodic monitoring protocol described below. Four site perimeter monitoring stations will be established. Each station will be located along the perimeter of the site and will be designated as Real-time Stations 1 through 4 (RTS1 through RTS4 - Figures 4A and 4B).

Real-time monitoring will commence at the start of each work day and will continue until daily soil handling activities have ceased. The real-time data generated will allow the site construction supervisor to determine if air quality at the work area

perimeter and site perimeter are being impacted by site activities and whether the implementation of emission control measures, as delineated in Section 5.3.2.1, is necessary.

Real-time monitoring will be accomplished using a total volatile organic analyzer equipped with a photo ionization detector (PID) and a 10.2-eV lamp, which will be calibrated daily to benzene with an isobutylene air standard. Monitoring will be undertaken at each monitoring station at least hourly during the course of daily operations. In addition, monitoring locations and frequencies may be revised, depending on the location of exposed contaminated soil, wind direction, and data collected. Additional real-time air monitoring may be done at the request of either on-site NYSDEC or NYSDOH personnel. Equivalent backup, real-time air-monitoring equipment will be available on-site, should a piece of equipment malfunction.

Equipment to effectively monitor wind direction will be erected at the site. The equipment anticipated for the site is the Weather Wizard III™. This unit can provide wind speed and direction and temperature and can log data.

Sampling at each station will be accomplished by pointing the intake tube of the PID toward the likely emission source, generally at the height of the breathing zone (4 to 5 feet). The instrument will then be turned on and allowed to run for 30 seconds. After 30 seconds have elapsed, the concentration of total volatiles in air will be measured and recorded on data sheets along with the time, sampling location, wind direction, and weather conditions. Real-time air monitoring data will be kept in on-site files. These data will be submitted to Daniel Geraghty, New York State Department of Health, on a daily basis.

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), short-term air quality action levels have been established for air emissions control at the site perimeter. An action level of total volatiles at the work area and site perimeter has been established at 5.0 ppm above background (see below). If this action level is exceeded the following actions will be taken:

(1) Work activities will be halted and actions specified under the Vapor Emission Response Plan (Section 5.3.2.1) will be undertaken.

(2) A benzene-specific Dräger™ tube or a portable gas chromatograph (GC) unit (i.e., Perkin-Elmer Photovac Voyager™) will be used to measure the concentration of benzene migrating from the site perimeter.

The 5.0 ppm action level at the site perimeter is based on an estimated concentration of benzene in the PID reading from total BTEX compounds measured during monitoring. Since the PID detects volatile compounds other than BTEX, the 5.0 ppm action level is considered conservative. If odors are detected in the nearby community, despite the fact that total VOC levels are below the 5.0 ppm action level, engineering controls as described in Section 5.3.2.1 will be implemented.

An action level of 2.5 ppm above background will be used at the work area perimeter, in accordance with OSHA short-term exposure limits (STEL) for benzene to ensure construction worker health and safety (29 CFR 1910.1028). If the total VOC concentration exceeds 2.5 ppm, worker personal protective equipment will be upgraded from Modified Level D to Level C as specified in the Health and Safety Plan.

### 5.3.2.1 Vapor Emission Response Plan

The vapor emission response plan will be triggered by either an exceedance of total VOC action levels at either the work area or site perimeter or a benzene measurement of 0.5 ppm at the site perimeter. If a five-minute sustained measurement of 5.0 ppm above background for the work area or the site perimeter or a benzene level of 0.5 ppm at the site perimeter is measured, work activities will be stopped and the following actions will be undertaken:

- Continue total VOC monitoring at the work area perimeter. If the total VOC level decreases below 5 ppm over background, then work activities can resume. If the total VOC levels persist above 5.0 ppm, then the construction supervisor will implement engineering controls and immediately notify the site project manager and the Project Health and Safety Coordinator (PHSC).

- Following the implementation of engineering controls, work activity may resume after the total VOC levels at the work area perimeter and site perimeter are below 5.0 ppm above background and with the

approval of the NYSDEC in consultation with the NYSDOH.

- If the total VOC levels are greater than 5.0 ppm but less than 25 ppm over background at the perimeter of the work area, work activity may resume provided that the total VOC level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure (whichever is less) is below 5.0 ppm above background.

- If the total VOC level is above 25 ppm at the perimeter of the work area, work activities must be shut down. When work shutdown occurs, downwind air monitoring as directed by the PHSC will be implemented to ensure that the emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission Response Plan (Section 5.3.2.2)

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

- cover piles of contaminated soils with polyethylene sheeting.

- limiting excavation size and the surface area of exposed contaminated soil

- adding chemical vapor suppressants such as BIO SOLVE® to impacted media (application in excavated areas will be a light mist as to avoid increasing solubility of wastes leading to increased groundwater contamination).

### 5.3.2.2 Major Vapor Emission Response Plan

If, after the cessation of the work activities and implementation of engineering controls, persistent total VOC levels (1) greater than 25 ppm above background at the work perimeter; or (2) greater than 5.0 ppm above background 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure (whichever is less) are measured, then the following action will be taken within 30 minutes:

- Cover the excavated area with polyethylene sheeting.

- Notify the NYSDOH, County Health Department, NYSDEC and the local police.

- Total VOC levels will be monitored within 20 feet of the nearest downwind residential or commercial structure. (20 Foot Zone).

- Continue air monitoring 15-minute intervals in the 20 Foot 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.

- If total VOC levels persist above the 5.0 ppm within the 20 foot zone, the construction supervisor, PHSC and NYSEG manager will consult with each other and the Emergency Response agencies to determine appropriate actions to be implemented. NYSDOH has ultimate authority during major vapor emission emergencies.

### 5.3.3 Real-Time Air Monitoring - Total Suspended Particulates

In conjunction with the real-time hourly volatile emission monitoring, direct-reading monitoring equipment for particulate matter will be used to collect real-time airborne particulate data. The instrument to be used for this sampling is a Mini Ram™, which operates on the principle of light scattering. The Mini Ram™ responds to particles in the size range of 0.1 to 10 micrometers and in the concentration range of 0.01 to 100 $mg/m^3$. Real-time particulate measurements will be based on a 30-second, time-weighted average. The Mini Ram™ will be calibrated daily with a filtered air sample. Recorded measurements at each sample point will be logged by the technician. Equivalent backup real-time air monitoring equipment will be available on-site in the event of an equipment malfunction.

A New York State 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, real-time 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, or if dust is observed leaving the work site, dust suppression techniques (i.e., misting surfaces with water or covering open piles) will be implemented to reduce the generation of fugitive dust. If the action level of 0.15

mg/m$^3$ above background is exceeded, 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: Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 1989).

### 5.3.4 Speciated Real-Time Air Monitoring -BTEX

To supplement the real-time VOC air monitoring for the community air monitoring program, a portable gas chomatograph (GC) unit will be used to determine the 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 these 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 5.3.2.1) and the major vapor emission response plan (Section 5.3.2.2); and (2) to document emissions of BTEX to the surrounding community during periods of construction activity potentially conducive to the emissions of these compounds.

The Voyager™ will be calibrated daily using gas standards containing BTEX compounds. Calibration checks will be conducted twice daily (am/pm) with a verification gas standard containing the target analytes. Calibration drift of greater than +/-15% will require recalibration of the instrument.

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:

- 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 5.3.2.1)
- as necessary during periods of excavation that produce visual or

odorous evidence of coal tar

The results of this sampling and analysis will be data logged into the Voyager™ memory and downloaded into a laptop PC (personal computer) daily. The raw data will be reviewed weekly by personnel knowledgeable in gas chromatography. If the results of analysis indicate that a sample contains greater that 0.5 ppm benzene, then action specified in the Vapor Emission Response plan (Section 5.3.2.1) will be implemented.

The results will be provided to the New York State Department of Health (NYSDOH) as soon as possible during instances when the benzene or total VOC action level is exceeded or when an odor complaint is lodged by a community member. In absence of such instances, these data will be provided to NYSDOH or NYSDEC monthly 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 (ug/m3) | SGC (ppm) |
|---|---|---|
| Benzene | 30 | 0.009 |
| Toluene | 89,000 | 24 |
| Ethylbenzene | 100,000 | 23 |
| Xylenes | 100,000 | 23 |

### 5.3.5 Time Weighted Average (TWA) Air Monitoring - BTEX

As a contingency plan for the speciated real-time air monitoring, NYSEG may, at its own discretion, elect to use TWA air monitoring of BTEX compounds in lieu of using the portable GC unit described in section 5.3.4. Air sampling and analysis for the BTEX compounds will be conducted in accordance with the New York State DOH Method 311-6, Volatile Organics In Air By GC/PID/ELCD.

Samples will be collected over an 8 hour period during excavation of the MGP contaminated soil and debris. Two site perimeter monitoring stations, one upwind and one down wind, will be established daily based on meteorological information and will be designated as TWA-UP (Time Weighted Average Station Upwind) and

TWA-DN (Time Weighted Average Station Downwind) respectively. One sample will be collected at each station per day. Based on real-time total VOC readings and odorous observations, the week's worst case upwind and downwind samples will be submitted to the laboratory for analysis. The results of these analyses will be submitted to DOH and DEC within 30 days of submission to the laboratory.

### 5.3.6 Odor Monitoring Plan

The nature of the MGP residues pose a concern regarding the generation of nuisance odors during excavation and material handling. As such, an odor control and monitoring plan has been developed for the IRM. A sign will be posted at the gate with a local phone number to call to register complaints of odor. A call to the posted phone number during normal business hours will be answered by one of a group of operators (at the NYSEG Call Center) who can provide information from the project fact sheet. If additional information is required, the operator can contact members of the project team from a call list. After normal business hours, for emergencies, this phone number (800 572-1121) rings directly to NYSEG's Power Supply which will contact a project team member directly from the call list. Project team members will archive all call information and contact the site construction supervisor or project manager, if necessary, so that engineering controls can be implemented. NYSDOH will be promptly notified of any odor complaints.

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

Hourly, the designated field technician will walk the site perimeter to take notice of any appreciable odor emanating from the site. If significant odor is noted by the site personnel, or by non-project personnel, engineering controls will be implemented as outlined in the Vapor Emission Response Plan (Section 5.3.2.1) to reduce odor causing emissions. Once odors are not noticed at the downwind site perimeter, normal operations may resume. This determination will be subject to the approval of the on-site NYSEG representative.

### 5.3.7 Meteorological Observations

Wind direction will be monitored throughout the air-sampling program at an on-site weather station. This data will be reduced and reviewed for each 24-hour period

during the removal program, and air sampling stations will be adjusted accordingly if necessary.

A log of local weather observations will be kept with observations taken coincidentally with real-time air quality measurements. Data included in the log will consist of temperature, cloud coverage, and precipitation conditions.

### 5.3.8 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;
- sample identification code;
- sample collection date and time;
- sample methodology;
- sample analysis;

- 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.

## 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 the Mechanicville Central Avenue MGP IRM. In addition, the NYSEG Mechanicville Central Avenue MGP Site Quality Assurance Project Plan (QAPP, Appendix D) and NYSEG's Pre-Remediation Sampling and Analysis Work Plan, Mechanicville Central Avenue 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 IRM, 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:<br>- Reuse | To determine whether soil is suitable for reuse as subsurface backfill |
| - 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 |

and disposal requirements listed in Section 4.0.5 of this Work Plan. Wastewater sampling and analysis will be completed as described in Section 6.4 and in accordance with the requirements of a permitted wastewater disposal facility.

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 procedure 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 Mechanicville Central Avenue 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; and
- ice cooler for sample storage.

### 6.2.2 Post Excavation Soil Sampling and Analysis Plan

#### 6.2.2.1 Sampling Plan Rationale

A 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 determine if additional excavation will be warranted as described in Section 4.0.6, or if future remedial investigation is necessary.

#### 6.2.2.2 Laboratory Analytical Protocols

Confirmation soil samples will be analyzed for total benzene, toluene, ethylbenzene, and xylenes (BTEX) and total polycyclic aromatic hydrocarbons (PAHs) using EPA Laboratory methods 8260 and 8270, respectively. Samples collected to verify conformance with the cleanup objectives will be subject to NYSDEC ASP (Analytical Services Protocol) Category B deliverables.

### 6.2.2.3 Soil Sampling Protocol

In the excavated areas, samples will be obtained at a maximum sidewall horizontal interval of 50 feet and a minimum of one (1) sample per each sidewall. Sidewall samples will only be taken if the excavation exceeds two feet deep. Samples will also be collected at the bottom of the excavation with a minimum of one (1) sample (for areas less than 1,000 square feet). In larger areas, a sample will be taken for every 1,000 square feet (example: two (2) samples would be taken for an area of 1,500 square feet).

A sample representing the first 3 to 6 inches of soil encountered will be taken from each sampling point. The sample will be representative of the area soil based upon visual and olfactory observations and PID readings.

