AECOM Environment

Prepared for:
National Grid
Brooklyn, New York

Prepared by:
AECOM
New York, NY
60137363.430
July 2012

Community and Environmental Response Plan (CERP)

254 Maspeth Avenue Parcel IRM

Equity Works Former Manufactured Gas Plant Site
Brooklyn, New York

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254 Maspeth Avenue Parcel IRM

Equity Works Former Manufactured Gas Plant Site Brooklyn, New York

Prepared By: Shail Pandya

Reviewed By: Pete Cox, P.G.

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List of Acronyms

bgs	below ground surface
CAMP	Community Air Monitoring Plan
CERP	Community and Environmental Response Plan
MGP	Manufactured Gas Plant
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OVD	Odor, Vapor, and Dust
Project Site	Equity Works MGP Site - 254 Maspeth Avenue Property
Site	Equity Works Former MGP
SPDES	State Pollutant Discharge Elimination System
VOCs	Volatile Organic Compounds

1.0 Introduction

National Grid has prepared this Community and Environmental Response Plan (CERP) to summarize the controls, monitoring, and work practices that will be implemented during the interim remedial measures (IRMs) at the 254 Maspeth Avenue property (Project Site) of the Equity Works former Manufactured Gas Plant (MGP) site (the Site) to address the potential for short-term impacts to the surrounding community or environmental resources. The IRMs will include the removal of MGP-related source material observed in the unsaturated soils on the Project Site. The Site is located at 222, 252, and 254 Maspeth Avenue in Brooklyn, New York.

The CERP is a concise summary of the controls, monitoring, and work practices, and how they combine to provide the necessary protection of the community and ecological resources. Additional details regarding how these controls will be implemented are contained in the project's Design Package. The purpose of the CERP is to provide members of the community with information on the steps and programs that have been put in place in order to protect their health and minimize the disturbance caused by construction activity. This effort will be performed under the approval and oversight of the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH).

This CERP has been prepared in accordance with the Administrative Order on Consent [Index No. A2-0552-06046, (NYSDEC, 2007)] between The Brooklyn Union Company (now d/b/a National Grid) and the NYSDEC and Section 5.1(f) of the NYSDEC Final DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010.

2.0 Public Communication and Outreach

2.1 National Grid Contact Information

If members of the community have questions or wish to report a concern, they can contact National Grid on the Equity Project Hotline Telephone at (718) 403-2005.

2.2 Document Repositories

National Grid has established local document repositories for site-related documents. Equity Works MGP documents are available to the community to review throughout the remedial program at the following locations:

Community Board 1
435 Graham Avenue
Brooklyn, NY 11211
(718) 389-0009
District Manager:
Gerald A. Esposito

Greenpoint Branch
Brooklyn Public Library
Attn: Mel Gooch, Librarian
107 Norman Avenue at Leonard Street
Brooklyn, NY 11222
Telephone: (718) 349-8504

The following documents, as available, have been placed in the Repository:

- Administrative Order on Consent
- Citizen Participation Plan
- Remedial Investigation Work Plan
- IRM Work Plan
- Other Materials (e.g., Information Sheets, Notices, etc.).

2.3 Regulatory Agency Contact Information

The IRMs at the 254 Maspeth Avenue parcel is being performed under the oversight of the NYSDEC. The contact information for the NYSDEC and other regulatory agencies involved in providing oversight for the remedial work being performed at the Equity site are presented below.

New York State Department of Environmental Conservation
Hank Willems
NYSDEC
Division of Environmental Remediation

625 Broadway
Albany, NY 12233-7014
(518) 402-9662

New York State Department of Health
Albert DeMarco
Public Health Specialist
NYS Department of Health
Bureau of Environmental Exposure Investigation
Empire State Plaza-Corning Tower Room 1787
Albany, New York 12237
518-402-7860
ajd03@health.state.ny.us

3.0 Community Air Monitoring Plan (CAMP)

A draft site-specific CAMP is provided in Appendix A. The final draft will be prepared by Contractor selected to perform the air monitoring prior to the start of work. The CAMP shall be enforced 24 hours a day, 7 days a week during the course of the project. The intent of the CAMP is to provide a measure of protection for the downwind community (i.e., off-Site receptors including residences and businesses, and on-Site workers not directly involved with the work activities) from potential vapors and dust carried in the air as a direct result of remedial work activities on the Site. The CAMP provides air monitoring procedures, contamination concentration limits, and procedures to reduce vapor and dust generation if the limits are approached.

During construction activities which may create dust or vapors (excavation, drilling, etc.) fence line perimeter air monitoring will be conducted using a combination of real-time (continuous and almost instantaneous) fixed locations air monitoring and walk-around supplemental air monitoring using hand-held instruments on an as-needed basis. Contaminants commonly found at former MGP sites will be monitored, including volatile organic compounds (VOCs) and dust. VOCs are chemicals that easily enter the air as gases from some solids or liquids. During excavation at the Site, VOCs could potentially enter the air from the chemicals in the contaminated soils.

The CAMP will include a Contingency Plan that defines the different concentration limits, and specific response activities to be implemented during working hours if the limit for a measured compound is exceeded. The response actions, potentially including work stoppage, are intended to prevent or significantly reduce the migration of contaminants carried in the air from the Site.

The real-time perimeter limits consist of alert limits and action limits. An alert limit is a level of contaminant in the air that triggers a response action. An alert limit does not suggest the existence of a health hazard, but serves instead as a screening tool to take action, if necessary, to assist in minimizing contaminants from moving off site through the air. An action limit is a level of contaminant or odor in the air that triggers work stoppage.

4.0 Public Protection Measures

National Grid and their Contractor will implement a number of plans to protect the public from physical hazards at the Site. Each of these measures is designed to make the area surrounding the remediation safe for the general public.

4.1 Warning Signs

The Contractor will place signs at the Project Site entrance on Maspeth Avenue indicating that the property is being remediated by National Grid under the oversight of the NYSDEC. In addition, signs will be placed on the gate indicating that the property is an active construction site and only authorized personnel are allowed onto the property. Security will be present during non-working hours to prevent access as discussed in Section 9.

4.2 Street Closure

Street closures are not anticipated to be required during the implementation of the IRMs. Flaggers will be present to direct truck traffic coming in and out of the property.

4.3 Site Fencing

Construction fencing will encompass the entire remedial area and staging areas for the Contractor. As discussed in Section 8, temporary fencing will also be constructed around the excavation. The perimeter fencing is intended to prevent public access to the construction site. This fencing will be monitored during non-working hours by Project Site security as described in Section 9.

5.0 Odor, Vapor, and Dust Control

Odor, vapor, and dust control will be required for this project due to the immediate proximity of industrial and commercial buildings. Engineering controls, as described below, will be applied during the excavation and handling of soils. The Odor, Vapor, and Dust Control Plan is included as Appendix B of this report. A summary of the Plan is presented below.

5.1 Odor and Vapor Control

If the real-time perimeter limits are exceeded or significant nuisance odors are noted adjacent to the excavations, National Grid, the Construction Manager, and the Contractor will consult to determine what type of emission control action is appropriate. Actions that may be taken to reduce contaminant or odor levels include the following:

- Spraying water on exposed soil surfaces and/or roadways to reduce windblown dust.
- Covering working areas of exposed impacted soils, trucks loaded with impacted soils, or stockpiles of impacted soils with tarpaulin covers, vapor reducing foam, or other vapor control agents.
- Temporarily relocating work to an area with potentially lower emission levels.
- Reduce the production rate or change the sequence of work activities.
- Change the work methods or equipment to alternatives that reduce the potential to create dust or release contaminants into the air.
- Using specialized odor suppressing foams to cover the contaminated soils. The foam is a product which reduces the ability of vapors and dust to enter the air.
- Misting water onto soil in order to prevent dust.

In practice, these actions will typically be used proactively to prevent alert levels from being reached at the Project Site perimeter.

5.2 Dust Control

Construction activities will be performed so as to limit the creation of dust. Dust control measures will be used to minimize the potential for creating dust during soil excavation and handling, and the placement of clean fill. Dust control measures will include water spraying, and/or specialized foams. The Contractor will provide materials to help prevent generating dust which may include tarps and/or water, specialized foams, or other National Grid-approved methods. The Contractor will keep sufficient materials on site to help reduce the level of dust from the excavation. The material will be stored near the excavation and will be easily mobile in case of need.

