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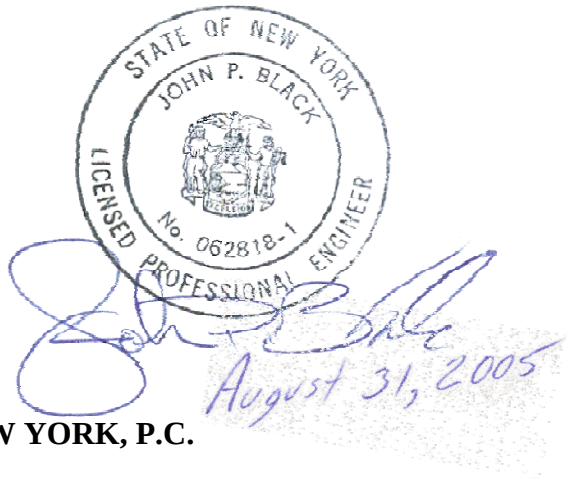
REMEDIAL WORK PLAN / REMEDIAL ACTION WORK PLAN
FORMER BUFFALO SERVICE CENTER SITE

BUFFALO URBAN REDEVELOPMENT AGENCY WEST SITE
FOURTH AND WEST GENESSEE STREETS
BUFFALO, NEW YORK

FINAL



PREPARED

BY

ESC ENGINEERING OF NEW YORK, P.C.

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Acronym List

bgs	below ground surface
BPS	Buffalo Public Schools
BSA	Buffalo Sewer Authority
BSC	Buffalo Service Center
BURA	Buffalo Urban Renewal Agency
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
cm/sec	centimeters per second
COI	constituent of interest
CQA	construction quality assurance
E&E	Ecology & Environment, Inc.
FCR	field change request
GAC	granular activated carbon
gpm	gallons per minute
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
µg/l	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
mg/kg	milligrams per kilogram
MGP	manufactured gas plant
NAPL	non-aqueous phase liquid
NCR	non-conformance report
NFG	National Fuel Gas Distribution Corp.
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSC	Ontario Specialty Consulting, Inc.
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
ORC	Oxygen Release Compound
PAHs	polycyclic aromatic hydrocarbons
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
SSALs	Site Specific Action Levels
TAGM	Technical and Administrative Guidance Memorandum
TCLP	toxicity characteristic leaching procedure
TDC	Transportation and Disposal Coordinator
VOC	volatile organic compound

1.0 Introduction

ESC Engineering of New York, P.C., has prepared this Remedial Work Plan (Work Plan) in accordance with the requirements of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program. This Work Plan specifically addresses Operable Unit–1 (OU-1) and portions[1] of Operable Unit-2A (OU-2A [BURA]) of the Former Buffalo Service Center (BSC) site and BURA West (Figure 1) as defined on Sheet 2 (Attached) and in Appendix A. This Work Plan was developed with sufficient detail to serve as a Remedial Action Work Plan for construction, while satisfying the guidance provided by Section 5.3 of DER-10.

The remedial action selection is described in the Alternatives Analysis Report (ESC Engineering 2005), and was driven largely by the proposed future use of the site for an office building. The scope of work includes the excavation and offsite disposal of certain soil and fill material located within OU-1 and OU-2A (BURA), as defined herein, that exceeds Site Specific Action Levels (SSALs) as defined herein. Soils and soil like fill that meets the SSALs will be used as below grade fill for the site. Excavation will be conducted to address environmental conditions as well as to accommodate future development that will commence immediately after execution of this Work Plan. Dewatering activities will be conducted concurrent with soil excavation activities. Collected groundwater and storm water that meet pretreatment criteria will be discharged to the Buffalo Sewer Authority (BSA). If the extracted/collected groundwater does not meet the pretreatment criteria it will be pretreated on the site prior to discharge. Excavation will continue until SSALs are satisfied or until predefined physical limits of excavation are reached.

ESC Engineering will serve as the lead engineer (Engineer) for this project. Ontario Specialty Contracting, Inc. (OSC), of Buffalo, New York, under contract to ESC Engineering, will serve as the construction contractor (Contractor) responsible for conducting the majority of the field work. Specialty subcontractors will be subcontracted by ESC Engineering (laboratories) and OSC (bracing, surveying, transportation and disposal) during the course of the project, as necessary. The Statements of Capabilities for Environmental Strategies and ESC

[1] The remainder of OU-2A will be addressed in accordance with the IRM Work Plan for OU-2B/OU-2C.

Engineering, Ontario Specialty Contracting, and STL (the laboratory) have been previously provided. Other laboratories are being considered, but they will be no less qualified than STL

2.0 Site Description

The site descriptions provided herein include:

- the Buffalo Service Center (BSC) Site, the location of the former Manufactured Gas Plant and certain portions of BURA properties adjacent to and potentially impacted by the BSC Site (the OU-1 and OU-2A areas Sheet 2 and Appendix A).
- the portions of the BURA West Property not associated with the Buffalo Service Center Site (BURA West) (Sheet 2 and Appendix A)
- a limited area, in the vicinity of RB-27, located just east of the BSC site (Sheet 2)

The site descriptions provided herein include both the BSC Site, the location of the former Manufactured Gas Plant (MGP), and the BURA West parcel. The BSC Site is located at the northwest corner of West Genesee and Seventh Streets in Buffalo, New York, and is currently owned by National Fuel Gas Supply Corp. In connection with the Brownfield Program, Duke HN New York, LLC (Duke Realty; one of the Brownfield Program applicants), will own the property and provide lease space to HealthNow. The Site will continue to be industrial/commercial in nature, and it has been industrial for over 100 years.

The BSC Site is secured with a chain link fence. There are no occupied structures on the BSC site. Immediately west is the BURA West parcel occupied by a Buffalo Municipal Parking Facility. There is a small ticket booth structure on the City property.

2.1 Site Conditions

The conditions at the BSC Site have been investigated since 1989. The BSC Site is underlain by fill, soil, and bedrock. Groundwater is contained within the overburden materials as well as within fractures in the bedrock. In portions of the Site, concentrations of constituents of interest (COIs) potentially related to the former MGP exceed SSALs. Subsurface fill material covers the majority of the Site in thickness ranging from 4 to 14 feet. The fill consists primarily of silty sand, gravel, brick fragments, concrete and metal debris, and also contains varying amounts of inert coal gasification residuals such as cinders, slag, ash, and coal fragments.

Underlying the fill is a low-permeability alluvium unit comprised predominantly of fine sand to clayey silt throughout the majority of the Site. However, in some areas, a silty clay unit is found just above the bedrock. Discontinuous lenses of peat are contained within the fill and

between the fill and the alluvium. The peat lenses are a few inches to 2 feet thick and are found mainly in the southern and northwestern portions of the Site. The thickness of the alluvium unit ranges from 2 to 12 feet. Bedrock is encountered below the alluvium at depths from 18 to 25 feet below ground surface (bgs). The first bedrock unit is dark gray fractured limestone.

Groundwater was found between 2 to 8 feet bgs in the overburden materials. Groundwater elevation data from BSC Site monitoring wells have suggested radial flow, away from the center of the BSC Site with three major components of flow, one to the south, one to the east, and one to the north. The nature of the flow is more likely the result of anthropogenic influences; deep sewer lines to the south and east immediately adjacent to the property line and the buried Wilkeson slip to the north.

The conditions across the BSC and BURA West Sites are extremely variable. The two components of this property addressed by this Work Plan consist of:

- Operable Unit OU-1 – This operable unit is located on the site, predominantly west of the former gas holders, along the western border of the property. Non-aqueous phase liquid (NAPL) impacted or hydrocarbon stained soil was identified at depths between 4 and 18 feet bgs in several locations throughout this area. Isolated detections to 20 feet bgs were found in one area of this OU. Total benzene, toluene, ethylbenzene, and xylenes (BTEX) and total polycyclic aromatic hydrocarbons (PAHs) were also identified at concentrations above SSALs in soil samples collected from below 5 to 7 feet.
- Operable Unit OU-2A[2] – This operable unit is located along the western fence line and includes portions of a municipal parking lot. NAPL impacted or hydrocarbon stained soil was identified at depths below 8 feet, but no deeper than 18 feet, in several areas. Total BTEX and total PAHs were also identified at concentrations above SSALs in soil samples collected from depths below 8 feet.

2.2 Summary of Remedial Investigations

The nature and extent of environmental conditions at the BSC and BURA West Sites were characterized through the completion of several site investigations from 1989 to 2004 (E&E 1998,

[2] For remedial purposes, OU-2A has been divided into OU-2A (BURA) and OU-2A (School). OU-2A (School) is being addressed in accordance with the IRM Work Plan for the School Properties.

E&E 1990, FDGTI 1996, FDGTI 1998, IT 2002, Shaw 2002a, Shaw 2002b, RETEC 2002a, RETEC 2002b, RETEC 2003a, RETEC 2004a). Based on the results of the investigations, former MGP structures, residual NAPL, and areas containing affected soil and groundwater have been identified and fully delineated. The site investigations conducted at this site are summarized below.