Soil 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. After each sample of soil is taken, an indicator will be used to mark the location, in the event that additional excavation in that area is required. A drawing depicting sample locations along with information concerning sample identifications, depth below original ground surface, and dates of collection will maintained by the field sampling technician throughout the project.

## 6.2.3 Pre-remediation In Situ Sampling and Analysis Work Plan for Waste Characterization/Preliminary Reuse Characterization.

### 6.2.3.1 Pre-remediation In Situ Sampling Rationale (See Pre-Remediation In Situ Sampling and Analysis Work Plan for the Mechanicville Central Avenue MGP Site, Appendix A, "Introduction".)

**6.2.3.2 Laboratory Analytical Protocols** (See Pre-Remediation In Situ Sampling and Analysis Work Plan for the Mechanicville Central Avenue 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 Mechanicville Central Avenue MGP Site, Appendix A, "Sampling Protocol".)

## 6.2.4 Roll Off Container/Area of Contaminated Soil Sampling and Analysis Plan for Waste Characterization

### 6.2.4.1 Roll off Container/Area of Contamination Sampling Rationale

A soil roll off container/area of contamination sampling and analysis plan may be implemented to supplement the Pre-remediation In Situ Sampling and Analysis Work Plan. This sampling and analysis plan is to primarily address (1) subsurface soil characterized as RCRA non-hazardous waste by pre-remediation in situ sampling which upon excavation appears to be require hazardous waste disposal (i.e., soil that is grossly contaminated with tarry waste); or (2) subsurface soil characterized as a RCRA hazardous waste by pre-remediation in situ sampling which upon excavation appears to be suitable for disposal at a non-hazardous industrial waste landfill (i.e., soil that appears to be lightly contaminated or uncontaminated). During the course of remedial excavation, subsurface soil will be examined for visual and odorous evidence of MGP contamination. If the excavated soil appears to fit either description delineated above, it may be placed in a roll off container or stockpiled within the area of contamination in increments up to 100 cubic yards. Caution will be taken during segregation of waste to ensure that excavation techniques will not be used to dilute tarry waste, which are likely to be RCRA hazardous waste, for the purpose of disposal as non-hazardous waste. The Area of Contamination (AOC) for the Mechanicville Central Avenue Former MGP Site is the historical plant area, which is identified on Figure 3. Disposition of soil will be based on the criteria delineated in Section 4.0.5.

### 6.2.4.2 Laboratory Analytical Protocol

(See Pre-Remediation In Situ Sampling and Analysis Work Plan for the Mechanicville MGP Site, Appendix A, "Analytical Protocol", List A Analytes and List B Analytes)

## 6.2.5 Stockpiled Soil Sampling & Analysis Plan for Reuse as Subsurface Backfill

### 6.2.5.1 Sampling Plan Rationale

The analytical results of in situ sampling for preliminary reuse characterization will be used to determine whether shallow soil in the selected excavation areas is potentially suitable for reuse as subsurface backfill. If the analytical results of the in-situ samples are favorable with respect to the soil reuse criteria delineated in Tables 4-4 and 4-5 (Section 4.0.5) of the IRM Work Plan, then the respective soil may stockpiled and sampled to confirm it meets the reuse criteria.

#### 6.2.5.2 Laboratory Analytical Protocols

Grab soil samples will be analyzed for total benzene and total polycyclic aromatic hydrocarbons (PAHs) using EPA methods 8260 and 8270 respectively. These samples will be subject to NYSDEC ASP Category B deliverables.

#### 6.2.5.3 Soil Sampling Protocol

During the course of excavation, the soil for backfill consideration will be examined for visual and odorous evidence of contamination. If the soil appears to agree with the results of the in situ preliminary site characterization samples, then the soil will be stockpiled in approximately 250 $yd^3$ piles. One worst case grab sample will be collected and submitted to the laboratory for the parameters listed in Tables 4-5 and 4-6 (Section 4.05).

### 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 1500 gallon tank that will be stored on-site. A sampling and analysis plan will be implemented to properly characterize the wastewater for disposal at a local POTW (Public Owned Treatment Works) or an alternate disposal facility permitted to accept it.

If the results of analysis meet the limits specified by the POTW, then the wastewater will then 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.

#### 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 will be sampled directly from each filled tank prior to shipment off-site. Latex or rubber 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 degrees 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 Mechanicville Central Avenue Former MGP Site (Appendix A);
- 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.

WORKPLAN.WP

# FIGURES


| | |
|---|---|
| FIGURE 1 | SITE LOCATION MAP |
| FIGURE 2 | HISTORICAL OPERATIONS LAYOUT |
| FIGURE 3 | IN SITU SAMPLING |
| FIGURE 4 | PROJECT LAYOUT |

HISTORIC SITE LOCATION

CENTRAL AVENUE

NORTH

WILLIAM STREET

MAIN STREET

HOWLAND AVENUE

FRANCIS STREET

RAILROAD STREET

BROADWAY

MABBETT STREET

HILL STREET

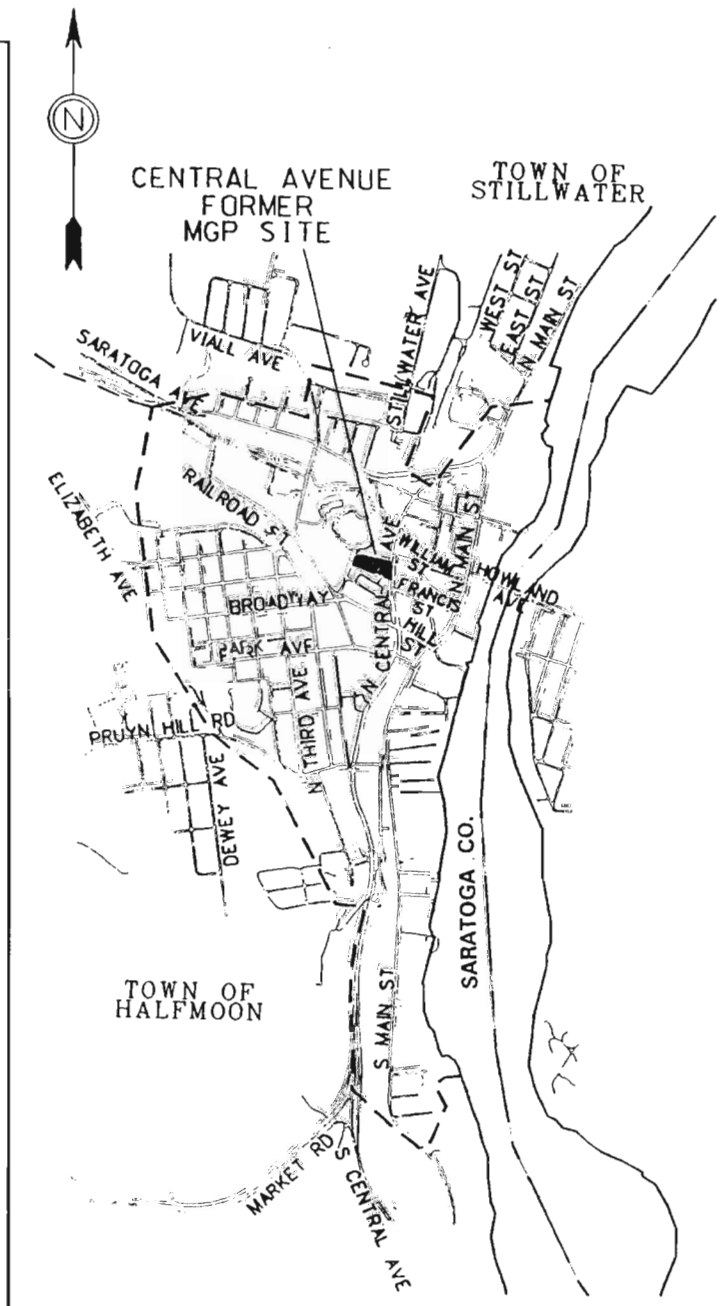
PARK AVENUE

ANTHONY KILL

HUDSON RIVER

0 100 200 300
Scale SCALE OF DETAIL Feet

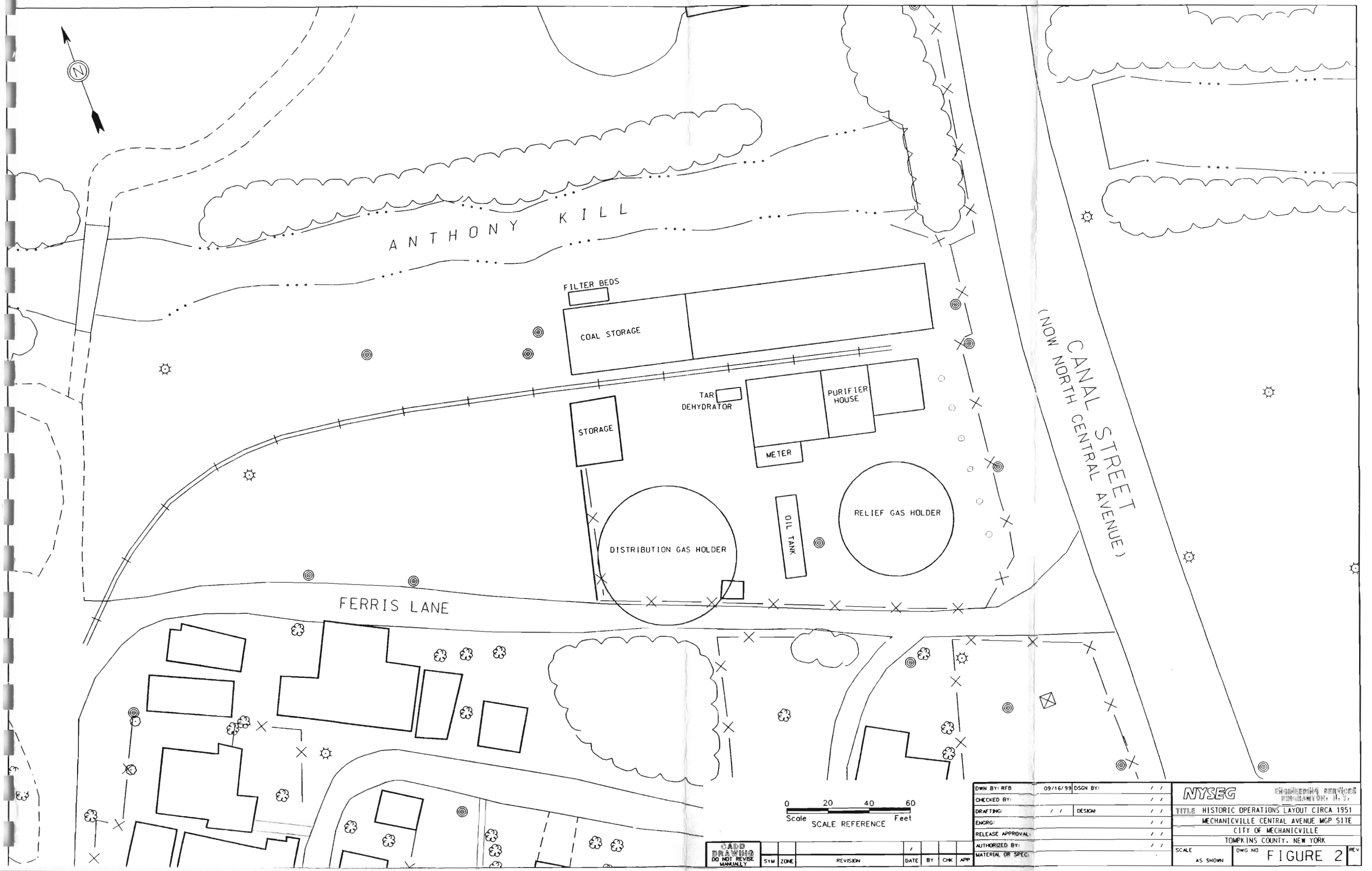
BASE MAP DIGITIZED FROM AERIAL PHOTOS DATED APRIL, 1993 BY PHOTO SCIENCE, INC. GAITHERSBURG, MD.




CITY OF MECHANICVILLE

NYSEG ENGINEERING SERVICES BINGHAMTON, N.Y.

TITLE LOCATION MAP
MECHANICVILLE CENTRAL AVENUE MGP SITE
CITY OF MECHANICVILLE
SARATOGA COUNTY, NEW YORK
SCALE: AS SHOWN DWG NO FIGURE 1 REV
DATE : 08/12/99




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| ENGRG: | | | / / |
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| AUTHORIZED BY: | | | / / |
| MATERIAL OR SPEC: | | | |

NYSEG ENGINEERING SERVICES BINGHAMTON, N.Y.