Truck routes on site will be inspected continuously during periods of high truck traffic for excessive dirt or dust. Heavily traveled truck routes on the Project Site will be wet down to minimize dust emissions.

The cleaning of trucks exiting the Exclusion Zone will help eliminate dusty conditions on the Project Site. Transport trucks exiting the Exclusion Zone will pass through an inspection area and be

inspected to ensure tires and undercarriages are clean and that tarps are secured. Excessive mud and loose dirt observed on the trucks will be manually removed with brooms and brushes as necessary. The proper cleaning of trucks exiting the Project Site will aid in minimizing/ eliminating dust leaving the Project Site. A decontamination pad large enough to accommodate equipment and truck traffic will be constructed at the exit point to clean tires of transport trucks exiting the Project Site.

6.0 Construction Noise Mitigation

The Remediation conducted on the Project Site will conform to the noise codes for New York City, which is provided in New York City Code Chapter 28 - Citywide Construction Noise Mitigation. More information on the New York City codes can be obtained online at http://www.nyc.gov/html/dep/html/noise/index.shtml.

The Contractor will be required to complete the Construction Noise Contact Sheet and a Construction Noise Mitigation Plan, both of which must be conspicuously posted on the fence outside the Project Site.

To be in compliance, equipment shall be used only during the hours of 7:00 a.m. and 6:00 p.m. on weekdays or as mandated by local NYC rules and regulation and permit requirements. In the event of special or emergency circumstances that require work to be conducted outside the permitted time (including Saturday and Sunday), the Contractor will obtain after hours work authorization.

The work that will be completed does not currently require the Contractor to perform tasks which are commonly associated with extreme levels of noise. However, some common construction sounds will be heard from the Project Site, including truck traffic sounds and engine noises and backup alarms.

If noise issues do become a concern the Contractor may also locate pieces of machinery on the Project Site to maximize the distance from potential receptors and utilize additional sound barriers as needed. This should include levels of measureable noise or vibration which may trigger the need for alternative construction methods or shut down the operation resulting in the noise or vibration.

7.0 Vibration Monitoring

It is not anticipated that the Remediation of the Project Site will generate high levels of vibrations for nearby properties. The Work that will be completed does not currently require the Contractor to perform tasks that are commonly associated with high levels of vibration (such as blasting or pile driving).

The most common source of vibrations from the Project Site will be from subsurface structure demolition equipment and compaction equipment, which will be used to tighten together layers of clean fill as it is used to replace impacted soil that has been excavated. Compaction equipment tightens soil by creating vibrations over a very small area; however, the compaction equipment that will be used on the Project Site will be small and not nearly powerful enough to cause damage to nearby structures.

Vibration monitoring will be performed by AECOM who has specialized training and equipment to measure vibrations which travel through the ground. Vibration monitoring will be conducted in coordination with the Contractor. The Contractor shall provide the proposed construction sequence to the Construction Manager a minimum of 2 weeks prior to mobilization to allow mobilization for vibration monitoring. The Contractor shall provide a minimum of 48 hours notice to the Construction Manager before they mobilize. The Contractor shall provide a minimum of 24 hours notice to the Construction Manager before the Contractor begins any demolition or hammering activities. The Construction Manager shall coordinate placement of the vibration monitoring equipment with the Contractor.

Monitoring equipment proposed for the construction vibration measurements include the Instantel Minimate Plus, the GeoSonics 3000EZplus or their equivalents. All the monitoring equipment will be utilized according to the manufacturer's specifications.

7.1 Vibration Monitoring Plan

Vibration monitoring will be conducted at one location along the northern wall of warehouse building on 7 Rewe Street. Additionally locations for vibration monitoring may be selected based on the results of the pre-construction structural surveys conducted on the Project Site and adjoining properties.

The monitoring site was selected based on the close proximity to the Project Site and sensitivity to ground-borne vibration. If an access agreement is already in place, the vibration monitoring point will be placed as close as practicable to the warehouse building. If an access agreement has not been negotiated, the vibration monitoring points will be placed near the property line of the potentially affected property.

7.1.1 Pre-construction Vibration Monitoring

Given the urban setting around the Project Site, it is important to conduct a pre-construction vibration survey at selected monitoring sites.

7.1.1.1 Vibration Baseline Survey

A pre-construction vibration survey will be undertaken for two days prior to the initiation of any activity at the Project Site. The vibration monitors will record the vector sum of the wave velocity in inches per second. The objective of the vibration survey is to establish baseline ground motions caused by vehicular traffic (buses, cars, trucks, and other vibration sources) near the sensitive structures selected surrounding the Project Site. These vibration levels will be compared to vibrations induced during construction and may be used to revise threshold limitations for vibration induced damage.

7.1.1.2 Existing Structures Condition Survey

An existing condition survey of the surrounding buildings and structures will be performed prior to construction as detailed in Section 8.0. Pre-construction surveys will include inspecting building foundations, exterior, and interior elements and documenting any pre-existing defects such as cracks, settlement, subsidence, corrosion, or water damage. Defects that should be monitored during construction will be noted and, where appropriate, crack monitors installed prior to the start of construction. The surveys will be documented through notes and photography to establish the pre-construction conditions. At the end of construction, a similar set of photos will be taken for comparison. Post-construction photographs will be compared with the initial pre-construction photographs to establish the growth of any pre-existing crack or the onset of any new cracks.

7.1.2 Construction Period Vibration Monitoring

Peak vibration levels from the construction equipment and truck passbys will be measured during each construction phases. The following construction phases are currently proposed as part of the remedial activity:

- Equipment mobilization
- Above ground demolition and hammering activities
- Subsurface structure demolition activities, hammering, soil excavation, shipment, and placement of fill
- Demobilization

The vibration monitoring plan consist of performing vibration monitoring of construction activities, evaluating it daily and preparing weekly summary reports of the vibration readings. The vibration monitoring plan comprises of:

- Developing a layout for the vibration monitoring equipment and a schedule for vibration monitoring. The equipment layout will involve placing monitoring units equipped with geophones capable of triaxle displacement measurements next to buildings and/or structures adjacent to the construction areas. The monitoring units will be installed and secured at locations where firm subgrade is exposed. The layout and schedule will depend on the Contractor's proposed construction sequence.
- Performing continuous vibration monitoring during each of the construction phases to adequately document the ground-borne vibration from the construction activities. American Association of State Highway and Transportation Officials (AASHTO) R-8-96 uses USBM published vibration damage research and establishes a peak particle velocity (PPV) of 2 inches per second (in/s) as the "structural damage threshold limit". PPV limits have been developed that will be used as "warning action limits" and "stop work action limits". These limits will be used as threshold values for the vibration mitigation plan during the construction

activities. Vibration levels will be monitored to detect construction operations that cause vibrations above the recommended vibration action limits.

- The vibration monitoring will be performed continuously from the start to end of each construction work shift. Data recording will commence prior to the start of each shift. At the end of each shift, data collected will be downloaded, reviewed and a summary report will be submitted.
- If the vibration "warning action limit", which may be revised after pre-construction survey is completed, is exceeded, the situation will be reviewed and the cause of the vibration will be identified. A corrective action plan will be formulated, implemented and monitored. If the vibration "stop work action limit" is exceeded or abnormal monitoring data is recorded, work should stop to allow for review of the vibration data. In the event that the vibrations exceed the stop work action limit, the monitoring units will set off an alarm that will signal for the stop of construction work. The causes of vibration will be investigated and vibration mitigation procedures can then be reviewed and implemented as needed before work proceeds. Additional monitoring units might be required to further mitigate excessive vibrations.
- At the end of construction, the data will be summarized in a report. Summary tables of the peak particle velocities recorded, and histogram plots for the vibration monitoring data will be included in this summary memo.