- 1989 – Ecology & Environment, Inc. (E&E) conducted a preliminary site assessment.
- 1990 – E&E completed a health assessment and interim remedial measure of cyanide-containing soils near the western corner of the property.
- 1990 – E&E completed an investigation by installing and sampling six groundwater monitoring wells.
- 1996 – Fluor Daniel GTI completed qualitative and quantitative risk assessments of groundwater at the site and beneath the Waterfront School property. Direct contact with groundwater was not found to be a significant route of exposure to COIs. Based on the analyses, no imminent danger to the student body and/or employees of the Waterfront School was identified.
- 1998 – Fluor Daniel GTI installed and sampled two additional monitoring wells and 19 geoprobe borings.
- 2000 – The Board of Education contracted Advanced Environmental Services, Inc., to conduct an indoor air survey near the sumps in the school basement using a HNu photoionization detector. No volatile organic compounds (VOCs) were identified above the detection limit of 1 part per million.
- 2000 – IT Corporation conducted a site-wide investigation of groundwater impacts.
- 2001 – Geomatrix Consultants performed a geophysical survey of the site to delineate former MGP structures as well as the former Wilkeson Slip.
- 2002 – IT Corporation excavated 17 test pits, installed 27 geoprobe borings to collect soil and groundwater samples, and installed 16 monitoring wells.
- 2002 – IT installed soil borings in the former Wilkeson Slip, conducted a site-wide groundwater sampling event, completed a human health risk assessment, and collected indoor air and sump water samples from the basement of the Waterfront School.

- 2003 – RETEC completed a pre-design investigation which included the installation of 40 soil borings, 3 monitoring wells, 2 recovery wells, and 10 temporary piezometers on- and offsite. A pumping test was conducted on one of the recovery wells. In addition, a treatability study was conducted for in-situ solidification and *in-situ* chemical oxidation.
- 2004 – RETEC installed 13 soil borings within the former Wilkeson Slip and east of the BSC, collected 11 subsurface soil samples for analysis as well as for treatability studies, and collected four storm sewer water samples along the eastern and southern boundaries of the site.
- 2004 – ESC Engineering collected three soil samples and three groundwater samples for validation of cost estimate assumptions.

Supplemental investigations have been conducted on the BSC and BURA West properties in 2005.

- 2005 – ESC Engineering advanced test pits and collected samples for visual and analytical characterization. Samples were collected from each OU for Toxicity Characteristic Leaching Procedure (TCLP) at the request of the NYSDEC.
- 2005 – LCS Inc., on behalf of Duke Realty Corporation, installed 17 soil borings spaced throughout BURA West.

2.2.1 Nature and Extent of Contamination

The nature and extent of contamination at the Site has been quantified to NYSDEC's satisfaction as a consequence of investigations conducted from 1989 to 2005. Based on the existing exposure pathways, the soils at the BSC and BURA West pose no risks to human health in the current condition. All detected concentrations exceeding the SSALs are in subsurface soil samples collected at depths greater than 4 feet bgs. Groundwater at both the BSC and BURA West Sites have detectable concentrations of site related COIs, but appear to have reached a steady state, or declining constituent concentrations condition, and is not used for potable or non-potable purposes.

2.2.1.1 Soil

Constituents identified in soil samples collected during the Site investigations consist primarily of BTEX and PAHs. Soil impacts are greatest within and north of the former tar well (along the western fence line [OU-1] of the BSC Site).

Concentrations detected above the SSALs for total BTEX in soil samples collected from borings in OU-1 were between 109 milligrams per kilogram (mg/kg) and 11,800 mg/kg at depths between 5 to 15 feet bgs. Those same soil samples also contained total PAHs above the SSAL of 500 mg/kg at concentrations between 1,900 mg/kg and 83,400 mg/kg. Soil samples targeting the highest total concentrations were collected by ESC Engineering in December 2004 for analysis by the TCLP. None of the ESC Engineering samples collected in 2004 contained detectable concentrations in the TCLP testing, confirming the soils are not characteristically hazardous (Table 1). The test pit work conducted and data collected by ESC Engineering in 2005 will be used to obtain landfill acceptance.

Soil samples exhibiting hydrocarbon sheen were collected at depths of 4 to 16 feet in OU-1 and 8 to 20 feet in the BURA West Site (OU-2A). Tar-like material and/or flowable hydrocarbon NAPL is also present in the subsurface in discrete areas of the site. These areas include depths between 4 to 20 feet in an area located north of the former tar well and in an area that was also the location of several former hydraulic truck lifts. Stiff tar-like material was seen within the footprint of the former tar well at a depth of 14 to 15 feet bgs. The underlying alluvium layer (comprised of tight fine sand, silt, and clayey silt) is not impacted by visible NAPL, sheen, or blebs, except near the former hydraulic lifts.

In the BURA West Site (OU-2A), total BTEX concentrations above the SSAL were detected in soils predominantly between 9 to 18 feet bgs with the highest concentration of 150 mg/kg. Those soil samples also contained total PAHs between 234 mg/kg and 4,930 mg/kg.

At BURA West, the LCS investigation conducted in January and March 2005 identified total xylene concentrations above the SSALs in 2 borings (BH11 and BH24) out of 17 installed outside of the areas being excavated for OU-2A. No other SSALs were exceeded in borings installed in BURA West as part of the LCS investigation. As a result of this investigation, a single additional excavation is planned for BURA West as shown on Sheets 2 and 8.

2.2.1.2 Groundwater

Constituents identified in Site groundwater also consist primarily of BTEX and PAHs. Groundwater impacts are greatest north of the façade (well MW-00-23), near the former tar well (well MW-01-27) and at one offsite, upgradient location east of the site (well MW-31). Total BTEX concentrations in these areas ranged from 370 micrograms per liter (µg/l) to 29,500 µg/l. Approximately 250 pounds of BTEX has been identified in the BSC and BURA West Sites groundwater, 77 percent of which will be removed during excavation. The remaining mass will either be removed by the dewatering system or naturally attenuate. Total PAH concentrations in many of these same wells ranged from 780 µg/l to 14,500 µg/l.

Groundwater in the area of MW-31 will be addressed during the remedial action as a dewatering well will be installed close to MW-31. The BURA East property will be addressed in a future Remedial Action Work Plan.

NAPL was not observed in bedrock fractures during installation of the three bedrock monitoring wells (BDR-1, BDR-2, and BDR-3). The concentrations of organic compounds measured in the bedrock well samples do not indicate the presence of NAPL. These observations are consistent with the fact that the NAPL and PAHs detected at the site may be largely immobile (relative to groundwater movement) and that the clay underlying the fill at the site has not been impacted by site-related activities.

3.0 Preparation and Mobilization

The preparation and mobilization for the BSC and BURA West Sites include:

- Pre-Construction Sampling and Analysis – To provide data for waste profiles and assist in the preparation of contingency plans.
- Permits and Approvals – Permits for discharge of recovered groundwater, excavation, and traffic controls. The permit application of discharge to the Buffalo Sewer Authority was submitted April 4, 2005. The City of Buffalo has indicated no excavation permit is required. The landfill approval process has been proceeding and in response to a March 30, 2005, request from the NYSDEC, TCLP samples were collected in each OU and separate waste profiles will be submitted for OU1 and OU-2A (BURA).
- Mobilization and Site Setup – Procuring materials and equipment, moving equipment to the site, and establishing the site infrastructure. The groundwater treatment plant was ordered April 15, 2005.
- Temporary Facilities – Requirements for parking, utilities, and traffic flow.
- Contractors Temporary Facilities – Contractors office and storage requirements. The BURA West property will be available for staging trucks.
- Engineer's Field Office – Requirements for the ESC Engineering onsite office and sample preparation area. ESC Engineering will have an onsite office and a separate onsite sample preparation trailer.
- NYSDEC Field Office – Requirements for the NYSDEC onsite office.
- Erosion and Sedimentation Control – Requirements for management of site storm water during the work.
- Health and Safety Plan/Community Air Monitoring Plan – Plan requirements to protect onsite workers and the public.
- Equipment Decontamination – Requirements for decontamination of all equipment moving from the exclusion zones to clean zones during the work.
- Spill and Discharge Control – Control and management of liquids.

- Monitoring Well Abandonment – Requirements to properly abandon monitoring wells that pass through and below the excavation areas.
- Survey Requirements – Requirements for surveying.

3.1 Pre-Construction Sampling and Analysis

A test pit program is planned to collect samples for analysis based on discussions with landfill representatives. To gain acceptance for disposition of the excavated material, additional characterization (soil-like, debris-like, inherently waste-like) sampling and analysis may be required. The purpose of the program will be crafted to provide sufficient information to the landfill representatives to allow a direct load approach during excavation. The effort will likely include collecting additional soil samples from areas of the site that represent the most prevalent characteristics as well as those having historical high total concentrations for additional TCLP analysis.

3.2 Permits and Approvals

The Contractor will be responsible for obtaining the permits and approvals necessary to allow for the proper execution of this Work Plan. ESC Engineering will be responsible for obtaining approval of this Work Plan from NYSDEC. ESC Engineering will provide technical support to the Contractor, as necessary.