TITLE HISTORIC OPERATIONS LAYOUT CIRCA 1951
MECHANICVILLE CENTRAL AVENUE MGP SITE
CITY OF MECHANICVILLE
TOMPKINS COUNTY, NEW YORK

SCALE AS SHOWN

DWG NO FIGURE 2

REV

ANTHONY KILL

NORTH CENTRAL AVENUE

AREA 5

AREA 4

AREA 3

AREA 2

AREA 1

GARAGE

OFFICES

STOREROOM

SHED

GAS HOUSE

PURIFIER HOUSE

OXIDE HOUSE

METER

STORAGE

NYSEG MECHANICS SHOP AND REPAIR BUILDING

DISTRIBUTION GAS HOLDER
100,000 CU. FT.

SHED

FEELEY GAS HOLDER
40,000 CU. FT.

1 2 3 4 5 6 7 8 9 10 11 12

FERRIS LANE

NYSEG SUBSTATION

LEGEND

● - IN SITU SAMPLING POINT
GRID SPACING = 10 FEET SQUARE

0 15 30 60
Scale SCALE REFERENCE Feet

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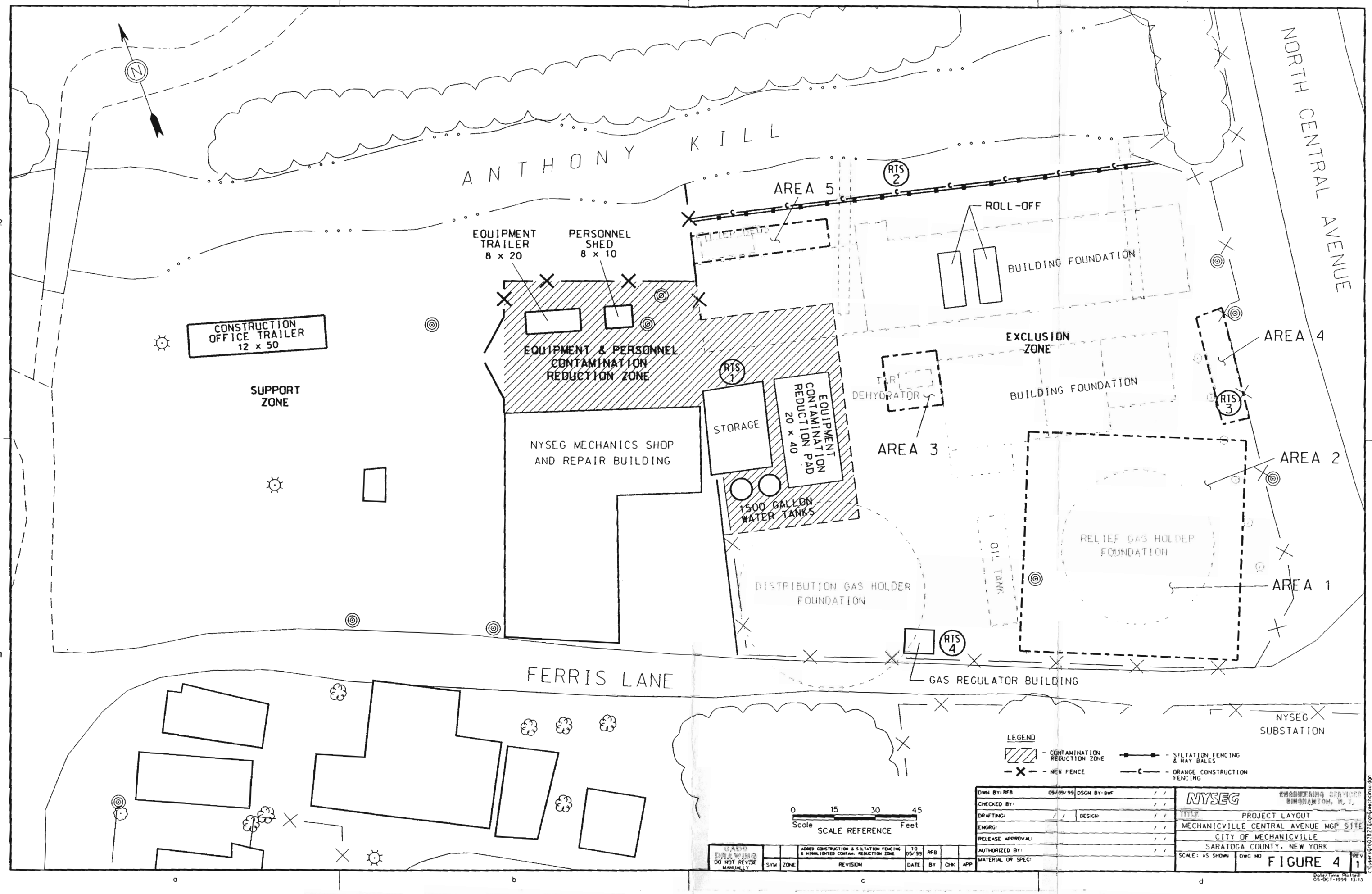
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| MATERIAL OR SPEC: | | | |

NYSEG

TITLE: IN SITU SAMPLING
MECHANICVILLE CENTRAL AVENUE MGP SITE
CITY OF MECHANICVILLE
SARATOGA COUNTY, NEW YORK

SCALE: AS SHOWN | DWG NO FIGURE 3 | REV




| SYM | ZONE | REVISION | DATE | BY | CHK | APP |
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AS-BUILT DRAWING DO NOT REVISE MANUALLY

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| ENGRG: | | | / / |
| RELEASE APPROVAL: | | | / / |
| AUTHORIZED BY: | | | / / |
| MATERIAL OR SPEC: | | | |

NYSEG ENGINEERING SERVICES BINGHAMTON, N.Y.

TITLE: PROJECT LAYOUT
MECHANICVILLE CENTRAL AVENUE MGP SITE
CITY OF MECHANICVILLE
SARATOGA COUNTY, NEW YORK

SCALE: AS SHOWN | DWG NO FIGURE 4 | REV 1

Date/Time Plotted 05-OCT-1999 13:13

# APPENDIX A

## PRE-REMEDIATION IN SITU SAMPLING & ANALYSIS WORK PLAN

# *NYSEG*

**NEW YORK STATE ELECTRIC & GAS CORPORATION**
Corporate Drive, Kirkwood Industrial Park, P.O. Box 5224
Binghamton, New York 13902-5224

**INTERIM REMEDIAL MEASURES**

# PRE-REMEDIATION IN SITU SAMPLING & ANALYSIS WORK PLAN

**FOR ACTIVITIES AT**

**MECHANICVILLE CENTRAL AVENUE FORMER MGP SITE**
**MECHANICVILLE, NEW YORK**

AUGUST 1999

Licensing & Environmental Operations Department

## Introduction:

NYSEG (New York State Electric & Gas Corp.) is preparing to conduct an Interim Remedial Measures project (IRM) at the Mechanicville Central Ave. Former Manufactured Gas Plant (MGP) site in Mechanicville, New York. NYSEG plans to excavate the contents of the subsurface relief holder, the former tar separator, the former filter bed area, an area of surface purifier waste and any surrounding soil or associated piping that have evidence of free phase NAPL. This protocol describes a pre-remediation sampling and analysis plan designed to provide data for waste characterization and preliminary site characterization.

The soil will be sampled in situ. Based on the analytical results of in situ sampling for waste characterization, the excavated soil will either be (1) sent to a thermal treatment facililty; (2) sent to a secured hazardous waste landfill in Canada; (3) sent to an industrial non-hazardous waste landfill; or (4) stockpiled for additional sampling to determine if the soil is suitable for use as subsurface backfill. During excavation, visual observations will also be used to segregate waste. For example, all free phase coal tar will be excluded from being sent to a non-hazardous waste landfill and soil with any staining will be excluded from soil to be used for subsurface backfill. A total of approximately 4300 cubic yards of soil will be sampled for waste characterization.

The analytical results of in situ sampling for preliminary reuse characterization will be used to determine whether shallow soil in the selected excavation areas is potentially suitable for reuse as subsurface backfill. If the analytical results of the in-situ samples are favorable with respect to the soil reuse criteria specified in Section 4.0.5 (Tables 4-4 and 4-5) of the IRM Work Plan, then the soil will be excavated, stockpiled, sampled ex situ and analyzed in accordance with the sampling and analysis protocol listed in Section 6.2.5 of the Work Plan. The analytical results of ex situ sampled soil will be compared to the reuse criteria specified in Section 4.0.5 of the IRM Work Plan to determine whether the soil can be used as subsurface backfill or whether off-site disposal is required.

NYSEG will conduct the sampling event. Zebra Environmental Services, Inc will provide geoprobe services and Adirondack Environmental Services, Inc. will provide analytical laboratory services. All sampling and analyses will be performed in accordance with the attached Quality Assurance Project Plan (QAPP). Data will be submitted to NYSDEC for review. The data will also be sent to the landfill and/or hazardous waste disposal facility representatives for review and approval prior to the transport of soil to any disposal facility.

The Health and Safety Plan previously used in the remedial investigation will be used for the pre-remediation sampling event. Care will be taken, through the use of plastic bags or equivalent, to ensure that no subsurface material will be spread over the surface of the site. This material will be containerized for proper off-site disposal.

## Sampling Protocol:

The site has been divided into five sections, Areas 1 - 5. (See Fig. 3) Areas 1 and 2 represent the former relief holder, Area 3 represents the former tar dehydrator, Area 4 represents an area of visible surface purifier waste, and Area 5 represents the former filter bed area. A sampling grid has been established for Areas 1 and 2. From this grid, sampling points have been chosen to gather representative waste characterization and preliminary reuse characterization data which concern the former relief holder. Composite samples will be collected from the Areas 3 - 5 to gather waste characterization data only. Additional grab sampling points may be taken from the grid or in any general area where grossly contaminated soil is observed.

A geoprobe sampling rig mounted on an ATV or pickup truck will be used to collect 2" macrocore samples. Each core sample will be placed in a large stainless steel collection vessel. Where specified, the core samples will be properly mixed to generate a composite sample that is representative of its respective soil volume. 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.

### Relief Holder Area Sampling

Areas 1 and 2 will be designated as the relief holder excavation area. The maximum depth of excavation anticipated for this area is approximately 16 feet. For waste characterization profiling of Areas 1 and 2, a composite sample will be generated for each Area at depth intervals of 0-4', 4-8', 8-12', and 12-16'. These intervals may be reduced to two foot intervals if field observations conclude that more discrete layers of characterization are warranted. Each composite sample will be comprised of a minimum of six core grab samples collected at the designated sampling points (depicted in Fig. 3) for each depth interval. Each composite sample from Area 1 will represent approximately 365 $yd^3$ of soil and each composite sample from Area 2 will represent approximately 583 $yd^3$ of soil. Each composite sample will be submitted to the laboratory for determination of List A and List B analytes (See **Analytical Protocol**).

For preliminary reuse characterization, a worst case grab sample taken from the 0-4' sampling interval will be collected from Area 1 and Area 2 and will be submitted to the laboratory for determination of List C and List D analytes (See **Analytical Protocol**).

### Tar Dehydrator Area Sampling

Area 3 will be designated as the tar dehydrator area. (See Fig. 3) For waste characterization profiling of Area 3, composite samples will be generated from the area inside the tar dehydrator for depth intervals of 0-4',

4-8' and 8'-12'. Each composite sample will be comprised of a minimum of three core grab samples collected for each depth interval at sampling points within Area 3. Each composite sample will represent approximately 60 $yd^3$ of soil and will be submitted to the laboratory for determination of List A and List B analytes.

**Surface Purifier Waste Area Sampling**

Area 4 will be designated as the surface purifier waste area. (See Fig. 3) For waste characterization profiling of Area 4, a composite sample will be generated for a depth interval of 0-2'. The composite sample will be comprised of a minimum of three core grab samples collected at sampling points within Area 4. The composite sample will represent approximately 30 $yd^3$ of soil and will be submitted to the laboratory for determination of List A and List B analytes.

**Filter Bed Area Sampling**

Area 5 will be designated as the filter bed area. (See Fig. 3) For waste characterization profiling of Area 5, a composite sample will be generated for depth intervals of 0-4', 4-8', 8-12'. The composite sample will be comprised of a minimum of three core grab samples collected at sampling points within Area 5. Each composite sample will represent approximately 75 $yd^3$ of soil and will be submitted to the laboratory for determination of List A and List B analytes. In the event that this area is inaccessible to the geoprobe sampling rig, in situ waste characterization will be forfeited. During the IRM, the material will be excavated, stockpiled, sampled and analyzed for proper off-site disposal in accordance with Section 6.2.4 of the Work Plan.

During the IRM, NYSEG will conduct confirmatory or endpoint grab sampling for soil remaining after excavation. Details concerning post-excavation confirmatory sampling and analysis will provided in Section 6.2.1 of the IRM Work Plan.