7.2 Vibration Damage Thresholds

A PPV of 2 in/s is the generally accepted threshold of minor cosmetic damage due to repeated construction activities and there is research that suggests that many single family residences and other structures can sustain substantially higher vibration levels without damage. However, recent research has demonstrated that historic or fragile buildings may be more susceptible to potential damage at lower levels depending on the condition of their foundations. The New York City Department of Buildings (NYCDOB) has developed a set of policy and procedures (PPN # 10/88) in order to avoid potential damage to historical structures resulting from adjacent construction, and for any existing structure designated by the Commissioner. The procedures require a monitoring program to reduce the likelihood of construction damages to adjacent historical structures and to detect at an early stage the beginnings of damage so that construction procedures can be changed. PPN # 10/88 includes a PPV threshold of 0.5 in/s for potential vibration damage [NYSDOB, 1988]. Therefore, based on the structure type identified for 7 Rowe Street property and the above discussion, the vibration threshold limits to be used for Warning Action Limit and Stop Work Action Limit are summarized below:

Warning Action Limit = 0.5 in/s

Stop Action Limit = 2.0 in/s

7.3 Exceedance and Mitigation

Notwithstanding the specific vibration levels specified herein, vibration mitigation measures listed below will be utilized to minimize, to the greatest extent feasible, the vibration levels near the construction site:

- Develop and implement a vibration-monitoring program in order to compare vibration levels at nearby sensitive receptors during construction (this document) with the pre-construction baseline condition as well as the vibration threshold limits established in Table 3-1.

- Inform people living and working in the vicinity about construction method, possible effects, quality control measures, and precautions to be used; and the channels of communication available to them.
- Route truck traffic and heavy equipment to avoid impacts to sensitive receptors.
- Operate earth-moving equipment on the site as far away from vibration-sensitive sites as possible.
- Phase demolition, earth-moving, and ground-impacting operations so as not to occur in the same time period. The total vibration level produced are significantly less when each vibration source operates separately.
- Select demolition methods not involving impact, where possible. For example, sawing bridge decks into sections that can be loaded onto trucks results in lower vibration levels than impact demolition by pavement breakers, and milling generates lower vibration levels than excavation using clam shell or chisel drops.
- Minimize the use of impact devices, such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than how rams for tasks such as concrete deck removals and retaining wall demolition.
- Avoid vibratory rollers and packers near sensitive areas.
- Schedule work to limit weekend and night time work.
- Minimize the duration of any high vibration activities.

The following procedures are recommended if a measured level exceeds the damage thresholds or if the crack monitors indicate new or larger cracks.

7.4 Vibration and Settlement Mitigation

Detailed review and interpretation of all geotechnical and structural monitoring data will be made in order to determine whether movements, settlements, tilt and vibrations have reached an action limit.

In the event that a “Warning Action Limit” is reached:

- The Contractor must meet with the Project Team to discuss the need for mitigation actions.
- The engineer will prepare a plan of action for the activity or activities responsible for the exceedance.
- If directed by the engineer or the construction manager, the Contractor must implement the plan of action within 24 hours of submittal of the plan of action so that the “Stop Work Action Limit” is not reached.
- The monitoring frequency of the affected instrument will be increased and additional instruments installed if necessary.

In the event that a “Stop Work Action Limit” is reached:

- The Contractor must cease all construction activities and meet with the Project Team to discuss the need for mitigation actions.
- The engineer will prepare a plan of action for the activity or activities responsible for the exceedance.

- If directed by the engineer or the construction manager, the Contractor must implement the plan of action within 12 hours of submittal of the plan of action so that the “Stop Work Action Limit” is not exceeded further.
- Install additional instrumentation if necessary.

8.0 Pre and Post-Construction Survey Program

Structures such as warehouses and businesses that abut the Site, and potentially some that are nearby may be contacted by National Grid to arrange for a pre- and post-construction survey of their property.

A pre-construction survey is conducted by a third party consultant of the Engineer and/or National Grid. The goal is to document the condition of the property and any structures that are on it prior to the start of work on the Project Site. A survey of this nature is typically conducted on the interior and exterior portion of the structures on a property and can be completed on the order of a few hours, depending on the size and number of the structures to be inspected. Still photos or video recordings may be taken in some places to document pre-existing damage to structures.

A post-construction survey is similar to a pre-construction survey, but is conducted after the completion of work at the Project Site. It is performed to document the condition of structures after the work to serve as a record for damages caused, if any, by the nearby construction.

An individual report will be sent to each property owner containing the findings of any pre-construction or post-construction surveys conducted on their structures. Copies of the pre- and post-construction survey results are kept by National Grid, and can be used as evidence in the event of claims of damage to structures caused by construction related activities. Likewise the survey results can also be used to defend the Contractor against false damage claims.

9.0 Site Security

The objectives of the Project Site security plan are to prevent the vandalism/destruction of construction equipment, prevent access, and minimize health and safety concerns for the surrounding residential neighborhood.

9.1 Perimeter Security

A temporary fence will be erected around the perimeter of the excavations and around the Project Site with a minimum height of at least 4 ft. All gates will have the ability to be locked at the end of each work day. If the area is not otherwise lighted (i.e., building floodlights, municipal streetlights, etc.) the Contractor will provide temporary lighting at the gate.

9.2 Equipment Security

All vehicles and/or equipment left on the Project Site will be secured at the end of each working day. These criteria can be met by vehicles and equipment remaining inside the perimeter fence, or at a secured remote area if left on site overnight or during non-work days. No vehicles or equipment will be left overnight in an unsecured location. The Contractor will insure that all non-essential equipment is de-energized when left on site and not in use to prevent any malfunctions from occurring while workers are not present.

9.3 Off-Hours Security

Security measures will be provided by the Contractor during non-working hours.

10.0 Erosion and Sediment Control Measures

The erosion and sedimentation control plan is intended to minimize soil erosion, and control stormwater on the Project Site.

10.1 Implementation of Erosion Control Measures

The Contractor shall install and maintain the following erosion control measures for the duration of the excavation work. Additional erosion control measures may be needed due to events beyond the control of National Grid. The Contractor will install any additional measures necessary to prevent erosion as directed by National Grid.

Containment Berm: Containment Berm will be installed along the perimeter of Temporary Staging Area.

Catch Basin Protection: Catch basin protection will be installed in all catch basins adjacent to the Project Site. The catch basin protection collects sediment that may runoff from the Project Site and prevents it from entering the storm drain system.

Stabilized Construction Entrance: The Project Site entrance and exit will be equipped with a construction entrance; a stabilized pad of aggregate which reduces or eliminates the tracking of sediment onto public streets.

Decontamination Pad: The Project Site exit will be equipped with a decontamination pad, where trucks exiting the site can be washed, removing contaminants and dirt from trucks before they exit the Project Site and travel on public roadways. Truck wash water is collected within the decontamination pad sump and treated by the onsite construction water treatment plant.

10.2 Stormwater Runoff Control

The work does not meet the substantive requirements of a SPDES General Permit for Stormwater Discharges from Construction Activity (GP-02-01). Erosion will be prevented and sediment will be controlled during all on-site earthwork activities in accordance with the applicable New York State guidance. Stormwater run-off will be controlled to prevent contact with impacted soils. Any stormwater that does contact impacted soils will be diverted to the temporary water staging area. Hay bales, silt fence, and rip rap will be used as necessary to prevent erosion of exposed soils.

On-site decontamination pads will be used to remove mud from truck tires and prevent tracking of mud and impacted soil onto the streets. Detailed plans and specifications for erosion and sediment control are provided in the Design Package.

11.0 Waste Management

This section identifies the procedures for managing, treatment, and disposal of waste materials generated as a result of the IRMs. All wastes removed from the Project Site will be transported from the Project Site by properly permitted and/or licensed waste haulers directly to the National Grid-approved disposal facilities. All trucks will be inspected to ensure the proper placards, decals and permits are displayed. Trucks will utilize the approved truck route through Brooklyn and then the most direct hauling route to the disposal facility as indicated in Section 11.

MGP-impacted soils removed from the excavation will be directly loaded into trucks for shipment for the approved treatment facility. MGP-impacted soils will be stock-piled on-site and covered as per the Specifications when direct loading is not possible. Trucks will not be allowed to stage on local roadways. The Contractor will schedule trucks in a manner that will minimize the wait time for loading.

Vehicles containing excavated soils will be covered with a solid plastic tarp. If necessary, spray-on odor suppressing materials such as Rusmar Foam may be used to reduce potential VOC emissions or odors during transit.

The impacted materials will be shipped to a thermal desorption treatment facility. At the facility the impacted soils are placed in a rotary kiln that heats the soil which volatilizes the organic contaminants in the soil. The contaminant laden vapors are then collected and treated at the facility. The treated soil is then re-used for beneficial uses such as cover materials at landfills or as aggregate for asphalt or concrete.