Currently, the following permits and approvals are expected and will be sought:

- BSA water discharge permit (Application submitted April 4, 2005)
- local construction permits (excavation permit not required by Buffalo; traffic permits will be obtained)
- landfill acceptance for disposition of excavated soil and fill material (Process ongoing, independent profile for OU1 and OU-2A (BURA) required)
- traffic plan
- others as identified by Contractor

3.3 Mobilization and Site Setup

The Contractor will be responsible for mobilization and site setup. The Contractor will procure and transport the necessary resources to accommodate the project requirements (e.g., labor, materials, and equipment). The requirements will include, but not be limited to, the information provided in this section. Other requirements not specifically provided herein, but

necessary for the successful conduct and completion of the work, will be provided by the Contractor.

Site preparation activities include mobilizing equipment, materials, supplies, and personnel to the project site. These resources will be utilized to perform the following operations:

- establish site security (24 hour per day/7 day per week security will be provided) and entry and exit protocols
- informational handout with contact information will be prepared
- place and install temporary office trailers and associated utilities
- construct a chain-link fence to surround the western BURA property currently occupied by the municipal parking lot.
- establish a communications system including telephone, facsimile, two-way radios, and emergency warning systems
- establish personnel and equipment decontamination stations and delineate areas with barriers and signage
- mobilize earthmoving equipment
- establish dust and vapor control operations and air monitoring locations
- construct temporary water collection and discharge systems
- construct temporary groundwater dewatering, water collection, treatment, and discharge systems
- locate and mark underground utilities that may potentially be affected during site work

Anticipated equipment includes groundwater treatment equipment (Appendix B), pumps, air monitoring equipment, hydraulic excavators, loaders, skidsteer equipment, compaction equipment, grading equipment, highway trucks, and water trucks or other conveyance systems for dust and vapor control. Additional equipment will be required for personnel safety, air monitoring, equipment decontamination, and field sampling.

3.4 Temporary Facilities

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of

ingress/egress to the fenced area, and details of the fence installation. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

3.4.1 Employee Parking

Contractor employees shall park privately owned vehicles in a designated area on the BSC Site. This area will be off-street to avoid occupying on-street parking currently used by residents and employees working in the area. This area will be within reasonable walking distance of the construction areas.

3.4.2 Availability and Use of Utility Services

The Contractor is responsible for providing all temporary utility services required during construction. Utilities include electrical service, air conditioning, ventilation, lighting, heat, telephone, water connections, and sanitation facilities. The Contractor shall procure these services from the local utility provider in Buffalo, New York.

3.4.3 Bulletin Board, Project Sign, and Project Safety Sign

Immediately upon beginning work, the Contractor shall provide a bulletin board for displaying the Equal Employment Opportunity poster, and other information required by federal laws.

The Contractor shall also display a project safety sign clearly communicating that *Safety Is Our First Priority* and listing the safe work practices and record for the site.

3.4.4 Protection and Maintenance of Traffic

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

3.4.5 Haul Roads

The Contractor shall construct temporary access and haul roads as required for construction activities. Haul roads shall be constructed with suitable grades and widths; sharp curves, steep slopes, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. Dust and vapor control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and haul roads shall be subject to approval by the Engineer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads shall be removed.

3.5 Contractors' Temporary Facilities

The contractors' temporary facilities shall be established to facilitate safe work habits and efficient execution of the Work Plan. The minimum requirements for the contractors' facilities follow.

3.5.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Field office trailers shall be securely anchored to the ground at all four corners to guard against movement during high winds. Access to the trailer shall meet all state and federal requirements.

Office space shall provide space for project meetings with tables and chairs to accommodate eight persons, drawings table, and drawing storage area. Ample space shall be provided for Health and Safety, Construction Quality Control, and Site Supervisory personnel. The meeting table shall be equipped with a telephone capable of adding people on a speaker conference.

3.5.2 Storage Area

The Contractor shall construct a temporary 6-foot high chain link fence around trailers and materials. Additional secure areas may by constructed as required by the locations of construction activities. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as excavators, wheeled lifting equipment, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

3.5.3 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair.

3.5.4 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways.

3.5.5 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. Guards shall be provided for the site during working and non-working hours and on weekends.

The Contractor shall be responsible for the security of its own equipment and, to the extent practicable, all sampling equipment stationed onsite by ESC Engineering.

In addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

3.5.6 Fueling Stations

Temporary aboveground fuel tanks shall be installed in accordance with all local, state, and federal requirements. Dispensing equipment shall be locked out when not in use. Tanks shall be placed on a 40-mil (minimum) liner with the sides diked to contain the maximum volume of the tank. Spill control equipment including shovels, brooms, absorbent materials, and waste containers shall be provided at the refueling stations.

3.5.7 Cleanup

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned immediately. Stored material not in trailers, shall be neatly stacked when stored.

3.5.8 Restoration of Storage Area

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition.

3.6 Engineer's Field Office

Full-time supervision by the engineer will be provided. To ensure adequate facilities, the following minimum requirements shall be satisfied.

3.6.1 Engineer's Office

The Contractor shall provide the Engineer with a lockable office, approximately 200 square feet in floor area, located where directed and providing operable space, heat, air conditioning, electric, telephone connections (two lines), telephones, and answering machine, desk, one four-drawer filing cabinet, drawing table, and access to drinking water and sanitation facilities.

3.6.2 Trailer-Type Mobile Office

The Contractor may, at its option, furnish and maintain a trailer-type mobile office acceptable to the Engineer and providing as a minimum the facilities specified above. The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds. Access to the trailer shall meet all state and federal requirements.

3.6.3 Sample Management Office

The Contractor shall provide the Engineer with a lockable sample management office, approximately 400 square feet in floor area, located where directed and providing operable space, heat, air conditioning, electric, work table along one wall, one four-drawer filing cabinet, and access to drinking water and sanitation facilities. A sea-type container would be a suitable enclosure.

3.7 NYSDEC Field Office

The Contractor shall provide the NYSDEC with an office trailer separate from the Engineer and Contractor office. The trailer shall be lockable and have a minimum floor area of 200 square feet. The Contractor shall supply heat, air conditioning, electric, telephone connections (two lines), telephone, answering machine, computer printer, desk, fax machine, one four-drawer filing cabinet, two chairs, drawing table, and access to drinking water and sanitation facilities. The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds. Access to the trailer shall meet all state and federal requirements.

3.8 Erosion and Sedimentation Control

In accordance with *New York Guidelines for Urban Erosion and Sediment Control* (New York 1997), an erosion and sedimentation control plan must be prepared for any construction

activity that exceeds 5 acres in size. Because the total proposed excavation area for remediation of the soil is much less than 5 acres, a formal plan was not developed. However, if the disturbed area exceeds 5 acres or a Phase II permit is required the appropriate plan will be developed and implemented. In any event, erosion and sedimentation controls will be incorporated into the overall scope of work as a Best Management Practice and to re-establish vegetation. Due to the nature of an excavation project, the majority of surface water that contacts disturbed areas of the site will be trapped by the excavation and prevented from leaving the site.

During excavation activities, erosion and sedimentation controls will be incorporated to minimize surface water contacting disturbed areas and to control runoff. A silt fence will be installed at strategic locations determined in the field. Stockpiles of soil with COI concentrations below SSALs shall be covered with tarps. Water that accumulates in the excavations will be collected and managed in accordance with BSA discharge requirements.

Additional erosion and sedimentation controls will be necessary after the excavations are backfilled. These controls include seeding and mulching all disturbed areas of the site that remain exposed to the elements. As the site will be undergoing development immediately following the work, coordination of the final surface features will be done with Duke Realty. Future development plans may include a below-grade parking garage, thereby eliminating or reducing the backfill requirements.

3.9 Health and Safety Plan/Community Air Monitoring Plan

This section provides requirements for preparing and implementing the Site Health and Safety (HASP). The requirements shall apply to all work performed by the Contractor.

The following shall be submitted in advance of field work and shall become a major component of this Work Plan:

- corporate health and safety program
- site HASP
- worker training certification and medical clearance
- air monitoring logs
- equipment decontamination plan
- spill and discharge control plan

3.9.1 Regulatory Requirements

Work performed under this contract shall comply with applicable federal, state, and local safety and occupational health laws and regulations. This includes, but is not limited to, Occupational Health and Safety Administration (OSHA) standards, 29 Code of Federal Regulations (CFR) 1910.120, "Hazardous Waste Site Operations and Emergency Response" and 29 CFR 1926.65, "Hazardous Waste Site Operations and Emergency Response." Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this Work Plan, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

3.9.2 Safety and Health Program

OSHA Standards 29 CFR 1910.120(b) and 29 CFR 1926.65(b) require employers to develop and implement a written Health and Safety Program for employees involved in hazardous waste operations. The site-specific program requirements of the OSHA Standards shall be integrated into one site-specific document, the HASP. The HASP shall interface with the employer's overall Health and Safety Program. Any portions of the overall Health and Safety Program that are referenced in the HASP shall be included as appendices to the HASP.