**Analytical Protocol:**

(Refer to the attached QAPP for specific methods.)

**List A Analytes:** TCLP volatiles, TCLP semivolatiles, TCLP metals, TCLP pesticides, TCLP herbicides, reactive cyanide and reactive sulfide (Tables 1 & 2).

**List B Analytes:** pH, % solids, reactivity, corrosivity, PCBs (total) and flashpoint (Table 3).

**List C Analytes:** Total Benzene, Total Toluene, Ethylbenzene and Total Xylenes (BTEX) - (Table 4).

**List D Analytes:** Total Polycyclic Aromatic Hydrocarbons (PAHs) - (Table 5).

## TABLE 1: COMPOSITE SAMPLE TCLP ANALYTES AND LIMITS

| TCLP ANALYTE | REGULATORY LIMIT (mg/L) 6NYCRR 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 | 0.02 |
| Heptachlor | 0.008 |
| Hexachlorobenzene | 0.13 |
| Hexachlorobutadiene | 0.5 |
| Lead | 5.0 |
| Lindane | 0.4 |
| Mercury | 0.2 |

## TABLE 1: COMPOSITE SAMPLE TCLP ANALYTES AND LIMITS

| TCLP ANALYTE | REGULATORY LIMIT (mg/L) 6NYCRR 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 | 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 |

**TABLE 2: COMPOSITE 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 3: COMPOSITE SAMPLE ANALYTES AND ACTION LIMITS**
**OTHER RCRA CHARACTERISTICS AND LANDFILL ANALYTICAL REQUIREMENTS**

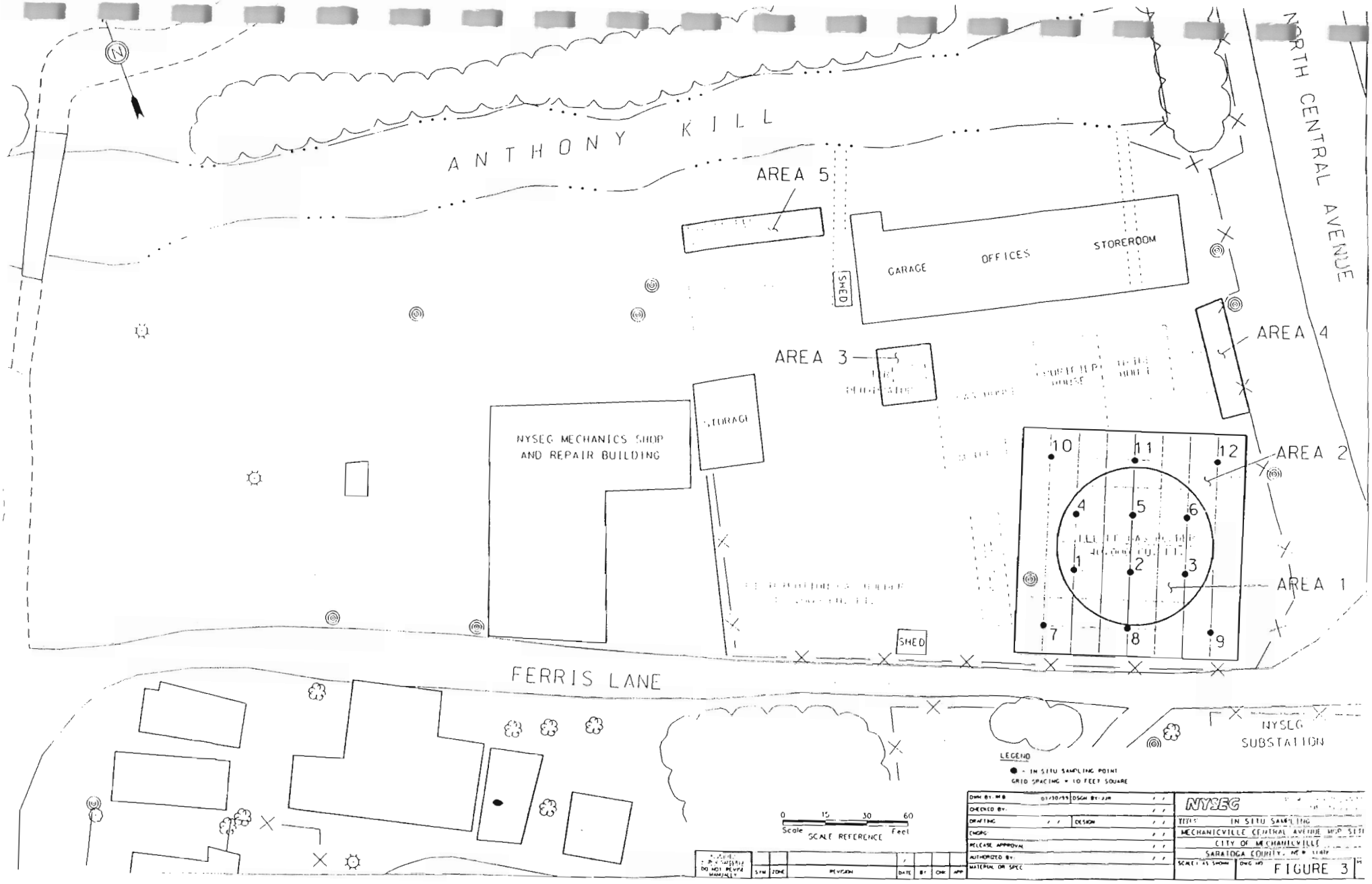
| ANALYTE | LIMIT |
|---|---|
| Corrosivity (pH) | Non- Corrosive (pH must be >2 or <12.5 ) |
| Flashpoint | Must be > 60 deg. C |
| PCBs (Total) | 50 mg/Kg |
| % Solids | Must be > 20% |

## TABLE 4: TOTAL BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES

| PARAMETER |
| --- |
| Total Benzene |
| Total Toluene |
| Total Ethylbenzene |
| Total Xylenes |

## TABLE 5: POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

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


ANTHONY KILL
NORTH CENTRAL AVENUE
AREA 5
GARAGE
OFFICES
STOREROOM
SHED
AREA 4
AREA 3
NYSEG MECHANICS SHOP
AND REPAIR BUILDING
GARAGE
AREA 2
10
11
12
4
5
6
1
2
3
AREA 1
7
8
9
SHED
FERRIS LANE
NYSEG
SUBSTATION
LEGEND
● - IN SITU SAMPLING POINT
GRID SPACING = 10 FEET SQUARE
0 15 30 60
Scale SCALE REFERENCE Feet
NYSEG
TITLE: IN SITU SAMPLING
MECHANICVILLE CENTRAL AVENUE MGP SITE
CITY OF MECHANICVILLE
SARATOGA COUNTY, NEW YORK
SCALE: AS SHOWN
DWG NO
FIGURE 3

# New York State Electric & Gas Corporation
# Mechanicville Central Avenue MGP
# Interim Remedial Measures (IRM) Project
# Analytical Results of Pre-remediation In Situ Sampling
# Waste Characterization - Areas 1 and 2

| Area | Sample ID | Sample Collect Date | Depth Interval | RCRA Waste Classifcation | TCLP Benzene (ppm) | Soil Volume ($yd^3$) |
|---|---|---|---|---|---|---|
| 1 | MCVIWC0201C | 09/15/99 | 0-2' | Non-hazardous | <0.085 | 182.5 |
| | MCVIWC2401C | 09/15/99 | 2-4' | Non-hazardous | <0.085 | 182.5 |
| | MCVIWC4801C | 09/15/99 | 4-8' | Non-hazardous | 0.34 | 365 |
| | MCVIWC81201C | 09/15/99 | 8-12' | **Hazardous** | **2.70** | **365** |
| | MCVIWC121601C | 09/15/99 | 12-16' | **Hazardous** | **0.68** | **365** |
| 2 | MCVIWC0202C | 09/15/99 | 0-2' | Non-hazardous | <0.085 | 291.5 |
| | MCVIWC2402C | 09/15/99 | 2-4' | Non-hazardous | <0.085 | 291.5 |
| | MCVIWC4802C | 09/15/99 | 4-8' | **Hazardous** | **0.99** | **583** |
| | MCVIWC81202C | 09/15/99 | 8-12' | **Hazardous** | **0.85** | **583** |
| | MCVIWC121602C | 09/15/99 | 12-16' | **Hazardous** | **1.90** | **583** |
| Total Volume Nonhazardous Area 1 and Area 2 | | | | | | 1313 |
| Total Volume **Hazardous** Area 1 and Area 2 | | | | | | 2479 |
| Total Volume **Hazardous** Area 1 and Area 2 accessible to excavation at depth of 11' bgs* | | | | | | 1294 |
| Percentage of Total Volume **Hazardous** Area 1 and Area 2 accessible to excavation at depth of 11' bgs | | | | | | 52% |
| *Assume: water level at approximately 5 feet bgs; limit of excavation 6 feet below water level (i.e., 11 feet bgs) | | | | | | |

c:\wpdocs\mechanicville sampling results waste char1.wpd

## New York State Electric & Gas Corporation
## Mechanicville Central Avenue MGP
## Interim Remedial Measures (IRM) Project
## Analytical Results of Pre-remediation In Situ Sampling
## Waste Characterization - Areas 3, 4 and 5

| Area | Sample ID | Sample Collect Date | Depth Interval | RCRA Waste Classifcation | TCLP Benzene (ppm) | Soil Volume ($yd^3$) |
|---|---|---|---|---|---|---|
| 3 | MCVIWC0203C | 09/14/99 | 0-2' | Non-hazardous | <0.085 | 30 |
| | MCVIWC2403C | 09/14/99 | 2-4' | Non-hazardous | <0.085 | 30 |
| | MCVIWC4803C | 09/14/99 | 4-8' | Non-hazardous | <0.085 | 60 |
| 4 | MCVIWC0204C | 09/14/99 | 0-2' | Non-hazardous | <0.085 | 30 |
| | MCVIWC020304C | 09/14/99 | 2-3' | Non-hazardous | <0.085 | 15 |
| 5 | MCVIWC0205C | 09/14/99 | 0-2' | Non-hazardous | <0.085 | 37.5 |
| | MCVIWC2405C | 09/14/99 | 2-4' | Non-hazardous | 0.120 | 37.5 |
| | MCVIWC4805C | 09/14/99 | 4-8' | **Hazardous** | **2.80** | **75** |
| Total Volume Nonhazardous Area 3, Area 4 and Area 5 | | | | | | 240 |
| Total Volume **Hazardous** Area 3, Area 4 and Area 5 | | | | | | 75 |
| Total Volume **Hazardous** Area 1 and Area 2 accessible to excavation at depth of 11' bgs* | | | | | | 75 |
| Percentage of Total Volume **Hazardous** Area 1 and Area 2 accessible to excavation at depth of 11' bgs | | | | | | 100% |

*Assume: water level at approximately 5 feet bgs; limit of excavation 6 feet below water level (i.e., 11 feet bgs)

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# New York State Electric & Gas Corporation
# Mechanicville Central Avenue MGP
# Interim Remedial Measures (IRM) Project
# Analytical Results of Pre-remediation In Situ Sampling
# Site Characterization

| Area/ Depth Interval/ Sample pt | Sample ID | Sample Collect Date | Total Benzene (ppm) | Total PAH (ppm) | Total cPAH (ppm) | Comments |
|---|---|---|---|---|---|---|
| 1/8-12'/C | MCVISCTS01C | 09/15/99 | 96.0 | 11,522 | 596 | Tarry gravelly composite sample worst or near worst case |
| 1/2-4'/1 | MCVISCTS02G | 09/15/99 | 0.054 | 269 | 164 | Lightly stained contaminated soil |
| 1/0-2'/1 | MCVISC0201G | 09/15/99 | 0.055 | 27.08 | 13.17 | Worst or near worst case shallow soil sampled for potential reuse |
| 2/0-2'/7 | MCVISC0207G | 09/15 /99 | 0.15 | 370 | 68.0 | Worst or near worst case shallow soil sampled for potential reuse |

PAH means Polycyclic Aromatic Hydrocarbons
cPAH means Carcinogenic Polycyclic Aromatic Hydrocarbons
C means composite sample
ppm means parts per million

c:\wpdocs\mechanicville\ sampling results site char1.wpd

# APPENDIX B

CITIZEN PARTICIPATION PLAN
(CPP)

# *NYSEG*

**NEW YORK STATE ELECTRIC & GAS CORPORATION**
Corporate Drive, Kirkwood Industrial Park, P.O. Box 5224
Binghamton, New York 13902-5224

**INTERIM REMEDIAL MEASURES**

# CITIZEN PARTICIPATION PLAN (CPP)

**FOR ACTIVITIES AT**

**MECHANICVILLE CENTRAL AVENUE FORMER MGP SITE**
**MECHANICVILLE, NEW YORK**

SEPTEMBER 1999

Prepared By:
NYSEG Licensing & Environment Operations Department

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A SITE LOCATION MAP

B SITE MAP

## 1.0 INTRODUCTION

The Mechanicville Central Avenue former Manufactured Gas Plant (MGP) site (Site) is located at 85 North Central Avenue in the City of Mechanicville, Saratoga County, New York, as shown on Figure 1. The Site is a one acre parcel of land immediately west of Central Avenue crossing the Anthony Kill. The Site is mostly paved or covered with crushed stone and is sparsely vegetated around its periphery. Access is controlled by fencing, except along the Anthony Kill. Buried structures include a relief holder foundation, distribution holder foundation and the old filtered bed.