12.0 Water Management and Treatment Measures

12.1 Wastewater Management and Treatment

Wastewater associated with decontamination activities and stormwater on the Project Site will be stored within appropriate containers onsite and transported offsite for disposal.

13.0 Transportation Plan

The purpose for the Transportation Plan at the Project Site is to describe the objectives for traffic control and address any potential concerns. The complete Transportation Plan is included in the Appendix C. The Transportation Plan indicates the traffic routs and traffic management at the Project Site for:

- Trucking soil and bulky waste off Project Site
- Importing clean fill to the Project Site
- Liquid waste hauler picking up construction liquids
- Contractor access and parking
- Equipment access and storage
- Traffic control at the Project Site entrance
- Requirements for truck flagmen/safety spotters on site

The Contractor will provide traffic control personnel when all trucks are exiting the Project Site onto Maspeth Avenue. Traffic control personnel will also direct traffic as needed upon delivery of equipment, trailers, excavation support materials, etc. To maintain access and lines of sight, the Contractor will arrange for and coordinate with the appropriate local authorities to ensure that on-street parking nearest to the entrance/exit gate is limited throughout the duration of the work. Trucks will not be allowed to queue on local streets; however, the Contractor may negotiate with a third party to obtain off-site parking where vehicles can wait to be loaded. All the roadways utilized by the Contractor during the work will be checked daily for spillage and seepage, and cleaned to the satisfaction of National Grid, as necessary.

13.1 Truck Controls

All material hauled to and away from the Project Site will be performed by companies that are appropriately licensed to perform such work in the state of New York. Additionally, all truck drivers must read and sign a truck driver orientation training program.

Upon arrival to the Project Site, each truck will be visually inspected to ensure appropriate permits are in place. The truck will be initially lined with polypropylene plastic tarp along their beds to prevent water from seeping out of the soil onto local streets. When applicable, odorous truck loads of soil will be foamed to control odors. The trucks will also utilize a heavy tarp which will be extended over the cargo area and overlap the sides and rear of the cargo area to prevent soil being removed from the truck by wind. Before each vehicle leaves the Project Site it will pass through a decontamination station as described in subsection 4.1.

Appendix A of CERP

Community Air Monitoring Plan (CAMP)

AECOM Environment

Prepared for:
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Community Air Monitoring Plan

Equity Former MGP Site
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NYSDEC Site No.: 224050
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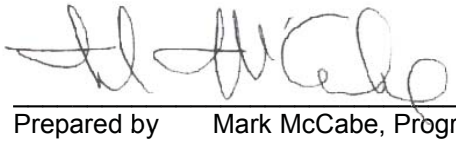

Prepared by Mark McCabe, Program Manager

Reviewed by Peter S. Cox, Project Manager

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1.0 Introduction

This document provides the Community Air Monitoring Plan (CAMP) that will be implemented during the Interim Remedial Measure (IRM) at the 252 and 254 Maspeth Avenue parcels of the Equity former manufactured gas plant (MGP) site (the Site) located at in Brooklyn, New York. The Site is the former location of a former MGP that was operated by a predecessor company to National Grid USA (National Grid). This CAMP has been prepared by AECOM Environment (AECOM) on behalf of National Grid to present the methods and procedures that will be used to evaluate air quality in the immediate vicinity of the site during IRM activities.

The Equity former MGP site is located at 222 – 254 Maspeth Avenue, Brooklyn, Kings County, New York 11211, northwest of the English Kills, between Grand Street and the Brooklyn Queens Expressway (Highway 278). The site is comprised of the following three parcels of land.

Table 1-1 Site Parcel Details and Status

Block/Lot Number	Owner's Name	Property Address	Status
Block 2927 Lot 44	222 Maspeth Avenue Inc.	222 Maspeth Avenue Brooklyn, NY 11215	Lot used as an active waste recycling/ waste transfer station. Currently one enclosed building housing offices and one open building (no walls, with roof) housing waste recycling operations are present on the lot. The lot is operated by Cooper Tank Recycling Co.
Block 2927 Lot 54	Giovanna Bordone	252 Maspeth Avenue Brooklyn, NY 11215	Currently one building is located on the lot (approximately 2,500 square feet). Used as a maintenance center for equipment. Currently leased by Cooper Tank Recycling Co.
Block 2927 Lot 57	254 Maspeth Ave, LLC.	254 Maspeth Avenue Brooklyn, NY 11215	Currently vacant land used for occasional storage of empty roll-offs and vehicle parking for Cooper Tank personnel working a 222 Maspeth Avenue.

The IRM activities are described in "Pre-Design Investigation Report and Interim Remedial Measure Work Plan – 254 Maspeth Avenue Property Remedial Investigation Work Plan, Equity Former MGP Site, Brooklyn, New York, NYSDEC Site No.: 224050 dated December 16, 2011. IRM activities will involve the excavation and management of impacted soil to support subsequent site redevelopment by the site owner.

The objectives of this CAMP are to:

- Provide data on a real-time basis so that potential emission sources can be identified and controlled in a timely manner to be protective of off-site receptors
- Collect appropriate data to document compliance with the Action Levels determined by the New York State Department of Health (NYSDOH) to be protective of off-site receptors.

The community air monitoring program will be performed at upwind and downwind locations around the perimeter of the site, and will measure the concentrations of the indicator parameters required by NYSDOH during all ground-intrusive activities, including excavation, stockpiling/loading of impacted soil and backfilling. A copy of the NYSDOH generic CAMP is provided as Appendix A.

2.0 Constituents of Concern and Action Levels

2.1 Constituents of Concern

The former MGP site is known to have subsurface impacts dating from the site's historical use. The primary constituents of concern (COCs) include benzene, ethylbenzene, toluene, and xylene (BTEX compounds) and naphthalene. Their potential contribution to fugitive emissions from IRM activities will be addressed through the monitoring of total volatile organic compound (TVOC) levels.

MGP residuals also contain higher molecular weight polynuclear aromatic hydrocarbons (PAHs) that are significantly less volatile than the COCs discussed above, and have generally been adsorbed onto soil particles. The potential contribution of these constituents to fugitive emissions will be addressed through the monitoring of respirable particulate matter (RPM_{10}) levels.

Odors, though not necessarily indicative of high constituent concentrations, could create a nuisance, and will be monitored and controlled to the extent practicable.

2.2 Action Levels

NYSDOH has established Action Levels for the principal monitoring parameters, i.e. TVOC and RPM_{10}, to identify conditions when the use of additional control measures may be warranted. An Action Limit is the parameter concentration that, when exceeded, requires a work stoppage and corrective action prior to continuing remedial activities at the site. Note that the program has incorporated an additional Action Level for benzene since it is a specific indicator parameter for MGP residuals that can be effectively monitored on a real-time basis.

The program will also use an Alert Level (75% of the Action Level) for the parameters discussed above to facilitate the effective management of site conditions. The Alert Limit is the parameter concentration that, when exceeded, triggers the use of response actions such as the use of water spray or odor suppressant foam, without a work stoppage. The Alert/Action Levels for the program are summarized in Table 2-1.

Table 2-1 Action and Alert levels for the Equity IRM Program

Parameter	Alert Limit	Action Limit
TVOC – ppmv	3.7	5.0
Benzene	0.8	1
RPM_{10} - $\mu g/m^3$	100	150

Note: Limits are the detected concentrations minus background.

2.3 Site Conditions and Responses

The use of Alert and Action Levels as site management tools provides for the following definitions of site conditions:

- **Operational Level**: Concentrations of all parameters (minus background) are less than the Alert Limit.
- **Alert Level:** Concentration of at least one parameter (minus background) is greater than Alert Limit, but do not exceed the Action Limit.
- **Action Level**:
  - TVOCs: Concentration is greater than the Action Limit, but does not exceed 25 parts per million by volume (ppmv).
  - Benzene: Concentration is greater than the Action Limit.
  - RPM_{10}: Concentration is greater than the Action Limit.
- **Shut Down**: IRM activities must cease if the TVOC level exceeds 25 ppmv.