3.9.3 Site Health and Safety Plan

A HASP shall be prepared covering work to be performed by the Contractor and all subcontractors. The Health and Safety Manager shall be responsible for the development, implementation and oversight of the HASP. The HASP shall establish, in detail, the protocols necessary for the anticipation, recognition, evaluation, and control of hazards associated with each task performed. The HASP shall address site-specific health and safety requirements and procedures based upon site-specific conditions. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP shall address, in as much detail as possible, anticipated tasks, their related hazards, and anticipated control measures.

The HASP shall be submitted to the Engineer within 21 days of Notice to Proceed, or otherwise agreed upon timeframe. Deficiencies in the HASP will be revised to correct the deficiencies and resubmitted for acceptance. Onsite work shall not begin until the plan has been

accepted. A copy of the written HASP shall be maintained onsite. As work proceeds, the HASP shall be adapted to new situations and new conditions. Changes and modifications to the accepted HASP shall be made with the knowledge and concurrence of the Health and Safety Manager, the Site Superintendent, and the Engineer. Should any unforeseen hazard become evident during the performance of the work, the Site Health and Safety Officer shall bring such hazard to the attention of the Health and Safety Manager, the Site Superintendent, and the Engineer, both verbally and in writing, for resolution as soon as possible. In the interim, necessary action shall be taken to re-establish and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Disregard for the provisions of the accepted HASP shall be cause for stopping work until the matter has been rectified.

Topics required by 29 CFR 1910.120(b) (4) and 29 CFR 1926.65 (b) (4) and those described in this section shall be addressed in the HASP. Where the use of a specific topic is not applicable to the project, the HASP shall include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic. At a minimum, the following topics shall be addressed:

- health and safety organization
- site description and hazard evaluation
- health and safety risk or hazard analysis
- provisions for employee training
- use of personal protective equipment
- medical surveillance requirements
- air monitoring requirements (personnel and community)
- site control measures
- personnel and equipment decontamination procedures
- standard operating work practices
- confined space entry procedures
- emergency response procedures
- first aid procedures
- temperature extremes monitoring

Action levels shall be established for the situations listed below, at a minimum. The action levels and required actions (engineering controls, changes in personal protective equipment [PPE], etc.) shall be presented in the HASP in both text and tabular form.

- implementation of engineering controls and work practices
- upgrade or downgrade in level of personal protective equipment
- work stoppage and/or emergency evacuation of onsite personnel
- prevention and/or minimization of public exposures to hazards created by site activities

The Site HASP shall detail the minimum PPE ensembles (including respirators) and specific materials from which the PPE components are constructed for each site-specific task and operation to be performed based upon the hazard/risk analysis. Components of levels of protection (B, C, D, and modifications) must be relevant to site-specific conditions, including heat and cold stress potential and safety hazards. Only respirators approved by the National Institute for Occupational Safety and Health shall be used. Onsite personnel shall be provided with appropriate personal protective equipment. Protective equipment and clothing shall be kept clean and well maintained. The PPE section of the HASP shall include site-specific procedures to determine PPE program effectiveness and for onsite fit-testing of respirators, cleaning, maintenance, inspection, and storage of PPE.

The Health and Safety Manager shall establish appropriate levels of protection for each work activity based on review of historical site information, existing data, an evaluation of the potential for exposure (inhalation, dermal, ingestion, and injection) during each task, past air monitoring results, and a continuing health and safety monitoring program. The Health and Safety Manager shall also establish action levels for upgrade or downgrade in levels of PPE from the specified levels of protection. Protocols and the communication network for changing the level of protection shall be described in the HASP. The PPE reassessment protocol shall address air monitoring results, potential for exposure, changes in site conditions, work phases, job tasks, weather, temperature extremes, individual medical considerations, etc.

The Health and Safety Manager shall prepare and implement an exposure monitoring/air sampling program to identify and quantify health and safety hazards and airborne levels of site-related substances in order to assure proper selection of engineering controls, work practices and

personal protective equipment for affected site personnel. Available site information shall be reviewed and the exposure monitoring/air sampling program shall be expanded and/or revised for submittal as part of the HASP.

At a minimum, the personal breathing zone and downwind perimeters of the work areas shall be monitored using real-time dust and vapor monitoring equipment. Action levels for airborne dust and vapor shall be determined for each COI. Action levels to trigger dust operations shall not be less than 380 micrograms per cubic meter ($\mu g/m^3$) average 1-hour standard (equivalent to 150 $\mu g/m^3$ for assessing 24-hour standard) or visible dust near the fence line.

3.9.4 Community Air Monitoring Plan

In addition to air monitoring to protect site personnel, the New York State Department of Health (NYSDOH) requires the implementation of a Community Air Monitoring Plan (CAMP) for all ground intrusion activities, including contaminated soil excavation and handling. This plan shall be prepared by the Contractor, in conjunction with the development of the HASP, and shall include real-time monitoring for both COIs and particulate both upwind and downwind of certain work activities at the site. The CAMP is not intended to establish safe working conditions for personnel onsite; it is meant to protect offsite receptors (including residences and businesses) from potential airborne releases and document the conditions to prevent potential claims of exposure. The contents of the CAMP shall be based on the type of intrusive work being performed onsite (i.e., excavation, loading, and transportation of soil). The CAMP shall include, but not be limited to, the following activities:

- Selection of CAMP monitoring locations - monitoring locations shall be positioned at three locations along the property boundary areas down wind and at one location within up wind of potential COI-generating activities. The Contractor shall identify each monitoring location and the rationale for its placement. In addition, the Contractor shall include a contingency for moving the monitoring locations based on the prevailing wind direction during site activities. A portable weather station will be used to continuously record wind direction and velocity with time. Monitoring shall be performed at these locations.
- Periodic monitoring – shall be performed for VOC emissions during certain non-intrusive activities, such as soil and fill excavation, during the most likely time

frame when emissions can occur. At a minimum, the Contractor shall collect instantaneous VOC measurements at the initiation and completion of excavation activities and continuous monitoring during working hours while the excavation is at depths of greater than 4 feet. Intermittent VOC measurements shall also be collected when health-related monitoring at the vicinity of the work detects VOCs above the CAMP action level. The Contractor shall specify the means, methods, and equipment to be used for periodic monitoring in the CAMP subject to approval by ESC Engineering.

- Documentation Monitoring – shall be performed by the Contractor for VOCs, naphthalene, methylnaphthalene, and particulate during all ground intrusive activities. During intrusive work, weekly samples shall be submitted for analyses from four monitoring locations (1 upwind and 3 downwind) at the property boundaries. Summa canisters shall be used to collect air samples over an 8-hour period. The Contractor shall specify the means, methods, and equipment to be used for documentation monitoring in the CAMP. While odor does not pose a health risk, it is a nuisance. At the first occurrence odor is detected at the monitoring perimeter, an instantaneous sample shall be collected to ensure no risk is posed. Appropriate response activities shall be described in the CAMP to reduce the generation of odors during site activities.
- Action and response levels – the Contractor shall specify the action and response levels for concentrations of COIs and particulate detected during monitoring. The project shall be temporarily shut down any time a reading at a CAMP monitoring station reaches 50 percent of any action level for any COI. The appropriate response actions shall be taken to control COIs before active remedial measures resume. Appropriate response actions shall be described in the CAMP should those action levels be exceeded during site activities.
- Documentation – the Contractor shall include in the CAMP a method for recording all measurements collected during the plan's implementation and all records shall be made available to NYSDOH, NYSDEC, and the Engineer, upon request. At a minimum, a daily log shall be kept to document monitoring results, wind speed, direction, and weather conditions.

3.10 Equipment Decontamination

Vehicles and equipment that come into contact with affected media shall be decontaminated prior to leaving the exclusion zone established for the Site(s). The procedures for decontamination of vehicles and equipment shall be addressed in the HASP.

3.11 Spill and Discharge Control

The HASP shall include a Spill and Discharge Control Plan to be implemented in the event of an accidental release of potentially hazardous materials. The Spill and Discharge Control Plan shall contain the following elements:

1. Preventive Measures: The Contractor shall provide methods, means, and facilities required to prevent contamination of soil, water, atmosphere, uncontaminated structures, equipment, or material by the discharge of wastes from spills due to the Contractor's operations. Shovels, brooms, non-combustible absorbent materials, polyethylene sheeting, and PPE shall be maintained in accessible locations.
2. Emergency Measures: The Contractor shall provide equipment and personnel to perform emergency measures required to contain any spillage and to remove spilled materials, soils, or liquids that become contaminated due to spillage. The collected spill materials shall be properly disposed of at the Contractor's expense.
3. Decontamination Measures: The Contractor shall provide the equipment and personnel to perform decontamination measures that may be required to remove spillage from previously uncontaminated structures, equipment, or material. Disposal of decontamination residues and confirmation samples shall be performed at the Contractor's expense.
4. Notification Procedures: The Contractor shall notify the Engineer immediately after the release of potentially hazardous materials as well as the National Response Center and NYSDEC Hotline, as required (applicable phone numbers must be listed in the HASP).