The history of the coal gas production at the Mechanicville Central Avenue Site dates from 1901. In that year, the Halfmoon Light, Heat & Power Company, founded in 1900, began distributing gas to the citizens of Mechanicville. Figure 2 shows layout of the gas plant in its first years of operations, circa 1910. The plant was expanded circa 1911 including the addition of a 100,000 cubic foot distribution holder.

In 1924, the Halfmoon Light, Heat & Power Company was acquired by the Associated Gas and Electric System and in 1928 it became part of the New York State Electric & Gas Corporation (NYSEG). Coal gas production continued at the Site until 1955, when the MGP was closed and torn down. NYSEG still owns the site and has used it along with the adjacent property to the west as a service center until 1990, when it moved to its current location.

NYSEG has prepared this document (*Citizen Participation Plan*, CPP) to facilitate two-way communication with individuals, groups, and organizations which have or might express an interest in the Site or surrounding areas, or those who may be affected by the Site's remediation, and to enable citizens to participate in the decision making process associated with the remediation of the Site. This plan will detail the citizen participation activities that will be implemented at the Site as part of the upcoming Interim Remedial Measure (IRM).

The IRM will be conducted according to the requirements of an Order on Consent between NYSEG and the New York State Department of Environmental Conservation (DEC). The Order on Consent is a legal document between NYSEG and the DEC which defines the requirements of each party for conducting site investigations and remediations. The Order on Consent includes requirements for

33 of NYSEG's MGP sites (including the Mechanicville Central Avenue MGP site). The Order on Consent requires that all work at the Site be performed under the oversight of the DEC and the New York State Department of Health (DOH).

## 2.0 SITE INVESTIGATIONS

NYSEG has study the environmental contamination at the Mechanicville Central Avenue former MGP Site ince 1986. Reports include the following: TASK 1 Preliminary Site Evaluation - August 1986, TASK 2 Intial Field Investigation Program - December 1987, TASK 3 Expanded Problem Definition Program - September 1989, TASK 4 Risk assessment - August 1990, Phase II Remedial Investigation Report, Work Plan for Phase IIA Supplemental Remedial Investigation and Feasibility Study - Revised June 1992 and Phase IIA Supplemental Remedial Investigation and Feasibility Report - December 1993.

## 3.0 BASIC SITE INFORMATION

The Site was used to manufacture gas from coal for approximately 54 years, from 1901 until 1955 (refer to Figure 2 for historic site layout). Prior to the availability of natural gas, manufactured gas (also known as coal gas) was an important source of fuel for street lights, lighting in homes, cooking and heating. There were several historical processes used to produce coal gas. The method used at the Mechanicville Central Avenue MGP site was known as the carburetted water gas process. Coal gas was produced using the carburetted water gas process by heating coal in huge ovens called generators. Steam was injected into the generator and passed over the red hot coal. This produced a hydrogen and carbon monoxide gas mixture known as blue gas. The blue gas was then sent through a superheater where oil was added to the gas. The high temperatures in the superheater caused the oil to thermally crack (breaking apart of the oil moleculès), improving the Btu value and luminescence of the gas. The gas was then sent through a purifying process to remove sulfur and cyanide compounds, after which it was stored in a structure known as a gas holder, from which it was sent out to the homes and businesses that used it. The term carburetted refers to the controlled manner in which steam and oil were mixed into the gas, much like a carburetor on an internal combustion engine mixes air with gasoline. Thermal cracking of oil caused the formation of aromatic organic compounds which are typically found in MGP residues.

By-products of gas manufacturing include coal tars, light oils and spent purifying materials. These products may have been disposed of on-site during the years the plant was operating, and often were left behind when the plants closed. Coal tar may exceed the Resource Conservation and Recovery Act (RCRA) regulatory limits for hazardous waste due to the leachable concentrations of benzene. Coal tars generally contain high levels of volatile organic compounds (VOC's) and polycyclic aromatic hydrocarbons (PAH's).

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

Petroleum products were used on-site to increase the heat content of the manufactured gas. These products were potentially spilled on-site as a result of material handling practices. The petroleum products primarily contain PAH's.

## 4.0 PROJECT DESCRIPTION

The overall goal of the proposed IRM will be to eliminate any source of non-aquous phase liquid (NAPL) that is accessible by normal excavation techniques and remove any preferential pathways for site contaminants to the Anthony Kill. It is believed that there is a substantial mass of NAPL in the fractured bedrock that is inaccessible to excavation and this NAPL will not be addressed by this IRM. However, by removing the "head pressure" of NAPL, it is anticipated that NAPL migration in the bedrock will be reduced. Since inaccessible NAPL will continue to impact groundwater, this IRM will not attempt to remove all site soil that exceeds cleanup objectives established to protect groundwater. The exposure risk due to residual contamination in the site soil will be eliminated by capping with asphalt or meeting surface soil cleanuyp objectives for industrial/commercial surface soil and deed restrictions for subsurface soil.

The IRM is scheduled to be initiated in the Fall of 1999.

## 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. One's name can be added to the mailing list by contacting any of the individuals listed below in Section 8.0 - ADDITIONAL INFORMATION, or by completing a "mailer" which is included with all mailings.

## 6.0 DOCUMENT REPOSITORIES

Documents associated with the previous investigation and the upcoming IRM are available for public review at the following document repositories:

- Mechanicville District Public Library
  15 South Main Street
  Mechanicville, New York 12118
  (518) 664-4646

- NYSEG (New York State Electric & Gas Corporation)
  Werner Road, Route 146
  Halfmoon, New York
  Attn.: James S. Salmon
  (518) 664-9534
  Monday - Friday, 8 a.m. - 4:30 p.m.

- New York State Department of Environmental Conservation
  Division of Environmental Remediation
  50 Wolf Road
  Albany, New York 12233-7010
  Attn: Mr. David Crosby, P.E.
  (518) 457-9280

## 7.0 DESCRIPTION OF CITIZEN PARTICIPATION ACTIVITIES FOR EACH MAJOR ELEMENT OF THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY

To facilitate the IRM process, NYSEG in cooperation with DEC and DOH will inform the public and local officials of planned Site activities and address concerns raised by the community. All citizen participation activities will occur prior to intiation of on-site remedial work. The public participation activities will include at least the following:

- NYSEG will prepare a fact sheet describing the planned remedial activities and distribute the fact sheet;
- NYSEG will prepare and distribute a press release announcing the planned site work ( October 1999);
- NYSEG has provided a telephone number for the public to call with any questions or concerns which may arise during the project*;
- NYSEG will prepare and distribute a fact sheet summarizing the results of the remedial activities when the field activities has been completed.

* A call to the phone number during normal business hours will be answered by one of a specially trained group of operators who can provide information from the fact sheet. If additional information is needed, the operator can contact members of the project team from a call list. After normal working hours, *for emergencies*, a second telephone number has been provided. This number will be answered by one of a group of operators who can contact a project team member from a call list. For calls between 7 a.m. and 7 p.m., Monday through Friday, call NYSEG at 1-800-572-1111, or 1-800-572-1121 in the *case of emergencies only* at all other times.

## 8.0 ADDITIONAL INFORMATION

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

Mr. Bert W. Finch
NYSEG Project Manager
P.O. Box 5224
Binghamton, NY 13902-5224
(607) 762-8683

Mr. James S. Salmon
NYSEG Customer Services Manager
Werner Road, Route 146
Halfmoon, New York
(518) 664-9534

Mr. David Crosby, P.E.
Project Manager
NYSDEC
50 Wolf Road
Albany, NY 12233-7010
(518) 457-9285
(800) 342-9296 (leave message)

Mr. Steve Shost
NYS Department of Health
2 University Place
Albany, NY 12203
(518) 458-6309
(800) 458-1158, extension 6402

# APPENDIX C

## CONSTRUCTION QUALITY ASSURANCE PLAN (CQAP)

# *NYSEG*

**NEW YORK STATE ELECTRIC & GAS CORPORATION**
Licensing & Environmental Operations Department
Corporate Drive, Kirkwood Industrial Park, P.O. Box 5224
Binghamton, New York 13902-5224

**INTERIM REMEDIAL MEASURES**

# CONSTRUCTION QUALITY ASSURANCE PLAN (CQAP)

**FOR ACTIVITIES AT**

**MECHANICVILLE CENTRAL AVENUE FORMER MGP SITE**
**MECHANICVILLE, NEW YORK**

August 1999

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A FORMS

## 1.0 INTRODUCTION

This *Construction Quality Assurance Plan (CQAP)* is designed to assure the quality of the project by monitoring, inspecting, and testing the Site associated with the Interim Remedial Measure (IRM) to be completed at NYSEG's (New York State Electric and Gas Corporation's) Mechanicville Central Avenue Former MGP Site, City of Mechanicville, Saratoga County, New York. This Construction Quality Assurance Plan supplements the *IRM Work Plan for Activities at Mechanicville Central Avenue MGP Site*, dated August 1999.

### 1.1 Construction Quality Assurance Plan (CQAP) Objectives

The objective of this Construction Quality Assurance Plan 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 Quality Assurance Plan 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., plans, specifications, and local, state and federal regulations).

3. **Sampling Strategies** - Establish responsibility for sampling activities and methods including frequency and acceptance criteria for ensuring that material and performance specifications and applicable regulations will be met during the construction process.

4. **Documentation and Reporting** - Establish appropriate field documents (i.e., summary reports, photographic reports, inspection data sheets, problem identfication and corrective measures reports).

## 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 *IRM*, 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 Construction Quality Assurance program 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 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 Construction Quality Assurance Plan deemed necessary to assure the quality of construction and support quality control efforts. To avoid conflicts of interest, the construction quality assurance is performed by an entity other than the construction quality control representative and provides the permitting agency an assurance that the facility was constructed as specified in the design. 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 the quality of construction meets or exceeds that defined by specification and/or engineering plans and identified in the Construction Quality Assurance Plan. 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
- Providing the NYSDEC a copy of all quality assurance reports
- 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: John J Ruspantini
Staff Environmental Specialist

The responsibility of the sampling quality assurance officer is to perform those activities in this Construction Quality Assurance Plan 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 specification and/or engineering plans and identified in the Construction Quality Assurance Plan. 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:

- confirming 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);

- confirming 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

- confirming that regular calibration of testing equipment occurs and is properly recorded.

**2.4 Construction Quality Control Representatives:** David M. Budosh
Construction Supervisors

A construction quality control representative, supplemented as necessary by additional personnel, is to be on the work site at all times during the construction process, with complete authority to take any action necessary to ensure compliance with the design plans and specifications as necessary to achieve quality in the constructed facility. The construction quality control representative will be the construction supervisor. Specific responsibilities of the construction quality control representative include:

- Reviewing design, plans, and specifications for clarity and completeness so that the construction activities can be effectively implemente.

- Verifying that a contractor's construction quality is in accordance with Construction Quality Assurance Plan.

- Performing on-site inspection of the work in progress to assess compliance with the design plans, and specifications.

- Reporting the results of all observations and tests as the work progresses and interacting with the contractor to provide assistance in modifying the materials and work to comply with specified design. This includes:

    1. Providing reports on the inspections 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.

- 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 specified design.

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

- Submitting blind samples (knowns, duplicates, and blanks) for analysis by one or more independent laboratories.

- 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.

## 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 construction quality assurance plan describes the anticipated inspection, testing, and sampling requirements of these definable feature works. The sampling requirements is assured by the *Sampling and Analysis Plan/Quality Assurance Project Plan* in Section 6 of the same *Work Plan*.

### 3.1 Site Preparation

Elements of the site preparation, including clearing, grubbing and fencing will be inspected as they occur to assure compliance with the work plan. Inspection of the siltation fence shall confirm that it is contiguous and its skirt is embedded along its length.

## 3.2 Construction Equipment and Materials

Construction equipment and materials are designed to meet specific project needs. Each delivery of construction equipment and/or materials will be inspected upon arrival by the construction quality control representative.