The site conditions levels are summarized in Table 2-2, with a summary of the associated monitoring requirements/activities provided in Figure 2-1

Table 2-2 Parameter Concentrations and Associated Site Condition Levels

Parameter	Operational Level	Alert Level	Action Level	Shut Down
TVOC – ppmv	[C] $\leq$ 3.7	3.7 < [C_{avg}] $\leq$ 5.0	5.0 < [C_{avg}] $\leq$ 25	[C_{avg}] > 25
Benzene- ppmv	[C] $\leq$ 0.8	0.8 < [C_{avg}] $\leq$ 1.0	[C_{avg}] > 1	
RPM_{10} - µg/m^3	[C] $\leq$ 100	100 < [C_{avg}] $\leq$ 150	[C_{avg}] > 150	

Note: Limits are the detected concentrations minus background.

2.3.1 Alert Level Condition

In the event that the 15-minute average parameter concentration at the downwind location is greater than the Alert Limit, the contractor will be notified of elevated results and a possible Alert Level site condition. The result will then be compared to the corresponding upwind value to determine if the Alert Level condition is due to IRM activities. If so, the Alert Level condition will be verified and remain in effect as long as the 15-minute average parameter concentration (above background) is greater than the Alert Level but does not exceed the Action Limit.

Under an Alert Level condition, intrusive site work may continue but response actions must be implemented to reduce the elevated parameter concentrations. Example response actions are presented in Section 4. Note that the use of appropriate response actions will also be required upon detection of odors or visible dust at the site perimeter.

A meeting of appropriate site staff, e.g., Construction Manager and Contractors, as well as National Grid and NYSDEC, if present will be held within 30 minutes of the Alert Level site condition if the elevated results are not mitigated by the initial response actions.

2.3.2 Action Level Condition

An Action Level condition will go into effect if the average 15-minute parameter concentration at the downwind location exceeds the Action Limit. The result will then be compared to the corresponding upwind value to determine if the Action Level condition is due to IRM activities. If so, the Action Level condition will be verified and remain in effect as long as the 15-minute average parameter concentration (above background) is greater than the Action Level. At this time, the Contractor and National Grid will be notified of an Action Level condition.

Under an Action Level condition, the activities that created the exceedance will be temporarily stopped and one or more response actions (Section 4)) will be implemented. A meeting attended by appropriate site staff will be held within 30 minutes of the Action Level notification to review the effectiveness of the initial response and determine if additional actions are required. Work activities may resume provided that the parameter concentrations return to levels that are less than the Action Limit at following locations:

- TVOCs: TVOC levels 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet
- Dust: the downwind perimeter location

2.3.3 Shutdown Level

For TVOCs, if the concentration is above 25 ppm at the perimeter of the work area, activities must be shutdown until the source of the emissions is identified and controlled.

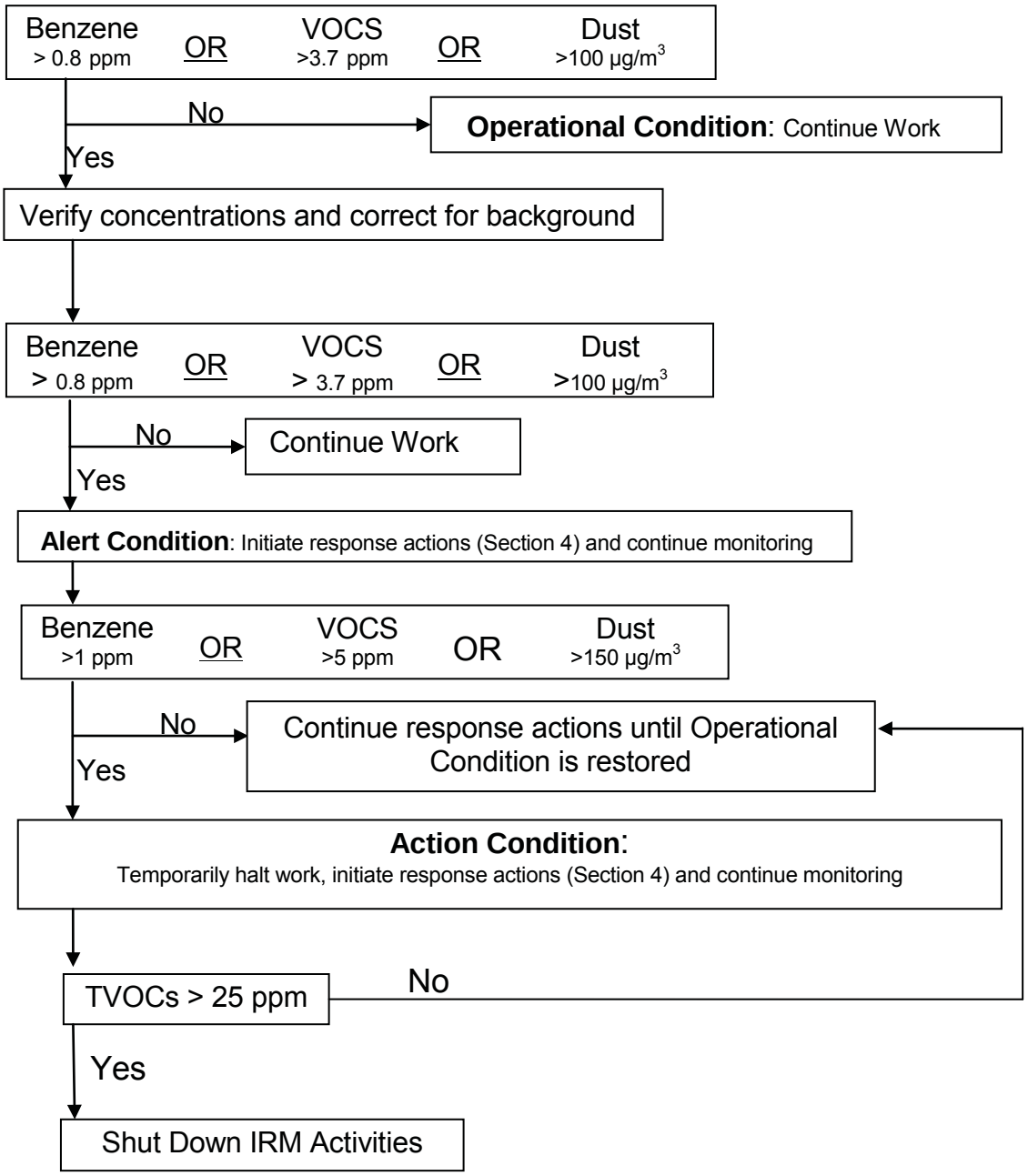

Figure 2-1 Site Conditions and Responses

3.0 Air Monitoring Equipment and Methods

The NYSDOH Generic CAMP requires that real-time monitoring be conducted during ground intrusive activities at sites managed under DER-10 guidance. The following discussion provides a detailed description of the air monitoring and reporting procedures that will be used during IRM activities at the site.

3.1 Real-Time Monitoring

Real-time air monitoring for TVOCs and RPM_{10} will be conducted continuously during periods of intrusive activity at upwind and downwind locations along the perimeter of the site. Upwind TVOC concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The locations of the instruments may be changed during the day to adapt to changing wind directions.

Portable (battery operated) monitoring stations will be used to collect the real-time data and will include the following components: station case and tripod; total organic vapor analyzer; particulate monitor and data logger. The monitoring data will be converted to 15-minute averages, and will be stored in data-loggers at each location. The averaged values will be compared to the Alert/Action Levels. The units will be equipped with an audible alarm to indicate exceedances of these levels. A portable meteorological station to record wind direction will be installed to accurately locate the up and downwind monitoring points.

3.1.1 Total VOC Monitoring

Ambient concentrations of volatile organic constituents will be measured using a PPB RAE, or equivalent, photoionization detector (PID). PIDs use an ultraviolet (UV) light of appropriate “strength” to ionize the COCs for the site. The associated response will be proportional to the constituent concentration, and will be reported as T VOCs in ppmv.

Instrument calibration procedures will be conducted according to the manufacturer’s recommendations. The PID will be zeroed using a sample of ambient air drawn through a canister filled with activated charcoal. The calibration of each PID analyzer will be accomplished using an isobutylene calibration gas of known concentration. The data output will be observed and the response recorded in the field data sheet. Note that moisture, in the form of high humidity can affect instrument sensitivity. If the UV lamp cannot be cleaned, it will be replaced.

Calibrations will be performed at the start of each test day and more frequently as needed. If a unit fails to respond properly to the calibration check procedures, the response will be adjusted to the correct value. If the field technician determines that the instrument has a problem that cannot be resolved by adjustment, the unit will be repaired or replaced.