The Contractor will be responsible for implementing the site HASP and CAMP. The plans will ultimately become a component of this Work Plan. These plans will be prepared by the Contractor with support from ESC Engineering. The Contractor will be responsible for

conducting the air monitoring and taking appropriate action based on the results. During mobilization and site setup activities, equipment and materials for health and safety, vapor and dust suppression, and air monitoring equipment will be transported to the site and assembled to satisfy the plan requirements.

3.12 Monitoring Well Abandonment

Before monitoring wells are abandoned, a round of water level measurements will be collected to determine the potentiometric surface of the groundwater at the time of remediation. This information will be used to determine the performance of the dewatering system proposed and the need for establishing additional temporary pumping locations during construction.

Monitoring wells and piezometers within the excavation areas will be properly abandoned before excavating activities begin. The monitoring wells will be abandoned in accordance with NYSDEC's Groundwater Monitoring Well Decommissioning Procedures (NYSDEC 2003). Only monitoring wells located in proposed excavation areas will be abandoned at this time. These wells and piezometers include:

• MW-02	MW-00-17	MW-00-15	PZ-1
• MW-30	MW-00-16	MW-01-1	PZ-7
• MW-00-18	MW-00-23	MW-00-13	BDR-1
• MW-00-19	MW-00-22	MW-01-26	
• MW-03	MW-00-14	MW-00-11	
• MW-04	MW-01-27		

3.13 Survey Requirements

The Contractor will be responsible for the survey requirements associated with the proper execution of this project. The survey requirements will include, but not be limited to, the following:

- existing conditions, including identification of site features (nearby school and Facade corners [location and elevation], manholes/sewer inlets, and property boundaries) and topographic contours
- survey control throughout the execution of the project
- establishing a confirmation sampling grid over the excavated areas

- as-built drawings, depicting final approved excavation contours, final backfill contours, and any permanent installations required by the project

The Contractor shall provide all materials, labor, and equipment required to conduct all survey work necessary for the project. The Contractor shall establish benchmarks as required to perform the work to the lines and grades indicated on the Drawings. The benchmarks shall be tied into the New York State Plane coordinate datum, or otherwise, approved by the Engineer.

The Contractor shall use only independent New York-registered professional surveyors for surveying required to produce final products and measure quantities for payment purposes. Interim survey work may be conducted by the Contractor during the course of the project.

References shall be set and measurements taken using standard accepted surveying methods and equipment. The accuracy of the survey layout data shall be ±0.10 foot horizontal and ±0.10 foot vertical or as approved by the Engineer.

4.0 Remedial Activities for BSC and BURA West

Consistent with the schedule attached as Sheet 10, the scope of work required to complete the BSC and BURA West remedial actions include:

- Develop Work Plan and Health and Safety Plan.
- Prepare permit applications and gain approval.
- Select and gain approval for offsite disposal at permitted facilities.
- Gain approval for discharge of groundwater from dewatering system to the BSA.
- Install Dewatering System along proposed excavation.
- Install pile system to prevent movement of the Façade supports.
- Initiate dewatering of area around excavation
- Delineate work zones.
- Install chain-link fencing along Fourth Street and the uncontrolled property boundary between the Site and the Waterfront School property.
- Install filter fabric on fences surrounding property to mitigate wind and dust.
- Clear surface soils that meet SSALs[3] listed below; stockpile for potential reuse within the BSC and BURA West Sites.
- Remove foundations and underground structures from the BSC Site (Sheet 8) left after previous demolition.
- Air monitoring shall be conducted to verify no release of COIs above levels of regulatory concern. Vapor mitigation will be implemented if any exceedence of action levels at the property line is detected.
- Excavate soils and Urban Fills as shown on Sheets 8 and 9. Excavation to the west is limited by the location of Fourth Street. (Notes: (1) urban fill that meets SSALs will not be excavated and will be left in-place, unless these soils/fill must be relocated to access underlying soils that exceed SSALs.)
- Excavated soils that do not meet SSALs will be transported offsite for proper disposal.

[3] The methodology used to develop the SSALs is presented in the Alternatives Analysis Report (ESC Engineering 2005).

- Excavated urban fill that is not soil-like (e.g., large debris), shall be shipped offsite for disposal.
- The sides and bottom of the excavation shall be sampled. The samples will be analyzed for the SSALs:

BSC and BURA West Surface Soil (12 inches)	TAGM 4046 concentrations
Subsurface Soil	10 mg/Kg total BTEX, 500 mg/Kg total PAHs, 1 mg/Kg (or TAGM value, whichever is greater) individual BTEX compounds, 50 mg/Kg individual PAHs, Presence of NAPL (See definition in Section 4.5)

- If the SSALs are exceeded to the east, the excavation will be continued until the SSALs are satisfied for MGP-related COIs.
- If the SSALs are exceeded to the west, the excavation will be continued until the SSALs are met, the utility corridor, or the sheet pile barrier is reached.
- If the SSALs are exceeded on the south wall, the excavation will be continued until the SSALs or the Facade wall is met.
- If the SSALs are exceeded on the north wall, the excavation will be continued until the SSALs or the OU-2A (School), OU-2B, or OU-2C remedial program southern limit is met.

4.1 Groundwater Management

Groundwater in the vicinity of the site has been impacted by the Buffalo Service Center operations as well as historical industrial operations at the neighboring properties and by fill placed in the Wilkeson Slip and Erie Canal. Groundwater in the vicinity of the excavation will be managed through a treatment system (Sheet 7) installed and operated on the Buffalo Service Center property, dewatering wells specifically installed for this project (DW-4 through DW-22), and sumps within the excavations. The flow of "upgradient" groundwater through the main portion of the site will be reduced by installing a sheet pile barrier wall along the west end of the Wilkeson Slip at Fourth Street (Sheet 8) for Operable Unit OU-2A (School). It is recognized that

as the excavation approaches bedrock, groundwater from the bedrock unit will rise into the excavation and will require active management.

NAPL exists in certain areas of the Buffalo Service Center Site. The presence of NAPL is an SSAL and therefore is within the excavation limits for OU-1 and OU-2A (BURA). The NAPL will be collected in advance of excavation and will be managed during excavation as the excavation approaches those locations with free phase liquids. Two recovery wells specifically installed for this project (DW-23 and DW-24) will be installed to collect free NAPL in advance of the excavation. The collection of NAPL in advance, reduces the possibility of distributing the materials during dewatering and excavation.

4.1.1 Bracing System Installation

A bracing system will be designed to prevent movement of the former Façade of the Buffalo Gas Works. The bracing system will be designed and installed by H.F. Darling a company that commonly performs similar work within the City of Buffalo.

4.1.2 Well Installation

No slug tests or aquifer pumping tests have been conducted on the BSC main site. However, another consulting firm conducted slug tests in wells located on the adjacent Fourth Street Site to the north. They estimated that the hydraulic conductivity (K) for onsite materials is between 5.73×10^{-5} centimeters per second (cm/sec) and 1.11×10^{-3} cm/sec (0.16 to 3.14 feet/day). No information was available regarding the depths of the wells, water level measurements, or type of materials screened by these wells.

A pumping test was conducted by RETEC using recovery well RW-1 (Sheet 2) located on the northern property line of the BSC Site. This well is an angled well that screens four units: fill material onsite; fill within the former Wilkeson Slip, peat, and alluvial materials (silty sand to clayey silt) beneath the Waterfront School. RETEC was able to sustain a pumping rate of 7 gallons per minute (gpm) for a period of 7 hours (the test was started at 22 gpm and stepped down over a 25-hour period). Between 2 and 4 feet of drawdown was noted in wells located 45 feet to the west and 20 feet to the east of the pumping well, along the axis of the former Wilkeson Slip. The results of the pumping test gave an estimated K value between 1.8 to 3.7×10^{-3} cm/sec (or 5.1 to 10.49 feet/day) for the fill materials.

Based on the slug tests conducted on the adjacent site, the pumping test conducted in recovery RW-1, and geologic information contained on boring logs prepared for onsite soil borings

and groundwater monitoring wells, the hydraulic conductivity of onsite fill materials is estimated to be between 10^{-5} to 10^{-3} cm/sec.

For purposes of the proposed onsite excavation in Operable Units OU-1 and OU-2A (BURA), dewatering wells will be installed in and around the excavations (Sheet 6). For OU-1, wells DW-4 through DW-15 will be installed around the main excavation and wells DW-16 through DW-19 will be installed around the smaller excavation located near the northeastern property boundary. For OU-2A (BURA), wells DW-20 through DW-22 will be installed around the excavation perimeter. The well locations have been selected to both dewater the excavations and to control movement of the highest concentrations of COIs in groundwater. As a result, additional wells within the excavations have been included and will be removed as the excavation progresses.

The wells will be installed to the top of, or a few feet into the alluvium to provide the most benefit for dewatering the fill materials. The estimated Total Dynamic Head will be 40 feet of water. Pumps will be installed in each dewatering well. It is anticipated that the wells will be able to sustain a pumping rate between 2 and 7 gpm. The sump pumps within the excavation will be capable of producing at least 20 gallons per minute. The sumps will vary as the excavation progresses. The sumps will manage flow into the excavations from the side slopes and up from the underlying bedrock. The potential for boiling at the toe of the soils supporting the sheet pile walls will be carefully monitored and controlled.