## 3.3 Stockpiling of Soil

Stockpiles will be inspected a minimum of once per day to assure that covers are in place and intact. Covers will be replaced as needed to prevent precipitation from contacting the material and dust from being generated by the material.

## 3.4 Loading of Soil and Debris for Transportation

Soil and debris will be loaded with a rubber tired articulated wheel loader or track-hoe into dump trailers for transportation to permitted landfills. Polyethylene sheeting will be placed under the truck to retain any soil spilled. The spilled soil will be added back to the pile following completion of loading of each truck. The loading area will be visually inspected to confirm that soil remains within work area.

## 3.5 Excavation of Existing MGP Residue

MGP residue will be excavated from the former relief holder foundation and surrounding soil in accordance with the work plan. All excavation activities will be observed and recorded by the construction quality control representative noting soil type, color, moisture, foreign objects, odor and any other noticeable characteristics. Limits of the excavation will be measured by the construction quality control representative upon completion of the excavation for documentation drawings. Sampling of the excavated materials and residual soils is covered in a separate sampling assurance plan.

## 3.6 Site Restoration

Site restoration will be observed by the construction quality control representative. The excavation noted above will be backfilled with soil as specified in the work plan, and the surface will match the existing surfacing material. Clean backfill material will

be inspected upon arrival. Backfilling of the excavation will be observed and documented by the construction quality control representative. All liners will be removed and disposed. No stockpiles will remain on-site at the end of the project. All affected areas will be graded to match existing grades. The existing surface is used as a Storage area. Visual inspections will confirm that the site surfacing meets NYSEG's approval.

## 4.0 DOCUMENTATION AND REPORTING REQUIREMENTS FOR CQA/CQC ACTIVITIES

The value of the construction quality assurance plan 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 Daily Field Construction Report

Daily Field Construction Report will document and monitor the daily activities and problems that occurred during the work day. The Daily Field Construction Report will allow the reader to follow the flow of progress on the site and relate the contruction quality control inspections to that progress. The Daily Field Construction Report must be completed by the construction quality control representative.

### 4.2 Sampling Quality Assurance Report

The sampling quality assurance officer will report to the project manager inspections and/or testing performed, location of work, results of inspections, testing, location and description of deficiencies, deficiencies corrected, the date of the report, and comments on the review of the corresponding daily reports.

### 4.3 Photo Log

Photo log is designed to document construction activities by still photos. The Photo log may also be used to photographically record activities recorded in a Daily Field

Construction Report or an as-built sketch log. Photos will be collected by the Construction Quality Control Representative.

## 4.4 Variances

Required variances to the *Work Plan* will be in writing. Approval from the NYSEG Project Manager (Contruction Quality Assurance Officer) is required to recommend a variance to the *Work Plan*. Variances will not be implemented without written approval by the NYSDEC or NYSDOH.

## 4.5 Final Engineering Report

At the completion of the project the Project Manager/Contruction Quality Assurance Officer will prepare and submit a Final Engineering Report to the NYSDEC. This report will include a summary of excavation limits, engineering controls, wastedisposition, post excavation sampling results, variances to the Work Plan, Community Air Monitoring Results, restoration, and photos.

The Final Engineering Report will be certified by an engineer licensed to practice engineering in New York State verifying that the work was performed and constructed substantially in accordance with the plans and specifications.

The Final Engineering Report will to include the following information:

A Cover page
1. Project name and location
2. Completion Date
3. Project Manager/Construction Quality Assurance Officer and the Program Manager approval signatures

B Final Engineering Report
1.0 Introduction
1.1 Executive Summarry
1.2 Certification
2.0 Project Objectives
3.0 Project Execution
3.1 Summary of Excavation
3.2 Engineering Controls
3.3 Disposal Summary
3.4 Post Excavation Sampling
3.5 Site Restoration

4.0 Summary of Variances From Work Plan
5.0 Community Air Monitoring

C. Appendix
1. Photo Log
2. Variances From Work Plan
3. Soil Disposition
4. Analytical Results For Community Air Monitoring Program
5. Work Plan Figures
6. Organization Structure
7. Analytical results For Post Excavation Samples

# APPENDIX D

QUALITY ASSURANCE PLAN
(QAPP)

# *NYSEG*

**NEW YORK STATE ELECTRIC & GAS CORPORATION**
Corporate Drive, Kirkwood Industrial Park, P.O. Box 5224
Binghamton, New York 13902-5224

**INTERIM REMEDIAL MEASURES**

# QUALITY ASSURANCE PROJECT PLAN (QAPP)

**FOR ACTIVITIES AT**

**MECHANICVILLE CENTRAL AVENUE FORMER MGP SITE**
**MECHANICVILLE, NEW YORK**

AUGUST 1999

Licensing & Environmental Operations Department

## 1. INTRODUCTION

This Quality Assurance Project Plan (QAPP) provides a description of the sampling and laboratory procedures/protocols to be used in support of the Interim Remedial Measures (IRM) project at the Mechanicville former manufactured gas plant (MGP) site in Mechanicville, NY. 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 IRM Work Plan (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. 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 project 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 the samples collected are representative of the sample population.

- To provide detection limits for the selected analytical methods which are below the established clean up 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 (USEPA) approved analytical methods.

- To ensure that all soil/residue and wastewater analyses will be conducted by a NYSDOH ELAP and NYSDOH ELAP CLP certified laboratory.

- To ensure that all final site verification samples (confirmatory samples) are reported with ASP Category B deliverables.

## 3. SAMPLE COLLECTION

### 3.1 Soil Sampling

Soil samples will be collected as described in the appropriate sections 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 reuse or confirmation of excavation endpoint.

All sampling equipment will be properly disposed or decontaminated before being reused (See Section 9.1.1). Samples will be collected and placed in pre-cleaned sample containers provided 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 4.3) . 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 for the wastewater samples. Samples of wastewater will be analyzed before being 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 4.3). 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 filled 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 clean and dry location. Sample containers and preservatives by matrix and analysis are listed in Table A 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 | 125 ml glass | 4 degrees C |
| Total PAHs | Soil | 250 ml glass | 4 degrees C |
| Total BTEX (benzene, touene, ethylbenzene, xylenes) | Soil | 125 ml glass | 4 degrees C |
| Total Metals | Soil | 250 ml glass** | 4 degrees C |

| TABLE A: Sample Containers & Preservatives | | | |
|---|---|---|---|
| **Analysis** | **Matrix** | **Container** | **Preservative** |
| Total Metals | 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 HCl to pH <2 |
| PCBs | Soil | 500 ml glass*** | 4 degrees C |
| Flashpoint | Soil | 500 ml glass*** | 4 degrees C |
| Reactivity | Soil | 500 ml glass*** | 4 degrees C |
| Corrosivity | Soil | 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 water samples for organic fractions will be collected in duplicate.

## 3.4 Sampling 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 (extraction)<br>40 days (after extraction) |
| TCLP Semivolatiles | soil | 5 days (extraction)<br>40 days (after extraction) |
| TCLP Mercury | soil | 5 days (extraction)<br>28 days (after extraction) |
| TCLP Metals | soil | 180 days |
| TCLP Volatiles | soil | 7 days |
| Reactive Sulfide | soil | 7 days |
| Reactive Cyanide | soil | 14 days |
| PCBs | soil | 5 days (extraction)<br>40 days (after extraction) |
| Ignitability | soil | N/A |
| Reactivity | soil | 7 days |
| Corrosivity | soil | 2 days |
| Percent Solids | soil | N/A |
| * Samples will be analyzed on a priority basis and reported within 5 days or the maximum holding time, whichever is less. | | |

| TABLE C: Wastewater Samples | | |
|---|---|---|
| **Sample Type** | **Matrix** | **Holding Time*** |
| Semivolatiles | water | 5 days (extraction)<br>40 days (after extraction) |
| Mercury | water | 26 days |
| Metals | water | 180 days |
| Volatiles | water | 7 days |
| * Samples will be analyzed on a priority basis and reported within 5 days or the maximum holding time, whichever is less. | | |

| TABLE D: Post Remediation Confirmatory Samples | | |
|---|---|---|
| **Sample Type** | **Matrix** | **Holding Time**** |
| Total Benzene* | soil | 7 days |
| PAHs* | soil | 5 days to extraction<br>40 days after extraction |

* ASP Category B deliverables required. Duplicates, matrix spike, and matrix spike duplicate samples will be collected at a rate of ten percent.

** Samples will be analyzed on a priority basis and reported within 5 days or the maximum holding time, whichever is less.

## 4. SAMPLE CUSTODY, IDENTIFICATION & TRACKING

### 4.1 Holding Times and Sample Transport

Since the samples will be analyzed on a priority turn around, exceedances of holding times are not expected. Holding times will be calculated from the time the sample is collected 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 location 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. 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 air, water and soil samples. A site map will be used throughout the project to depict 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 at the laboratory.

## 5. CALIBRATION PROCEDURES

Each analysis will be performed in accordance with either U.S. EPA analytical procedures or NYSDOH ELAP approved methods. 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 NYSDOH ELAP. The calibration of the instruments are verified at the beginning and end of each auto sampler run. Gas Chromatograph/Mass Spectrometers are tuned and calibrated every 12 hours, at a minimum.

All field equipment, for real time air analyses will be calibrated daily, in accordance with manufacturer's recommendations. More frequent field equipment calibrations will be conducted if unusual or erratic performance is observed. The HNu meter or Mini RAE™ 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, ethyl benzene and xylenes) compounds and will be calibrated to a BTEX gas standard.

## 6. ANALYTICAL PROCEDURES

### 6.1 Laboratory Analyses

The following chart shows 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 8260 |
| TCLP Semivolatiles | SW 846 Method 8270 |
| TCLP Metals | SW 846 Method 6000/7000 Series |
| TCLP Pesticides/Herbicides | SW 846 Method 8080/8151 |
| Polycyclic Aromatic Hydrocarbons (Table F) | SW 846 Method 8270 |
| Total Volatiles | SW 846 Method 8260 |
| Total Semivolatiles | SW 846 Method 8270 |
| Total Metals | SW 846 Method 6000/7000 Series |
| PCBs | SW-846 Method 8082 |

| TABLE E: Analytical Methods | |
|---|---|
| **Analyte** | **Analytical Method** |
| 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 9045 |

| TABLE F: Polycyclic Aromatic Hydrocarbon (PAH) Analyte List |
|---|
| **Parameter** |
| Naphthalene |
| 2-Methylnaphthalene |
| Acenaphthene |
| Acenaphthylene |
| Fluorene |
| Phenanthrene |
| Anthracene |
| Fluoranthene |
| Dibenzofuran |
| Pyrene |
| Benzo (a) anthracene* |
| Chrysene* |
| Benzo (b) fluoranthene* |
| Benzo (k) fluoranthene* |
| Benzo (a) pyrene* |
| Indeno (1,2,3 cd) pyrene* |
| Dibenzo (a, h) anthracene* |
| Benzo (g,h,i) perylene |
| *** 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. Upstate Laboratories, Inc. will render analytical laboratory services for the Warsaw MGP IRM.

# 7. 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 log book.

### *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 instruments detectors will be converted to standard units of mg/Kg for solid matrices and 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 8.3. On the basis of this review, a third party data validator will make judgements and express concerns on the quality and limitations of 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 purposes 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 may 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 for the IRM.

## 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 ELAP protocol will contain results sheets for the samples 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);
- Date 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. QUALITY CONTROL CHECKS

## 8.1 Field Quality Control

### *8.1.1 Sampling Equipment Decontamination Procedures*

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 re-analyzing samples which do not pass established QC criteria.