3.1.1.1 Benzene Monitoring

Additional monitoring for benzene will be conducted in instances when an exceedance of the TVOC Alert Level has been verified. Constituent-specific results will be obtained using a Draeger Chip

Measurement System (CSM). Samples will be collected periodically during the Alert/Action conditions to document air quality at the downwind perimeter of the site, and reported as ppmv.

3.1.2 Particulate Monitoring

A MIE PDR-1200/Dustrak dust monitor, or equivalent, will be used to monitor respirable particulate (PM_{10}) levels.

Instrument calibration will be conducted according to the manufacturer's recommendations. At a minimum, each particulate monitor will be field checked daily using zero calibration air. At the beginning of each workday, when site investigation takes place, a calibration check will be performed on each unit at the measurement location. A zero (or particulate-free) test sample, using the appropriate particulate filter supplied by the manufacturer for this purpose, will be placed over the sample inlet. The data output for the monitor will be observed and the response recorded in the field data sheet. Additionally, a weekly upscale or smoke test of each particulate sensor shall be performed and the results recorded in the field data sheet. If the field technician determines that the instrument has a problem, the unit will be repaired or replaced.

Particulate monitoring is based on the measurement principle of near forward light scattering and may be effected by elevated levels of humidity or pollen which may be "counted" as particulate and provide an erroneously high value. During these types of situations the field technician will document atmospheric conditions, e.g. rain, high humidity or elevated pollen or mold spore count as reported by the local weather service.

3.1.3 Odor Monitoring

The disturbance of soil containing MGP residuals can produce odors similar to mothballs, roofing tar, or asphalt driveway sealer. However, the constituent concentrations associated with these odors are typically significantly less than levels that might pose a potential health risk. When odors attributable to the disturbance of impacted media are generated in the work area, observations will also be made at the down-wind limit of the former MGP site in order to assess the potential for off-site issues.

4.0 Emission Control Plan

Several general site management practices will be routinely implemented as primary measures to minimize potential fugitive emissions from IRM activities. They will include efforts to minimize the amount of time that impacted material is exposed to ambient air, and expedite the loading of excavated soil and debris for transport.

However, appropriate secondary measures will be enacted in instances where Alert/Action Level conditions exist or significant MGP odors/visible dust are observed at the perimeter of the site. Secondary controls may include the following:

- The use of temporary tarps or polyethylene covers for stockpiled soil.
- The use of odor suppressant foam to mitigate VOC emissions or odors. The foam or other agents, such BioSolve™ or hydro-mulch, may be used where tarps cannot be effectively deployed over the source material, or where tarps are ineffective for controlling emissions.
- The placement of portable barriers close to small active source areas (test pits) can elevate the discharge point of emissions to facilitate dispersion and minimize the effect on downwind receptors. The barriers can be constructed using materials such as plastic “Jersey barriers”, or fence poles and visual barrier fabric/plastic. The barriers are placed as temporary two or three-sided structures around active test pit or other intrusive investigation areas, oriented such that the barriers are placed on the upwind and downwind sides of the source. If only one side of the source can be accessed, then the barrier should be placed on the downwind side.

The final selection of controls will be dependent on field conditions encountered. The AECOM field representative will work through the applicable list of secondary controls until the emission issues are resolved, and will work closely with National Grid and NYSDEC during this task. The AECOM field representative, in consultation with National Grid, will also provide information on CAMP monitoring and controls to stakeholders in the community, as required.

5.0 Data Management and Reporting

A field log book and calibration forms will be maintained on-site throughout the field activities. Information to be recorded will include:

- Daily Site maps showing the locations of all monitoring locations
- Dates for sampling equipment installation, operations (including start/stop times) and removal
- Sampling equipment calibration dates, times and results
- Sampling equipment maintenance dates and results
- General field weather conditions (observations of temperature, wind direction, precipitation)
- Description of intrusive activities conducted during periods when elevated data values were recorded
- Descriptions of contingent measures/response actions implemented in response to elevated monitoring results
- Any unusual situations which may affect samples or sampling

The following information will be summarized at the conclusion of each day:

- Averaged TVOC concentrations compared to the Action Levels
- Benzene results (if generated) compared to the Action Levels
- Averaged RPM_{10} concentrations compared to the Action Levels

The following data summaries will be prepared and provided to National Grid on a weekly basis for transmittal to NYSDEC, NYSDOH:

- Compiled 15-minute average concentrations of TVOC and RPM_{10}
- Maximum 15-minute average concentrations of TVOC and RPM_{10}
- Discussion of Alert and Action Limits (minus background concentrations) reached during the week
- Description of corrective actions taken in response to exceedances of Action/Alert Levels or complaints
- Monitoring station location maps

A final end of program data report will be produced summarizing the monitoring operations and data collection results.

Appendix A

NYSDOH Generic CAMP

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of

taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

Appendix B of CERP

Odor, Vapor, and Dust (OVD) Control Plan

Appendix B of CERP
OVD Control Plan (OVD)
254 Maspeth Avenue Parcel IRM

Equity Works Former Manufactured Gas Plant Site
Brooklyn, New York

Appendix B of CERP
OVD Control Plan (OVD)
254 Maspeth Avenue Parcel IRM

Equity Works Former Manufactured Gas Plant Site
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Reviewed By: Mike Gardner, P.E. Principal Engineer

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List of Acronyms

OVD	odor, vapor, dust
Plan	Odor, Vapor, and Dust Control Plan
MGP	Manufactured Gas Plant
NYSDEC	New York State Department of Environmental Conservation
COIs	constituents of interest
VOCs	volatile organic compounds
bgs	below ground surface

1.0 Introduction

This Odor, Vapor, and Dust Control Plan (Plan) has been prepared to provide a summary of potential impact mitigation options that could be implemented to control, reduce and minimize the effects of potential odor, vapor, and dust resulting from the interim remedial measure (IRM) activities at the 254 Maspeth Avenue property (Project Site) of the Equity Works former Manufactured Gas Plant (MGP) site (Site) located in Brooklyn, New York. The IRM activities will be implemented according to the New York State Department of Environmental Conservation (NYSDEC) approved IRM Work Plan (AECOM, 2011) to address the residuals left behind from the former MGP operations. The implementation of the Plan will control fugitive emissions ensuring that the community and workers are not exposed to constituents of interest (COIs) at levels greater than federal, state, and local health-based guidelines.

The information presented in the Plan is designed to provide the construction management team with a summary of typical control options and guidance in their implementation. As such, the Plan identifies construction activities that might be potential sources of fugitive emissions, potential distinctive impacts of odor or dust, and the corresponding measures. Additionally, the possible mitigation measures have been ranked into three control levels, according to the degree to which exceedance occurs and the type of offending construction activity.

The potential sources of fugitive emissions are listed in Section 2 while the typical control options are discussed in Section 3. A summary of potential receptors is provided in Section 4. This Plan does not preclude the use of other mitigation technologies, or techniques designated in other design documents.

2.0 Potential Sources of Fugitive Emissions

The following section details the potential sources of odor, vapor, and dust resulting from the implementation of remedial activities at the Property. Fugitive emissions can be generated from a variety of activities including the remediation processes themselves and/or from the temporary staging of materials for characterization, consolidation, and scheduling for transportation.

Due to the COIs associated with the remedial activities at former MGP sites; fugitive emissions can take the form of volatile organic compounds (VOC's), odor, and/or dust. Dust can be entrained with low levels of high molecular weight constituents, while VOC's can volatilize into ambient air. Odor emissions will result from the atmospheric exposure of impacted media. Impacts will be present in soils and may be present in excavation groundwater. The potential for odor generation from groundwater is less than that from solids. Therefore, odor generation will be generally limited to activities involving excavation, stockpiling, loading, and hauling impacted soils. The constituent concentrations associated with these odors are typically less than the levels that potentially pose a health risk as the odor threshold of COI's are typically less than health based action levels.

2.1 Remediation Processes

Remedial activities can generate fugitive emissions through the disturbance of impacted media, exposure of impacted areas, and/or the transfer/transport of materials. The following sections provide an overview of these processes and the associated emissions.

2.1.1 Excavation

Excavated soils will be directly loaded into trucks when practicable or they may be stockpiled until they can be transported to the facility. Potential sources of emissions are active excavations, disturbed soil surfaces, and stockpiles of excavated material.