To monitor the effectiveness of the dewatering program, water levels will be measured periodically in remaining onsite wells and dewatering wells. As onsite wells are decommissioned during excavation activities, the monitoring program will be modified.

4.1.3 Treatment System Installation

Groundwater samples taken from the Buffalo Service Center and from Operable Units OU-1 and OU-2A (BURA) consistently meet the Buffalo Sewer Authority discharge criteria for all parameters except for benzene. The groundwater samples for the worst parts of the site do not meet the BSA benzene pre-treatment standard and as a contingency, a pre-treatment facility will be assembled on the Groundwater Treatment System Compound on the Buffalo Service Center Site. The pre-treatment system will be capable of treating 200 gpm of groundwater at an initial concentration of 1,000 µg/l to less than 250 µg/l (one half of the BSA discharge limit).

The pretreatment system (Sheet 7) will consist of:

- MAEE model OWS-24 LNAPL/DNAPL separator
- Equalization Tank – 1,650 gallon (8 minute minimum) capacity
- Stacked Tray Air Stripper (QED Model EZStaker 24.4SS)
- Bag Filters (Krystal Klear Model L88302NAC10)
- Granular Activated Carbon for air stripper vapor phase (odor control)
- Final Holding Tank – 2,000 gallon (10 minute min.) capacity

The system will be constructed in an 8-foot by 40-foot modified shipping container to protect the systems from damage during earthmoving activities.

4.1.4 Operation and Maintenance

The dewatering and treatment systems shall be maintained in accordance with the manufacturers' requirements. Sampling shall be conducted at the frequency required by the BSA. If the groundwater consistently meets the BSA criteria without treatment, the system bypass will be used to discharge directly to the BSA system.

The system will be started as shown on the Proposed Schedule (Sheet 10). The system will be operated 24-hours per day prior to and during the excavation activities. Both during and after excavation activities are completed, the dewatering system will be taken out of operation and a groundwater monitoring program (Section 8.0 and Appendix C) will be put into place to measure the performance of the remediation and monitor the perimeter of the site for COIs. Any residual concentrations of COIs in groundwater are expected to be addressed via natural processes (Appendix C).

4.2 BSC and BURA West Soil Management

Soils and fill excavated from the BSC and BURA West Sites that exceed SSALs will be transported offsite for disposal. Soils meeting the SSALs will be used as subsurface (deeper than 12-inches) fill on BSC and BURA West. Before excavation work begins at these locations, the Contractor will prepare the area as follows:

- delineate work zones
- notify the Utility Location Services in the area to identify all public utilities
- install filter fabric on fences surrounding the property to mitigate wind and dust

Excavation activities will include removal of soil/fill to address environmental conditions as documented by historical investigations. These areas are highlighted on Sheet 2. Other areas within the Brownfield Site metes and bounds (Appendix A) are also planned for excavation to accommodate future development (Sheet 8). The requirements of this Work Plan will be followed during cleanup and development excavation activities.

4.3 Temporarily Relocate "Clean" Material

As indicated in Section 2.0 and documented by various previous submittals listed in Section 2.2, samples with concentrations of BTEX and PAHs above the SSALs are present below the depth of 4 ft-bgs. The soil (urban fill) that meets subsurface SSALs will be used as subsurface (greater than 12 inches) backfill. All stripped soil will not be stockpiled. A combination of direct relocation and temporary stockpile approaches will be followed to expedite the project schedule. The insitu sampling program was conducted to allow this combination of approaches. The sampling plan was formulated to include a sampling frequency of 1 composite sample from 3 locations for every 500 cubic yards of material destined for relocation as subsurface backfill. Material having sample results that satisfy the subsurface criteria will be used for backfill. Material having sample results that exceed the subsurface criteria will be shipped offsite for disposal. Construction debris or foundation materials (large [greater than 8 inches in any dimension] concrete, piping, etc.) will be removed from the materials (and disposed of off-site) before use as fill.

4.4 Subsurface Soil Removal

The Contractor shall excavate soil and fill material that exceeds the SSALs to the initial limits as shown on the Drawings. The sides and bottom of the excavation shall be sampled for COIs. Excavation will continue to the east until the SSALs are achieved. Excavation will continue to the west and south until the SSALs are met or the utility corridor along Fourth Street and sheet pile barrier is reached. Excavation will continue to the north until the SSALs are met or the excavation reaches the school property line. The depth of the excavation will continue until the confirmation sampling demonstrates the underlying clayey silt or fill satisfies the SSAL criteria. The clayey silt has been shown to be clean by previous sampling.

4.5 Confirmatory Sampling and Analysis

ESC Engineering will conduct a sampling and analysis program to confirm achievement of the SSALs and to determine if additional excavation is warranted. As the excavation progresses, a survey grid will be established over the excavated surfaces. The confirmation sampling approach will incorporate a 1,000 square foot grid for sample collection purposes. To accomplish this requirement, a 30-foot by 30-foot grid will be placed over the excavation areas. Initially, one discrete sample will be collected from each grid. As confirmation data are collected and evaluated, future sampling requirements will be adjusted in coordination with the NYSDEC (i.e., the sampling frequency will likely be relaxed as correlations between laboratory data and field data [e.g., PID readings, inspection] are developed). Each sub-area will be given a designation determined in the field (e.g. sub-area 1, sub-area 2).

The results of the sample will be compared to the SSALs. As necessary, excavation will continue within the sub-areas that exceed the SSALs. Only discrete areas within sub-areas will be excavated further. Sub-area locations that satisfy the SSALs will not be excavated further. The SSALs include the following:

BSC and BURA West	
Surface Soil (12 inches)	TAGM 4046 concentrations
Subsurface Soil	10 mg/Kg total BTEX, 500 mg/Kg total PAHs, 1 mg/Kg (or TAGM value, whichever is greater) individual BTEX compounds, 50 mg/Kg individual PAHs, Presence of NAPL

The presence of NAPL as defined for purposes of remedial action shall be soil containing free product or mobile contamination that is identifiable either visually, through strong odor, or elevated contaminant (SSALs) levels.

4.6 Waste Management

The Contractor identified to conduct the excavation activities shall be responsible for the transportation and disposal of the soil and material removed from the site. As part of this role, the contractor shall designate one person to act as the Transportation and Disposal Coordinator (TDC) for this Work Plan. The TDC shall coordinate the transportation and disposal

requirements associated with this project. Based on existing data, the material proposed for excavation from OU-1 and OU-2A (BURA) will be disposed offsite as a nonhazardous waste. The Contractor shall obtain approval from the disposal facility using the existing database or coordinate additional characterization requirements with ESC Engineering to obtain approval before field work begins. A "direct load" approach is planned and has received preliminary approval from NYSDEC.

4.6.1 Transportation and Disposal Coordinator

The TDC shall serve as the single point of contact for transportation, disposal, and regulatory matters associated with waste management. The TDC shall be responsible for environmental compliance at the site including, but not limited to:

- determination of proper shipping names
- identification of marking, labeling, and placard requirements
- completion of appropriate waste profiles, hazardous waste manifests (as contingency only), and bills of lading for non-hazardous waste material, as necessary
- obtaining disposal facility weigh slips
- any other environmental documentation as required by local, state, and/or federal law

The TDC shall have, at a minimum, one year of experience in the management and transportation of hazardous waste. The TDC shall coordinate transportation and disposal activities with ESC Engineering oversight representatives. ESC Engineering shall sign all transportation documentation on behalf of National Fuel Gas.

4.6.2 Laws and Regulations

The proposed Work Plan effort shall meet or exceed minimum requirements established by federal, state, and local laws and regulations, as applicable. These requirements are amended frequently, so the Contractor shall be responsible for complying with such amendments, as necessary.

4.6.3 Transportation

The Contractor shall use manifests for transporting hazardous wastes as required by 40 CFR 263 and any applicable state or local law or regulation. Transportation shall also comply with all requirements in the Department of Transportation 49 CFR regulations. The Contractor shall provide ESC Engineering with the EPA ID numbers, names, locations, and telephone numbers of each proposed waste transporter along with the bid documents for this work. Alternate transporters may not be considered acceptable, depending on the justification for use. All non-hazardous shipments will be accompanied by a bill of lading that documents shipping information, including transporter and disposal facility names and locations.

4.6.4 Treatment and Disposal of Material Failing TCLP for Benzene

The Contractor shall be prepared to address potential areas that contain NAPL or tar. Visible pockets of NAPL or tar shall be excavated and segregated from the nonhazardous material. Any such material shall be characterized separately and disposed of accordingly. Benzene is the only COI identified at the site with concentrations that approach the concentrations characteristic of hazardous waste.

The Contractor shall provide ESC Engineering with the EPA ID numbers, names, locations, and telephone numbers of each proposed waste treatment and disposal facility along with the bid documents for this effort. ESC Engineering, National Fuel Gas, and Duke HN New York, LLC must approve the use of the selected disposal facilities before commencement of the Work Plan activities. The Contractor shall ship hazardous wastes only to facilities that are properly permitted to accept such waste and are pre-approved by ESC Engineering.