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

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

# 9. 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 require 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*

Preventive 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 lab 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 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

# CHAIN OF CUSTODY

# NYSEG CHAIN OF CUSTODY RECORD

Laboratory_____

Project Location: _____
Samplers: _____
Affiliation: _____

| Sample ID Code | Type | Matrix | Collection Date/Time | No. of Con-tainers | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |

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

| | | | | |
|---|---|---|---|---|
| Relinquished by: | Loc: | Date: | Time: | Seals Intact |
| Received by: | Loc: | Date: | Time: | Y N NA |
| Relinquished by: | Loc: | Date: | Time: | Seals Intact |
| Received by: | Loc: | Date: | Time: | Y N NA |

Special Instructions / Remarks: _____

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

# ATTACHMENT 2

# SAMPLE IDENTIFICATION

# 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. MILLIKEN WELLPOINT 81-01 SH

M I 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 = LOCATION
SEVENTH & EIGHTH CHARACTER = YEAR OF LOCATION/WELL
(XX, IF NOT APPLICABLE)
NINTH & TENTH CHARACTER = NUMBER OF SAMPLING POINT/CONSECUTIVE #
IF MORE THAN ONE SAMPLE FROM SAME LOCATION
(XX, IF NOT APPLICABLE)


PAGE 1 & 2..... SITE
PAGE 3..... SOURCE
PAGE 4..... RELATIVE LOCATION
PAGE 5,6 & 7..... LOCATION
PAGE 8..... TYPE

ENVIROMENTAL 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 |
| GG | GREENIDGE GRAVEL PIT ASH DISPOSAL SITE |
| GO | GOUDEY STATION |
| GR | GREENIDGE STATION |
| GS | GOSHEN MGP |
| GV | GRANVILLE MGP |
| HI | HICKLING STATION |
| HN | HORNELL MGP |
| IC | ITHACA COURT ST MGP |
| IF | ITHACA FIRST STREET MGP |
| II | ITHACA CAYUGA INLET MGP STORAGE AREA |
| JE | JENNISON STATION |
| LO | LOCKWOOD ASH DISPOSAL SITE |
| LP | LOCKPORT MGP |
| LS | LOCKPORT STATE STREET MGP HOLDER |
| LY | LYONS MGP |
| MA | MILLIKEN ASH DISPOSAL SITE |
| MC | MECHANICVILLE COONS CROSSING MGP DISPOSAL AREA |
| MD | MEDINA MGP |
| ME | MECHANICVILLE CENTRAL AVE. MGP |
| MI | MILLIKEN STATION |
| MW | MECHANICVILLE WILLOW GLEN MGP DISPOSAL AREA |
| NO | NORWICH MGP |

ENVIROMENTAL QUALITY ANALYSIS SYSTEM
CLASS: SITE

| CODE | DESCRIPTION |
|---|---|
| NW | NEWARK MGP |
| ON | ONEONTA MGP |
| OW | OWEGO MGP |
| PA | PALMYRA MGP |
| PB | PLATTSBURGH BRIDGE STREET MGP |
| PH | PINE HILL ASH HAULBACK SITE |
| PJ | PENN YAN JACKSON STREET MGP |
| PL | PLATTSBURGH SARANIC STREET MGP |
| PP | POZZOLANA PARK ASH DISPOSAL SITE |
| PY | PENN YAN MGP |
| RE | (FOR "REASON9999" LIMITS) |
| RR | ROCK RUN ASH HAULBACK FACILITY |
| SA | KINITGH ASH DISPOSAL SITE |
| SF | SENECA FALLS MGP |
| SO | KINTIGH |
| WA | WARSAW MGP |
| WE | WEBER ASH DISPOSAL SITE |
| WR | WATERLOO MGP HOLDER |
| WT | WATERVILLE MGP |
| WW | GENEVA WADSWORTH STREET MGP |

ENVIROMENTAL QUALITY ANALYSIS SYSTEM
CLASS: SOURCE

| CODE | DESCRIPTION |
|---|---|
| A | AIR SAMPLE |
| B | BOTTOM ASH |
| C | COAL PILE |
| 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 |
| Y | PYRITES |
| Z | PIEZOMETER |

ENVIROMENTAL 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 |

ENVIROMENTAL QUALITY ANALYSIS SYSTEM
CLASS: LOCATION

| CODE | DESCRIPTION |
|---|---|
| A- | DENOTES A WELL |
| AH | AIR HEATER WASH |
| AI | AIR INDOOR |
| AO | AIR OUTDOOR |
| AP | API SEPARATOR DISCHARGE -SEPARATES OIL & GREASE FORM WATER |
| AS | AIR SAMPLING LOCATION |
| AT | FLY ASH/BOTTOM ASH FINES/LIME |
| B- | BORING |
| BB | BOILER BLOWDOWN - ACCUMULATION OF DRAINAGE LIQUID |
| BD | BOTTON ASH POND DISCHARGE - NOT TREATED |
| BI | SETTLING BASIN INFLUENT |
| BO | BOILER |
| BP | BOTTOM ASH POND |
| CK | SINK |
| CL | COAL PILE LEACHATE BEFORE MIXING WITH RUNOFF<br>COAL PILE LEACHATE - WATER THAT DRAINS THROUGH THE COAL PILE<br>RUNOFF - SURFACE WATER THAT RUNS OFF THE PILE |
| CN | CANAL |
| CO | CONVEYOR |
| CP | COAL PILE RUNOFF & LEACHATE DISCHARGE - BEFORE TREATMENT |
| CR | COAL TAR TANK |
| CT | COAL PILE DRAINAGE TREATMENT PLANT DISCHARGE - AFTER TREATMENT |
| CW | COOLING WATER DISCHARGE - WATER USED FOR CONDENSOR COOLING. DISCHARGE FROM PLANT |
| D- | DEEP |
| DS | DISTRIBUTION SYSTEM |
| DU | REPLICATE |
| E- | EAST |
| EP | ELECTROSTATIC PRECIPITATOR |
| FB | FIELD BLANK |
| FD | FLY ASH POND DISCHARGE |
| FF | FLY ASH/BOTTOM ASH FINES |
| FG | FLUE GAS STREAM |
| FL | FLOOR DRAIN |
| FO | DRINKING WATER FOUNTAIN |
| FS | FLY ASH SILO |
| GD | GROUND WATER DRAIN |
| GH | GAS HOLDER |
| HO | HOPPER |

ENVIROMENTAL QUALITY ANALYSIS SYSTEM
CLASS: LOCATION

| CODE | DESCRIPTION |
|---|---|
| I- | INSIDE LOCATION AREA |
| IN | INTAKE WATER - WATER BROUGHT INTO THE PLANT |
| L- | LOWER |
| LA | LAGOON |
| LD | LEAK DETECTION DRAIN |
| LE | ASH LEACHATE |
| LM | LIME |
| LS | LIFT STATION - PUMPING STATION |
| LT | LOOP TRACK |
| MA | MECHANICAL SEPARATOR ASH |
| MD | MATRIX SPIKE DUPLICATE |
| MH | MANHOLE |
| MS | MATRIX SPIKE |
| N- | NORTH |
| ND | (FOR "GROUND9999" LIMITS) |
| ON | (FOR "REASON9999" LIMITS) |
| OS | OIL STORAGE AREA |
| PB | PURIFIER BOX |
| PD | PERIPHERAL DRAINAGE DITCH - AROUND LANDFILL.NO DIRECT DISCHARGE |
| PO | POND |
| PS | PLANT SUMP |
| PW | PROCESS WATER TREATMENT PLANT DISCHARGE - FINAL DISCHARGE FROM TREATMENT FACILITY |
| R- | DENOTES REPLACEMENT WELL |
| RF | ROLLOFF CONTAINER |
| RL | RECYCLE LINE - RECYCLED WATER THAT IS RUN THROUGH TREATMENT |
| RO | ROOF DRAIN |
| S- | SOUTH |
| SB | SURGE BASIN |
| SD | SEDIMENTATION POND DISCHARGE |
| SE | STORAGE PILE |
| SF | SURFACE |
| SG | SPRING |
| SH | SHALLOW |
| SI | SILO |
| SK | STACK |
| SP | SEDIMENTATION POND |

ENVIROMENTAL QUALITY ANALYSIS SYSTEM
CLASS: LOCATION

| CODE | DESCRIPTION |
|---|---|
| SR | SEWER |
| 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 |

ENVIROMENTAL 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. LOCS |
| Q | QUALITY ASSURANCE SAMPLE |
| V | OVA SAMPLE |

# APPENDIX E

## TRANSPORTATION OF SOLID AND/OR LIQUID MATERIAL

# *NYSEG*

**NEW YORK STATE ELECTRIC & GAS CORPORATION**
Corporate Drive, Kirkwood Industrial Park, P.O. Box 5224
Binghamton, New York 13902-5224

**INTERIM REMEDIAL MEASURES**

# TRANSPORTATION OF SOLID AND/OR LIQUID MATERIALS

**FOR ACTIVITIES AT**

**MECHANICVILLE CENTRAL AVENUE FORMER MGP SITE**
**MECHANICVILLE, NEW YORK**

AUGUST 1999

## A SCOPE OF WORK

This specification is for the transportation of solid and/or liquid nonhazardous and hazardous materials for Mechanicville Central Avenue Former Manufactured Gas Plant (MGP) Site, City of Mechanicville, Saratoga County, New York as detailed herein and in 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.

## B WORK BY CONTRACTOR

**1.0** The transporter shall provide training, permits, manifest, labor, tools, equipment, consumable materials, and expendable materials, to transport solid and/or liquid materials as detailed herein.

## C GENERAL WORK CONDITIONS

**1.0** 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.

**2.0** 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.

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

**4.0** The transporter shall comply with applicable provisions of OSHA 29 CFR 1910.120 "40 hours Hazardous Waste Operations Health & Emergency Response".

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

**6.0** The ***Truck Drivers*** shall adhere to the following rules while working on an MGP Site and/or on an Owner's Property.

***6.1*** ***Truck Drivers*** **will don hard hats, safety glasses, safety shoes/boots, and gloves, as a minimum for personal protection, when on Owner's MGP Site.**

***6.2*** Any truck found unacceptable by the Owner's Field Representative and/or the MGP Site's Health & Safety Officer may be rejected. Any cost for rejected trucks shall be born by the transporter.

***6.3*** The ***Truck Drivers*** will report their arrival to the Owner's Construction Supervisor and/or the MGP Site's Health & Safety Officer.

***6.4*** ***Truck Drivers*** are generally 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 the Owner.

***6.5*** ***Truck Drivers*** are responsible for determining material placement and the amount of material placed in the dump trailer.

***6.6*** Per Owner's discretion, trucks transporting coal tar nonhazardous solid material or coal tar contaminated hazardous solid material may have the driver line the entire box ( to top of side boards) with three mils thick polyethylene sheets (poly sheets). All trucks will also have a gasket between the box and tailgate.

***6.7*** All trucks require working audible and visual backup signals.

***6.8*** When loading or when directed by a representative of the Owner, 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 Owner's Field Representative.

***6.9*** Truck engines are not allowed to idle in residential or other areas where the exhaust could be a nuisance.

***6.10*** 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.

***6.11*** The ***Truck Drivers*** will cover trucks with tarps inside the loading area. Care should be taken to maintain stable footing when climbing on loads.

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

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

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

***6.15*** No children under 16 years of age are allowed on the MGP Sites.

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

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

**6.18** Smoking, eating, and/or drinking is permitted only in designated areas.

***6.19*** The transporter is responsible for properly decontaminating their truck and/or equipment after disposal of material at the permitted landfill.

# APPENDIX F

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL
ORDER ON CONSENT

# *NYSDEC*

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road
Albany, New York 12233-7010

# ORDER ON CONSENT

INDEX # DO-0002-9309

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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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

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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

manages exclusively hazardous substance 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 and this Subparagraph to the extent Respondent is able to obtain access for purposes of investigation and/or removal); and

3. the activity satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit as determined by the Department.

Respondent, under the provisions of the Freedom of Information Law, may request that the Department treat as confidential any technology descriptions and data submitted to the Department as part of the study; and the Department, under the provisions of the Freedom of Information Law, shall maintain as confidential any of those descriptions or data that the Department determines is confidential.

V. Feasibility Study

This Paragraph 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.)

A. Within 150 days after receipt of the Department's approval of the Remedial Investigation Report pertaining to a particular Site, Respondent shall submit a Feasibility Study evaluating on-Site and off-Site remedial actions to eliminate, to the maximum extent practicable, all health and environmental hazards and potential hazards attributable to hazardous substance disposal at that Site. Such evaluation may include remediation cleanup levels based upon a Site-specific risk assessment that shall consider a range of exposure scenarios and assumptions that take into account the form, nature, biodegradation, fate, and transport of the contaminant present, and available toxicological data that are based upon generally accepted and peer-reviewed scientific evidence or methodologies. Such Site-specific risk assessment shall be consistent with guidance and regulations for exposure assessment developed by the United States Environmental Protection Agency pursuant to CERCLA and other statutory authorities as applicable; and any proposed remediation cleanup level based upon a Site-specific risk assessment shall be protective of the public health and safety and of the environment. In the event that Respondent intends to undertake such evaluation using a Site-specific risk assessment, Respondent shall submit such risk assessment to the Department for its review no later than 90 days before Respondent shall be required to submit the Feasibility Study for the Site. Unless the Department determines that such risk

assessment is not consistent with peer-reviewed scientific evidence or methodologies, or appropriate guidance and regulations--in which case, the Department shall provide Respondent with a written explanation of the basis for such a determination--the Site-specific risk-based remediation cleanup level determined by application of the risk assessment shall be approved by the Department and shall be used for purposes of selecting the remedial alternative for the Site. Such evaluation also shall take into account any and all Department-approved IRMs that were implemented at the Site. The Feasibility Study shall be prepared by and have the signature and seal of an individual licensed and registered to practice professional engineering in the State of New York who shall certify that the Feasibility Study was prepared in accordance with this Order.