Past project experience suggests that fugitive dust from excavation activities will not generally pose a significant problem and that the intensity of VOC/odor emissions will be highly variable, with the greatest impact occurring when impacted areas are disturbed/exposed. An odor suppressant foam (or similar agent) will be utilized to limit VOC/odors emissions as described in Section 3.

2.1.2 Transfer and Loading of Material

The principal source of potential emissions associated with this activity will be the stockpiling or manual loading of impacted soils for disposal. Additional consolidation or size reduction of material should be avoided to minimize the source of emissions.

2.1.3 Construction Water Management

Construction water (including groundwater, surface run-off, and decontamination water) generated during construction activities of the remediation process will require temporary storage and disposal. Odors and vapors might be emitted during the transfer and storage of potentially impacted water.

2.2 Storage Operations

The remediation processes of the Project Site will require the temporary storage of impacted material and soil designated for off-site disposal. Although on-site storage activities do not involve the active disturbance of impacted material, they may be significant as a potential passive source of emissions for an extended period of time (days or weeks).

2.2.1 Stockpiles

Contingent upon work activities and rate of production, it will be necessary to stockpile impacted material for consolidation, characterization, or scheduling of transport. This material has the potential to be a significant emission source and will be kept covered. To the extent practicable, the majority of the soils will be direct loaded into trucks for off-site disposal.

3.0 Site Controls

This section describes site controls that will be implemented during the IRM activities for the minimization and control of fugitive emissions and to ensure that ambient concentrations of COI's remain below federal, state, and local health based guidelines. The mitigation options have been classified into levels to be implemented based on site-specific action levels delineated in the *Community Air Monitoring Plan,* AECOM, July 2012. The actual mitigation measures will be determined in the field by the on-site Construction Manager, who may also choose to implement mitigation measures to avoid reaching the site-specific action levels.

A three-tiered set of controls are proposed for this Plan:

- Level I - Built into the design of the Plan and includes proactive measures to minimize the effect of fugitive emissions. Level 1 also includes air monitoring for the collection of data on which to base decisions to ensure that levels of VOC's and dust are under site-specific action levels.
- Level II – Procedures that are implemented in response to specific increases in fugitive emissions, but are not likely to have a significant impact in the schedule of site activities.
- Level III – More aggressive procedures, also initiated in response to specific increases in fugitive emissions that are likely to have a more significant impact on production schedule and site activities.

The Construction Manager is required to progressively implement these options until emission sources are controlled and ambient concentrations no longer have the potential to pose a health risk. A summary of the proposed controls for processes and storage activities are provided in Tables 3-1.

3.1 Level 1 Controls

Level 1 Controls are built into the design of the remedial activities and involve physical controls, site layout, and scheduling.

3.1.1 Physical Controls

The simplest form of physical control is the use of visual barrier cloth on the site perimeter fencing. The resistance caused by the visual barrier will elevate the discharge point of emissions leaving the site to the top of the perimeter fence and will promote better mixing and dispersion. Another form of simple physical control is the required use of tarps on trucks that move or transport impacted material.

All stockpiles of impacted material should be covered, if left inactive for a period of more than 2 hours.

All trucks used for off-site transport should have tarps in place to cover impacted material. On-site haul routes should be routinely wetted to control dust using a hose or sprinkler.

3.1.2 Site Layout

The dispersion of fugitive emissions is controlled by meteorological conditions and their impact generally decreases with distance from the source. If possible, transfer/storage areas will be placed either downwind or significantly upwind of off-site receptors. The height of the stockpiles should be lower than the top of the perimeter fencing (8 feet) to utilize the benefit of the barrier cloth. If stockpiles must be staged near the fence line (within 100 feet), they should be less than 8-feet in height.

3.1.3 Scheduling

Every effort should be made to minimize the amount of time that impacted material is stored on-site. Appropriate strategies involve the in-place pre-characterization of soils to be excavated and the sampling of spoils as soon as they are cured. Prior to mobilization, a full soil pre-characterization was performed in summer 2011 including sampling and analysis of soils, and approval from the facilities for disposal. Therefore stockpiling for sampling will be limited to areas that were not previously accessible or in the case of the spoils that were not previously generated. This will allow for direct loading where practicable and the minimization of stockpiling. Efficient scheduling/coordination of operations can also limit the impact of active emission sources. Close coordination of excavation and solidification activities can decrease the surface area of disturbed material, thereby reducing the size of the emission source. A smaller source area can facilitate the implementation of additional controls, if required.

3.2 Level II Controls

Air monitoring will routinely be performed at the fence line of the site as delineated in the Community Air Monitoring Plan during all work activities. The results will be compared to action levels specified in the CAMP for VOC's and total particulates. These presumptive action levels are provided in Table 3-1.

If the action levels are exceeded, additional monitoring will be conducted to confirm the result. Level II controls will be enacted if the exceedance is confirmed. The Construction Manager must then work through the applicable list of site controls until the fence line monitoring results for all parameters are determined to be less that their associated action levels. Specific Level II controls are discussed below.

3.2.1 Suppressing Agents

Several agents that can be applied over emissions sources have been determined to be effective in controlling emissions. These include odor suppressant foam for VOC mitigation and water spray for dust suppression.

The following suppressing agents have been identified for use but additional agents may be used or substituted for other proven agents such as odex, hydromulch, or ecosorb.

Odor Suppressant Foam

Odor suppressant foam has been successfully utilized on similar sites. It is presented in this plan as an option.

Odor suppressant foam can provide immediate, localized control of VOC and odor emissions. The foam is created by the injection of air into a foam concentrate/water mixture using a Pneumatic Foam Unit. The foam is applied via a hose to cover source areas to a depth of 3 to 6 inches. Foam (Rusmar AC-600, AC-900 or equivalent) is a short term remedy and can be actively used to control VOC and odor emissions from active excavations/stockpiles, and during the loading of trucks. It is shipped as a concentrate and diluted with water at the site. Under normal conditions, this foam can last for several hours. However, it has been observed to degrade quickly in direct sunlight or precipitation so it must be applied liberally and frequently to all areas that require odor control.

Information regarding the foam and application units is provided in Appendix A.

Water Spray

A spray of water can be used to minimize the amount of dust created. A water hose is effective for controlling dust over a small area, while lawn sprinklers or a dedicated water truck may be more efficient for extended control of large areas or on-site haul routes.

3.2.2 Tarps

Tarps can provide effective control for source areas that are likely to be inactive for extended periods of time. To be effective, the size of the source area should be controlled such that it can be covered using a single tarp. Rolls of 12-mil polyethylene will be used to cover inactive stockpiles. Tarps will also be used for covering exposed soils loaded into trucks. All trucks will be lined with 12 mil polyethylene sheeting, the liners will be large enough to overlap and fully cover the top of the load. Additional automatic mesh tarps will be used to secure the liners.

3.3 Level III Controls

Level III controls are to be implemented when Level II controls have been exhausted and ambient concentrations of emissions continue to exceed the site-specific action levels. Each of the control options listed in this subsection has the potential to significantly affect the schedule/production rate of site activities. These delays may be required periodically to ensure that acceptable levels of fugitive emissions are maintained, and are preferable to a complete work cessation to control an emission event.

3.3.1 Production/Schedule

It may be necessary to reduce the excavation rate to reduce the surface area of disturbed media or slow the generation rate of stockpiles. These activities would result in smaller source areas that could be more effectively controlled using Level II techniques.

3.3.2 Meteorological Conditions

It may be necessary to limit certain activities to those periods when preferred meteorological conditions exist, such as wind direction or low temperatures are present.

3.3.3 Relocation of Activities

Another option is cease work and move the remedial activities to lesser-impacted areas until adequate control measures can be implemented or more favorable meteorological conditions return.

Also, it may be beneficial to temporarily relocate material loading and transfer activity areas to other areas of the Project Site or within subsurface excavations to utilize the natural dispersion of emissions in the atmosphere, or shelter from the wind.

4.0 Off-Site Receptors

The use of site controls will ensure that there is not a significant risk associated with fugitive emissions. The remedial activities will be likely to generate distinctive odors similar to asphalt sealer that may be detectable within several hundred meters of the Project Site, and may be bothersome to sensitive individuals.