For any soil or waste material failing TCLP for benzene only, the Contractor shall consider the exemption provided by NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4061 for disposition of such material. This guidance outlines the criteria wherein coal tar waste and soils and sediment that have been contaminated with coal tar waste from former MGPs only exhibiting the toxicity characteristic for benzene (D018) may be conditionally excluded from management as a hazardous waste when they are destined for permanent thermal treatment.

4.6.5 Non-hazardous Waste Disposal

All non-hazardous waste shall be shipped to Modern Landfill, an approved RCRA Subtitle D landfill, in Model City, New York. The Contractor shall ship non-hazardous wastes

only to facilities that are properly permitted to accept said waste streams and are pre-approved by ESC Engineering.

4.6.6 Waste Minimization

The Contractor shall minimize the generation of hazardous and non-hazardous waste generation to the maximum extent practicable. The Contractor shall take all necessary precautions to avoid mixing clean materials with suspected contaminated wastes.

4.7 Backfill

Clean common fill (imported) shall be used to backfill the remainder of the excavation above the gravel. The common fill shall be classified as a sand, silt, clay, or loam material as determined by ASTM D 2487. The material chosen shall also be capable of establishing and sustaining vegetation. The loose lift thickness of each lift of common fill shall be no greater than 12 inches. Each loose lift thickness shall be compacted to provide for an in-place density at or greater than 90 percent of the maximum dry density of the material as determined by ASTM D 698. One test per borrow source is required to determine the moisture density relationship of the material for every 10,000 cubic yards imported. Field density measurements shall be obtained via ASTM D 2922. Field compaction testing shall be conducted at a frequency of five tests per lift, at randomly chosen locations.

The soil-like materials imported for use as backfill (e.g., common fill) shall be tested and determined free of contamination before the material will be approved for use. One composite sample of the borrow source proposed for common fill shall be collected and analyzed for the following parameters:

- VOCs — Method 8260
- semivolatile organic compounds — Method 8270
- pesticides — Method 8081
- polychlorinated biphenyls — Method 8082
- target analyte list metals — Method 6010/335.3

Laboratory test results shall be compared to TAGM 4046 soil screening levels for residential scenarios to determine if the material is acceptable for use at the Site. All constituent concentrations must be below the relevant criteria for the material to be acceptable.

After backfilling operations are complete, the ground surface shall be restored via seeding and mulching all disturbed surfaces with lawn-type species of grass vegetation commonly used in the Buffalo area. The Contractor shall coordinate the work with an agronomist that will test the common fill material and recommend a seed mixture and fertilizer requirements. Soil amendments may be incorporated as necessary.

Temporary seeding and mulching will be performed to provide temporary stabilization until final development plans are executed. No topsoil is being placed under this work plan. The entire site will be altered following the remediation program and final landscaping will be completed by contractors working for the development company.

By execution of the Work Plan, the entire Brownfield boundary limits will satisfy the SSALs identified for this project. Any future land alterations, after our work is complete, will be performed in accordance with the Site Management Plan.

5.0 Quality Control and Quality Assurance

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction schedule. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Engineer for non-compliance with the quality requirements specified in the contract and work plans. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Engineer, and shall be responsible for all construction and construction related activities at the site. The work shall conform to the documents approved for construction, including all work plans and drawings.

The Contractor and its subcontractors shall comply with the construction documents prepared by the Engineer and HASP prepared by the Contractor, including the worker air monitoring and CAMP requirements. The Contractor is responsible for providing quality control during all phases of work. The Engineer is responsible for quality assurance.

Changes significantly affecting the approved construction documents or project schedule shall be brought promptly to NYSDEC's attention by the Engineer. Work found to be out of compliance with approved construction documents will be reviewed and halted, if necessary, until a satisfactory resolution is achieved.

ESC Engineering will provide Construction Quality Assurance (CQA) personnel during implementation of the remediation activities.

5.1 Responsibilities

The principal organizations involved in implementing the remediation at the site include, NYSDEC, the Owner, the Engineer, and the Contractor. Specific responsibilities and authority are delineated below to establish the lines of communication required to produce an effective decision-making process during execution of the work.

5.1.1 Regulatory Agency

The lead regulatory agency involved with this project is the NYSDEC. In this capacity, the NYSDEC will review construction documents for conformance with applicable requirements. The NYSDEC has the authority to review and accept or reject design revisions or requests for variances that are submitted after the construction documents have been approved. The NYSDEC also has the authority and responsibility to review documentation to confirm that the work was effectively implemented.

5.1.2 Owner

After the real estate closing, Duke HN New York, LLC will be ultimately responsible for the proper permitting, design, and construction of the project. Duke has retained ESC Engineering as the project engineer and quality assurance team. The Contractor (OSC) will be placed under contract following approval of the Construction documents. Duke has the authority to dismiss all non-regulatory organizations involved in design, CQA, and construction. It is Duke's ultimate responsibility to provide assurance to the regulatory agencies that the construction is conducted in accordance with the construction documents.

5.1.3 Engineer

ESC Engineering will function as Project Engineer and will provide CQA personnel. ESC Engineering's responsibilities under these separate functions are defined below.

5.1.3.1 Engineer

As the Project Engineer, ESC Engineering's primary responsibilities will be to provide engineering technical support during construction. In this capacity, ESC Engineering will be responsible for monitoring of construction work and providing the contractor feedback from questions regarding the construction documents. In addition, ESC Engineering will be responsible for identifying, documenting, and correcting deviations from these documents.

John Black, P.E., or designee, has the responsibility to review proposed design revisions associated with field changes that deviate from the construction documents. They have the authority to approve the revisions on behalf of ESC Engineering and submit the proposed revisions to NFG and the NYSDEC for approval. All field changes will be processed in accordance with established procedures (Section 5.3).

5.1.3.2 Construction Quality Assurance Personnel

ESC Engineering will provide CQA personnel during implementation of the remediation activities. The responsibilities of the CQA personnel are to perform the verification activities to provide confidence that activities are performed in accordance with the construction documents. The CQA personnel for this project will consist of a CQA Officer and a CQA Inspector(s). The CQA Officer, Glen Rieger, has the responsibility and authority to halt any remediation activity or work that is not in conformance with the approved construction documents. Site-assigned CQA Inspectors performing verification activities report directly to the CQA Officer and have the responsibility to notify the CQA Officer of any deviation from the construction documents. The CQA Inspectors have the responsibility to report and the authority to investigate all deviations and nonconforming conditions to determine the source or root cause. The CQA Officer's responsibilities include:

- reviewing construction documents for clarity and completeness so that the work can be implemented correctly in a timely fashion
- educating CQA personnel
- scheduling and coordinating CQA inspection activities
- verifying and documenting that the test and monitoring equipment used is of the appropriate type and has been properly calibrated
- confirming that the test data, inspection, and monitoring activities have been properly documented and confirming that their results satisfy the construction documents, including the HASP
- providing NFG with CQA updates, identifying deficient work, and providing recommended corrective action measures, if necessary
- ensuring that any changes in testing equipment, personnel, or procedures do not adversely impact the inspection process

The CQA Inspector’s responsibilities include:

- performing onsite inspections of the remediation to ensure compliance with construction documents
- verifying required tests, including the submitting of test samples (if required) to qualified laboratories for acquiring test results

- documenting the results of all inspection, test, and monitoring activities
- reporting nonconforming conditions in accordance with the procedures explained in Section 5.4 as well as other deviations from the construction documents to the CQA Officer
- verifying the implementation of any corrective action measures.

5.1.3.3 Contractor

The Contractor's (OSC's) responsibility is to perform the work in accordance with the construction documents. Construction personnel, including the Contractor's Project Manager, will coordinate their work with the ESC Engineering CQA Officer and CQA Inspector(s).

5.2 Site Meetings

Periodic (a minimum of once per week) CQA meetings will be held during the implementation of the construction. As availability allows, meeting attendees will include the Contractor Project Manager and ESC Engineering's CQA Officer and/or Inspector, Health and Safety Officer, and Engineer. Representatives of the NYSDEC and representatives of the Owners may also attend, as necessary. Parties may participate by teleconference, as necessary.

Additional CQA meetings may be held at the site or via a telephone conference and will be used to discuss the project progress, construction issues and unanticipated site conditions, and deviations from the construction documents. Each meeting will be documented by the CQA Officer or CQA Inspector.

5.2.1 Initial Construction Quality Assurance Meeting

The initial CQA meeting will be conducted onsite prior to initiating work. Subjects proposed to be covered during this meeting include:

- providing appropriate parties with the finalized construction documents and HASP
- reviewing the responsibilities and authority of each party
- reviewing lines of authority and communication
- resolving identified conflicts within the construction documents
- reviewing the procedures and requirements for the tests and inspections to be performed
- reviewing methods for documenting and reporting inspection data (e.g., field book entries)

- reviewing storage of documents
- reviewing procedures for identifying and correcting deviations
- discussing proper storage requirements for construction materials
- reviewing the site health and safety plan as needed
- conducting a site walk to review and discuss work issues
- discussing the overall project schedule
- reporting of key submittals to the Engineer (if any)

5.2.2 Weekly Construction Quality Assurance Meetings

At the end of each work week, the CQA Inspector will communicate with the CQA Officer to discuss project activities. Discussion topics will include:

- previous week's activities and progress
- following week's planned activities
- anticipated or potential construction issues
- review of testing procedures, submittals, or inspection activities required for the current week's work
- coordination of CQA monitoring and inspection activities with the Contractor Project Manager.