B. Unless the Department otherwise specifies for a particular Site, Respondent shall perform and prepare the Feasibility Study in accordance with the Department-approved RI/FS Work Plan in a manner consistent with appropriate sections of CERCLA, the NCP, and the guidance documents identified in Subparagraph II.D of this Order. If the Department specifies otherwise for a particular Site, Respondent shall perform and prepare the Feasibility Study in accordance with the Department's specifications.

C. (1) Within 30 days after the Department's approval of the Feasibility Study, Respondent shall cooperate and assist the Department in soliciting public comment on the RI/FS and the proposed remedial action plan identified therein, in accordance with appropriate provisions of CERCLA, the NCP, the guidance documents identified in Subparagraph II.D of this Order, and with any Department policy and guidance documents in effect at the time the public comment period is initiated.

(2) The Department shall afford Respondent an opportunity to review and comment upon the proposed remedial action plan for a Site before its release to the public using the following procedure: the Department shall prepare a proposed remedial action plan and shall mail a copy of same to Respondent at least fifteen business days before the scheduled date of the publication of the notice of availability of the document. Respondent shall have ten business days to meet with the Department to discuss it. In the event that Respondent disputes the proposed remedial action plan, within that ten day period, it may request in writing a resolution of its dispute using the procedures contained in Subparagraph XVII.A of this Order. Any resolution of the dispute through the use of those procedures shall concern only the contents of the proposed remedial action plan to be released to the public and shall not preclude the Department from selecting a final remedial alternative for the Site that may be inconsistent with the contents of the proposed remedial action plan that shall have been released to the public.

(3) After the close of the public comment period, the Department shall select a final remedial alternative for the Site in a Record of Decision ("ROD").

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.

C. During implementation of all construction activities identified in the Remedial Design, Respondent shall have on-Site a full-time representative who is qualified to supervise the work done.

D. Within 90 days after completion of the construction activities identified in the Remedial Design, Respondent shall submit to the Department 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 Remedial Design was implemented and all construction activities were completed in accordance with the Department-approved Remedial Design. The O & M Plan, "as built" drawings, final engineering report, and certification must be prepared, signed, and sealed by a professional engineer.

E. 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.

F. After receipt of the "as-built" drawings, final engineering report, and certification, the Department shall notify Respondent in writing whether the Department is satisfied that all construction activities have been completed in compliance with the approved Remedial Design.

G. If the Department concludes that any element of the Remedial Program fails to achieve its objectives or otherwise fails to protect human health or the environment, Respondent shall take whatever action the Department determines necessary to achieve those objectives or to ensure that the Remedial Program otherwise protects human health and the environment.

VIII. Progress Reports and Meetings

A. Respondent shall submit to each of the parties set forth in Paragraph XVI of this Order two copies of written monthly progress reports that:

1. describe the actions which have been taken toward achieving compliance with this Order during the previous month;

2. identify all work plans, reports, and other deliverables required by this Order that were completed and submitted during the previous month;

3. describe all actions, including, but not limited to, data collection and implementation of work plans, that are scheduled for the next month and provide other information relating to the progress at each Site;

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, 19 94

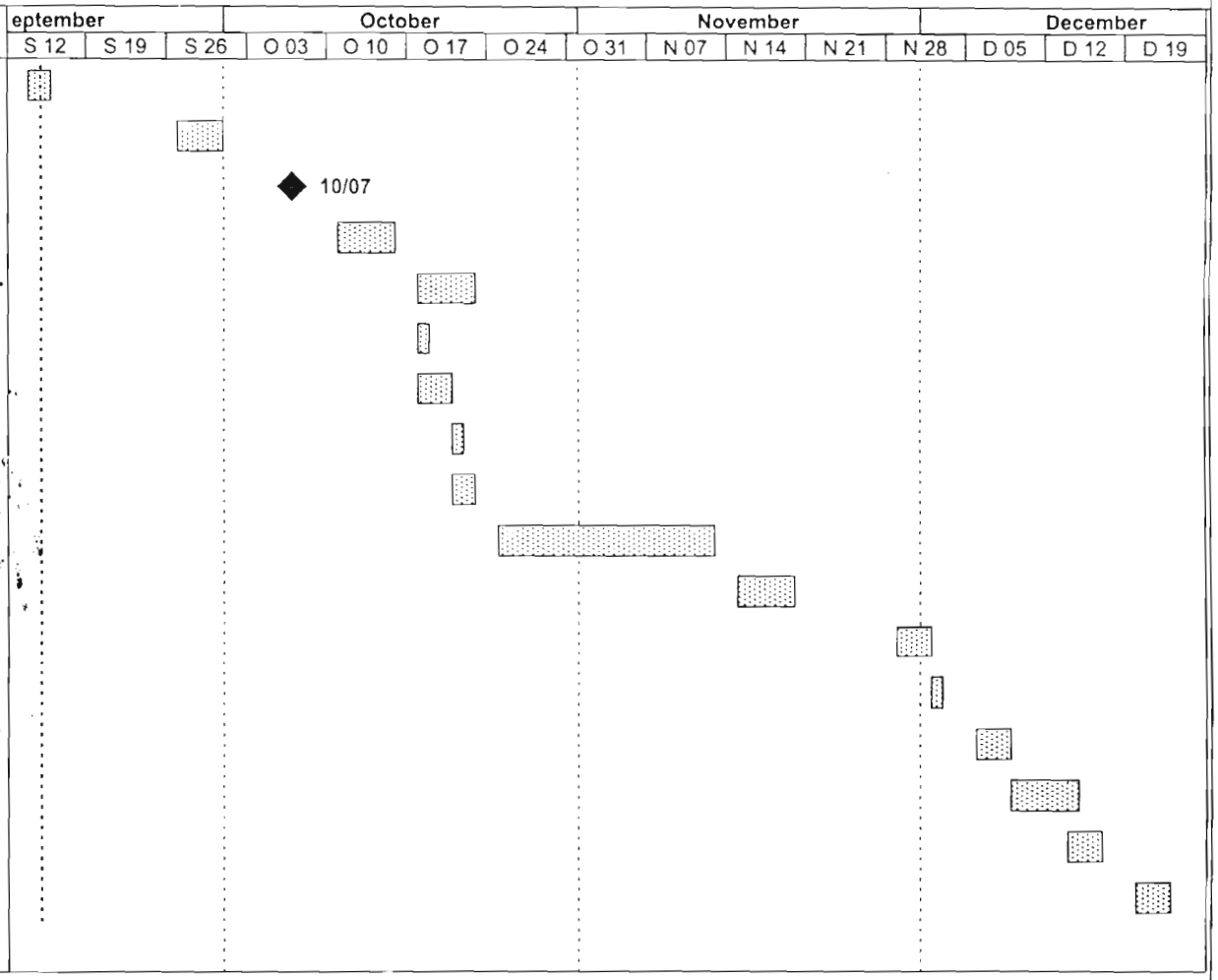
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# APPENDIX G

PROJECT SCHEDULE

# NYSEG Mechanicville Former MGP Site
## Interim Remedial Measure (IRM)
## Project Schedule

| ID | Task Name | Start | Finish |
|---|---|---|---|
| 1 | Pre-Rem. In Situ Sampling | 09/14/99 | 09/15/99 |
| 2 | Evaluate Insitu Sampling Data | 09/27/99 | 09/30/99 |
| 3 | DEC Work Plan Approval | 10/07/99 | 10/07/99 |
| 4 | Public Meeting/Outreach | 10/11/99 | 10/15/99 |
| 5 | Site Setup | 10/18/99 | 10/22/99 |
| 6 | Office Trailer | 10/18/99 | 10/18/99 |
| 7 | Fencing | 10/18/99 | 10/20/99 |
| 8 | Personnel Decon Area | 10/21/99 | 10/21/99 |
| 9 | Equip. Decon Pad | 10/21/99 | 10/22/99 |
| 10 | Excavate Areas 1 & 2 | 10/25/99 | 11/12/99 |
| 11 | Backfill Areas 1 & 2 | 11/15/99 | 11/19/99 |
| 12 | Excavate Area 4 | 11/29/99 | 12/01/99 |
| 13 | Backfill Area 4 | 12/02/99 | 12/02/99 |
| 14 | Excavate Area 3 | 12/06/99 | 12/08/99 |
| 15 | Excavate Area 5 | 12/09/99 | 12/14/99 |
| 16 | Backfill Areas 3 & 5 | 12/14/99 | 12/16/99 |
| 17 | Demobilization | 12/20/99 | 12/22/99 |
| 18 | Pave Site Spring 2000 | | |




Project: Bert W Finch
Date: 09/15/99

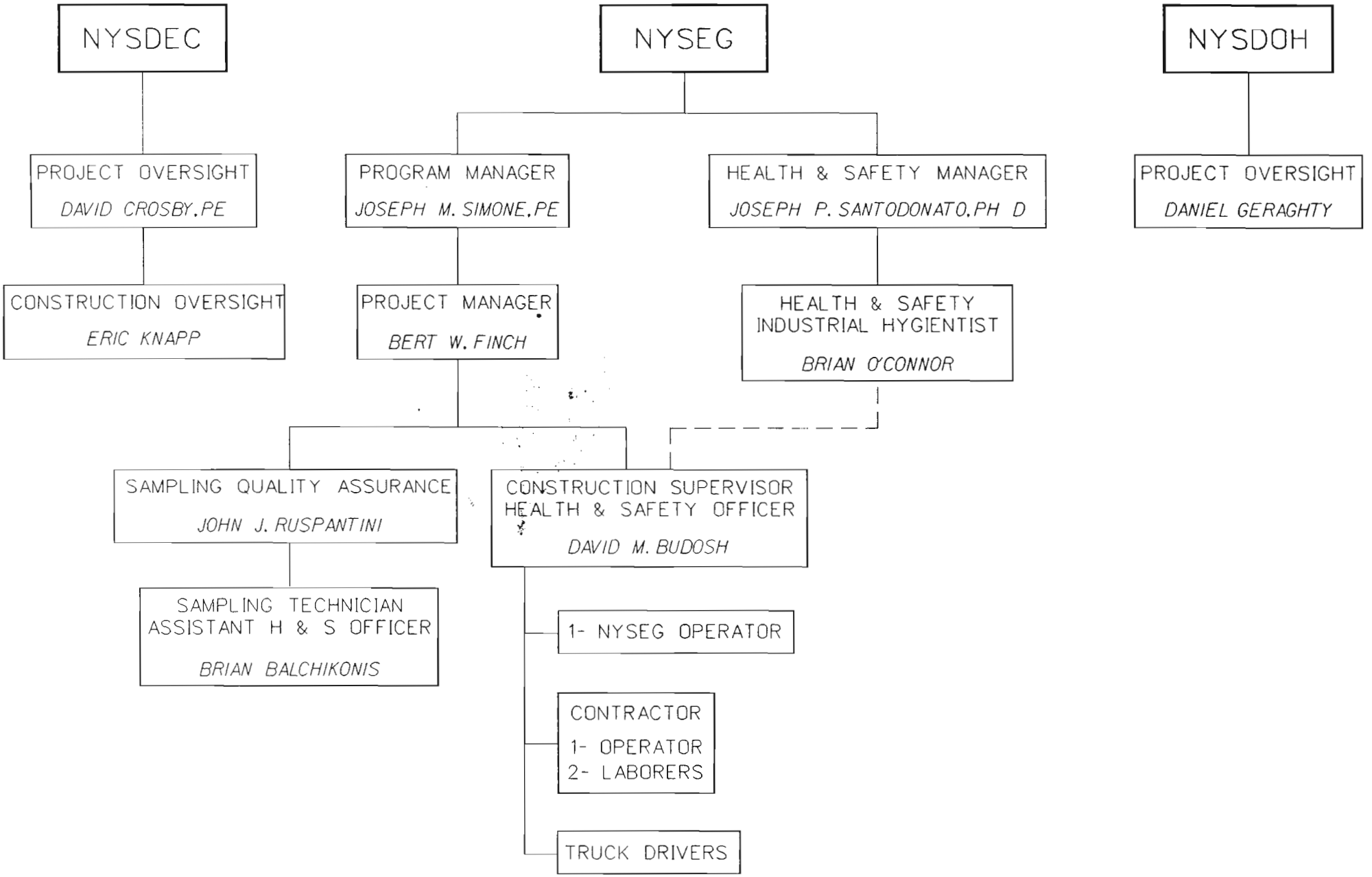
Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

Licensing & Environmental Operations Department

# APPENDIX H

## ORGANIZATION STRUCTURE

# ORGANIZATION STRUCTURE FOR ACTIVITIES AT MECHANICVILLE CENTRAL AVENUE FORMER MGP SITE 1999 REMEDIATION PROJECT




org.dg 16-99

# APPENDIX I

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
APPROVAL LETTER