The weekly meetings/telephone conferences will be documented by a CQA Inspector. The documentation (minutes) will be distributed to all participants and other project team members not available to participate.

5.3 Field Change Request Process

The purpose of this procedure is to describe the method for requesting acceptance for the implementation of field changes to construction documents and procedures applicable to the remedial action.

A Field Change Request (FCR) is a document used to request and acquire the necessary reviews and acceptance for implementing a field change involving design, process, or method. During the course of field activities, conditions may be encountered that necessitate a change in requirements affecting design, processes, or methods.

These changes may be necessary to correct or revise a design, institute an additional requirement, or request approval for relief from an existing requirement with suitable justification. Field changes may also be requested to address and acquire guidance for unforeseen or unanticipated conditions, or to acquire acceptance for alternate methods or processes to be employed.

To provide a mechanism for controlling these changes, ESC Engineering has established a FCR system which documents a complete description of the change, acquires the necessary acceptance, and provides disposition of the request and affected documents.

The Contractor initiating the field change request will complete Part 1 - Initiation of the FCR form (Appendix D) and submit each FCR to the Engineer for processing and acceptance.

ESC Engineering will be responsible for acquiring all necessary reviews and disposition(s) for each FCR. ESC Engineering will ensure that the use of the FCR is not in conflict with contractual requirements and shall also determine (1) if the change requires approval by the Respondents due to additional costs or (2) if the requested change is rejected and will not be implemented. The disposition of each FCR will address the need for changes to any affected documents. FCRs will be reviewed and accepted by ESC Engineering and NYSDEC prior to implementing any field change.

5.4 Nonconformance Reporting

The purpose of this procedure is to establish and provide a system for identifying, reporting, evaluating, and dispositioning nonconforming items to prevent their inadvertent use or installation. This procedure applies to permanent installations and items of hardware or materials, which are procured, constructed, installed, or used in conjunction with remedial activities. This procedure does *not* apply to expendable tools, supplies, or temporary equipment, items or materials. A nonconformance is a deficiency in characteristic, documentation, or procedure that renders the quality of an item or material unacceptable or indeterminate. A disposition is a written order to correct or place a nonconforming condition into a conclusive form. Acceptable dispositions may require nonconforming conditions to be either repaired, reworked, scrapped, or used-as-is with suitable justification.

This procedure for the control of nonconforming items and materials has been established by ESC Engineering to ensure that such conditions are properly identified, reported, evaluated, and dispositioned.

The CQA Inspector initiating the Nonconformance Report (NCR; Appendix E) will provide a detailed description of the nonconforming condition(s), including any reference(s) to drawings, work plans, specifications, or procedures which may provide acceptance criteria for the item or material being reported.

The CQA Officer, or designee, will maintain a log of NCRs which shall reflect the current status of each report. ESC Engineering will be responsible for receipt and review of the initiated NCR. ESC Engineering shall also be responsible for providing the recommended disposition. The CQA Inspector assigned to verify the performance of the disposition and any corrective action measures will verify and attest to the completion of such measures by signature and date on the NCR form. Any Contractor or ESC Engineering employee engaged in project work that discovers a nonconforming condition shall immediately notify the CQA inspector. The CQA inspector will in turn immediately notify the CQA Officer via submittal of a formal NCR.

Any nonconforming conditions that can be immediately corrected within the Contractor's scope of work may not require the initiation of an NCR. However, in all cases, a NCR will be issued for:

- nonconforming conditions that are required to be documented in accordance with contractual requirements and construction documents
- nonconforming items or materials, supplied by others, which are not within the Contractor's scope of work, or responsibility, for repair or rework
- nonconforming conditions that may require extensive repair or rework, engineering evaluation, or significant corrective action measures
- nonconforming conditions that are repetitive
- nonconforming conditions, items, or materials whose failure could attribute to undue risks to the health and safety of personnel

Once the condition has been determined to be nonconforming, each nonconforming condition will be brought to the immediate attention of the CQA Officer. The CQA Inspector initiating the report will log the NCR, acquire a sequential number from the CQA Nonconformance Log, and shall complete the initiation (i.e., upper) portion of the report. The NCR will be immediately submitted to the CQA Officer with a copy submitted to the Engineer and the Contractor.

The Project Engineer, or designee, of ESC Engineering will evaluate the nonconforming condition and provide a recommended disposition (repair/rework, reject, or accept as-is). Once the disposition and any steps for corrective action have been determined, they will be reviewed by the Contractor who shall sign and date the "accepted by" line in the disposition portion of the NCR. ESC Engineering will send the completed NCR to the Contractor for performance of the disposition. A copy will also be sent to the CQA Officer. Once the disposition has been performed, verification shall be documented by signature and date of the CQA Inspector performing the verification.

If the NCR prompts any change to the intent of the construction documents, NYSDEC must approve of the change prior to implementation.

6.0 Environmental Easement

Several Environmental Easements are required. ESC Engineering will work with Duke to establish these Environmental Easements, controls and deed restrictions and requirements for the BSC Site and BURA West. The following Environmental Easements are planned:

- prohibit the use of groundwater for potable and non-potable purposes
- limit the use of the property to non-residential purposes (the possible Day Care Center and retail locations will be commercial operations)
- prepare a Site Management Plan (Attachment F) to define requirements for management of soils after the remedial program and development plans are finalized

7.0 Citizen Participation Plan

ESC Engineering and Duke will implement a Citizen Participation Plan that incorporates activities outlined in the NYSDEC's publication, *Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook,* dated June 1998. During this phase of the project, we are coordinating with NYSDEC to produce a Fact Sheet to inform the local residents, school staff, and parents of the school children of the upcoming remedial work. As the NYSDEC Fourth Street Site will be under remediation on a similar timetable, the same protocols will be followed for this work. The distribution list for the Fourth Street Site will be provided by NYSDEC for mailing of the Fact Sheet to local residents and the Buffalo Public Schools will distribute the sheets to occupants of the school.

A draft Fact Sheet will be prepared by NYSDEC for review by the Buffalo Public Schools, NFG, Duke, and ESC Engineering representatives. The Fact Sheet will provide a brief summary of activities conducted to date as well as a discussion of proposed activities provided by this Work Plan. The final Fact Sheet will be distributed to the public before any intrusive work begins at BSC and BURA West.

During the course of the field work, onsite personnel will have supplemental fact sheets available should the public or media approach the Site during working hours. No one who is unaffiliated with the site will be allowed to enter the Site or Exclusion zones; therefore, to allay any concerns, the supplemental fact sheet will provide a means to deliver a consistent message.

8.0 Groundwater Monitoring Program

The remedial actions conducted in accordance with this work plan will remove a minimum of 77 percent of constituents known to exist in groundwater that are attributable to the BSC Site. The dewatering system will provide comprehensive data on the remaining groundwater quality, especially in the MW-02-28 and MW-31/MW-09 vicinities. Based on the concentrations in the recovered groundwater from these and other operating wells, and the configuration of the proposed office building, a final determination of the number and locations of monitoring wells to be used for groundwater monitoring will be made.

Sheet 9 provides a conceptual layout of the proposed monitoring well network and proposed well construction. Appendix C provides details of the post construction groundwater monitoring plan.

9.0 Schedule

The schedule associated with implementation of the Work Plan for OU-1, OU-2A (BURA), and BURA West is presented as Sheet 10. Major milestones that must be satisfied to accommodate the overall project schedule include the following:

• submit draft Work Plan to NYSDEC	April 21, 2005
• establish contracts with Contractor	June 15,2005
• receive NYSDEC approval	Mid-June 2005
• begin dewatering program	Mid- to Late June 2005
• secure landfill disposal approval	Mid-June 2005
• OU-1 excavation work begins	July 2005
• OU-2A (BURA) and BURA West excavation work begins	October 2005
• Proposed Building Construction Begins	December 2005
• Construction Completion Report	December 31, 2005
• Groundwater Monitoring Program begins	First-quarter 2006
• Completion of Groundwater Monitoring Program	Fourth Quarter 2007

10.0 Project Closeout

As field work comes to an end, ESC Engineering will schedule a site walk through with NYSDEC. Any remaining work necessary to satisfy the intent of the Work Plan for BSC and BURA West Sites will be identified and documented for follow-up action.

A draft final report will be prepared to include a description of activities conducted to comply with the requirements of this Work Plan. The report will include a certification by a Professional Engineer that the work was conducted in full accordance with the approved Work Plan. Based on input from the NYSDEC, the report will be made final.

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Figure

Table

Sheets

(Full scale versions under separate cover)

Appendix A – Property Boundary Information

Appendix B – Treatment Equipment Specifications

Appendix C –Post-Excavation Groundwater Monitoring Plan

Appendix D - Field Change Request Form

Appendix E - Nonconformance Report

Appendix F -Site Management Plan