The Site is bordered by Maspeth Avenue. The primary potential receptors are as follows:

- Workers related to the Cooper Tank Recycling operations
- Commercial establishments to the East, West, and South (Federal Express, Warehouses)

The potential receptor locations are industrial and commercial in nature (office, storage, retail, manufacturing) and will have managers/supervisors that can serve as useful points of contact.

Theses contacts will also be provided with copies of the fact sheet including:

- Schedule of remediation
- Nature of contaminant
- Potential for odors/evaluation of risk
- Site contact information

Tables

Levels and Response Actions

Table 3-1
Levels and Response Actions
OVD Control Plan
Equity Works Former MGP Site – 254 Maspeth Ave IRM
Brooklyn, New York

Site Condition	Response Action
Operational Level: Normal or ambient air-conditions where all target concentrations are less than the Alert Limits (75 percent of the Action Limit)	• Normal Site Operations – No Response Action Required
Alert Level: Concentration of at least one target is equal to or greater than Alert Limit (75 percent of the Action Limit), but less than the Action Limit	• Establish trend of data and determine if evaluation/wait period is warranted • Temporarily stop work • Temporarily relocate work to an area with potentially lower emission levels • Apply water to area of activity or haul roads to minimize dust levels • Reschedule work activities • Cover all or part of the excavation area • Apply VOC emission suppressant foam over open excavation areas • Slow the pace of construction activities • Change construction process or equipment that minimize air emissions
Action Level: of at least one target is equal to or greater than the Action Limit	• Assess work activity modifications • Cease construction activities • Re-evaluate air monitoring work plan
Shutdown Level: TVOC is greater than 25 ppm	• Shutdown Site Activities
Notes: The bulleted response actions specified under each site condition can be implemented in any order that is most appropriate under the existing site conditions.	

Target Compounds	**Alert Limit**
TVOCs (15-minute average concentration)*	3.7 ppm greater than background**
Respirable Particulate Matter (RPM_{10}) (15-min avg)*	100 µg/m^3 greater than background**

Target Compounds	**Action Limit**
TVOCs (15-minute average concentration)	5 ppm greater than background**
Respirable Particulate Matter (RPM_{10}) (15-min conc)	150 µg/m^3 greater than background**
Odor (nuisance)	Public complaints that are verified to be related to construction

Target Compounds	**Shutdown Limit**
TVOCs (15 minute average concentration)	25 ppm greater than background**

ppmv - parts per million volume
µg/m^3 - micrograms per meter cubed
* 15-minute average concentrations updated every 1 minute
** Background is defined as the current upwind 15-minute average concentration.

Appendix A

Material Safety Data Sheet, AC-645
Material Safety Data Sheet, AC-900 Series
Equipment (PFUs)

MATERIAL SAFETY DATA SHEET

LONG DURATION FOAM AC-645

SECTION I: GENERAL INFORMATION

- Manufacturer's Name: RUSMAR INCORPORATED
- Manufacturer's Address: 216 Garfield Avenue • West Chester, PA 19380
- Manufacturer's Phone No.: 610-436-4314
- Chemical Family: Aqueous anionic surfactant mixture
- Trade Name: RUSMAR AC-645

SECTION II: HAZARDOUS INGREDIENTS

- Paints, Preservatives, and Solvents - None
- Alloys and Metallic Coatings - None
- Hazardous Mixtures and Other Materials - None

SECTION III: PHYSICAL DATA

- Boiling Point: 100° C
- Vapor Pressure: 25mm Hg at 25° C
- Vapor Density (Air = 1): N/A
- Water Solubility: Complete
- Specific Gravity: 1.01 to 1.06
- % Volatile, By Volume: None
- Evaporation Rate: N/A
- Appearance/Odor: Translucent, white, milk-like, odorless, viscous liquid

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

- Flash Point (Method): Nonflammable
- Flammable Limits: N/A
- Extinguishing Media: N/A
- Special Fire Fighting Procedures: None
- Unusual Fire and/or Explosion Hazards: None

SECTION V: HEALTH HAZARD DATA

- Threshold Limit Value: Not Determined
- Effects of Overexposure: This material is not expected to present an inhalation or ingestion hazard. It may cause an eye or skin irritation upon direct contact.
- Emergency and First Aid Procedures: Wash thoroughly with clean water

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MATERIAL SAFETY DATA SHEET

LONG DURATION FOAM AC-645

SECTION VI: REACTIVITY DATA

- Material is stable
- No material incompatibility
- Hazardous Decomposition Products: Low levels of sulfur oxides on exposure to high temperatures (concentrate). Foam is non-combustible.
- Polymerization will not occur

SECTION VII: SPILL OR LEAK PROCEDURES

- Steps to be taken in case material is released or spilled: If spilled indoors on a hard surface, the spill area may be slippery and should be thoroughly washed with water. Contain spill and absorb material with dirt or other appropriate absorbent.
- Waste Disposal Method: This material is completely biodegradable and can be disposed of in a sanitary landfill according to local regulations.

SECTION VIII: SPECIAL PROTECTION INFORMATION

- Respiratory Protection: None required for normal operations
- Ventilation: No special requirements
- Protective Gloves: Not required, but recommended
- Eye Protection: Not required, but recommended
- Other Protective Equipment: None

SECTION IX: SPECIAL PRECAUTIONS

- Storing/Handling Precautions: Avoid excessive heat. Material will freeze, but thawing will not cause changes in the product.
- Other Precautions: None

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MATERIAL SAFETY DATA SHEET

LONG DURATION FOAM AC-900 SERIES

SECTION I: GENERAL INFORMATION

- Manufacturer's Name: RUSMAR INCORPORATED
- Manufacturer's Address: 216 Garfield Avenue • West Chester, PA 19380
- Manufacturer's Phone No.: 610-436-4314
- Chemical Family: Aqueous anionic surfactant, polymer latex mixture
- Trade Name: RUSMAR AC-900

SECTION II: HAZARDOUS INGREDIENTS

- Paints, Preservatives, and Solvents - None
- Alloys and Metallic Coatings - None
- Hazardous Mixtures and Other Materials - None

SECTION III: PHYSICAL DATA

- Boiling Point: 100° C
- Vapor Pressure: 25mm Hg at 25° C
- Vapor Density (Air = 1): N/A
- Water Solubility: Complete
- Appearance/Odor: Opaque, gray, viscous liquid
- Specific Gravity: 1.01 to 1.06
- % Volatile, By Volume: None
- Evaporation Rate: N/A

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

- Flash Point (Method): Nonflammable
- Flammable Limits: N/A
- Extinguishing Media: N/A
- Special Fire Fighting Procedures: None
- Unusual Fire and/or Explosion Hazards: None

SECTION V: HEALTH HAZARD DATA

- Threshold Limit Value: Not Determined
- Effects of Overexposure: This material is not expected to present an inhalation or ingestion hazard. It may cause an eye or skin irritation upon direct contact.
- Emergency and First Aid Procedures: Wash thoroughly with clean water

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MATERIAL SAFETY DATA SHEET

LONG DURATION FOAM AC-900 SERIES

SECTION VI: REACTIVITY DATA

- Stability: Material is stable. This material will likely coagulate if frozen.
- Incompatibility: Addition of other materials may cause coagulation
- Hazardous Decomposition Products: Low levels of sulfur oxides on combustion and dense, black smoke
- Polymerization will not occur

SECTION VII: SPILL OR LEAK PROCEDURES

- Steps to be taken in case material is released or spilled: If spilled indoors on a hard surface, the spill area may be slippery and should be thoroughly washed with water. Contain spill and absorb material with dirt of other appropriate absorbent.
- Waste Disposal Method: This material has only a modest BOD and can be deposited in sewers. However, it should be flushed with copious amounts of water. The material can be disposed of in approved landfill; dried waste may be incinerated.

SECTION VIII: SPECIAL PROTECTION INFORMATION

- Respiratory Protection: None required for normal operations
- Ventilation: No special requirements
- Protective Gloves: Not required, but recommended
- Eye Protection: Not required, but recommended
- Other Protective Equipment: None

SECTION IX: SPECIAL PRECAUTIONS

- Storing/Handling Precautions: Avoid excessive heat. Material will freeze, thawing will NOT return product to usable form.
- Other Precautions: None

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PRODUCT DATA SHEET

LONG DURATION FOAM AC-645

GENERAL DESCRIPTION

AC-645 Long Duration Foam is a patented product which produces a thick, long-lasting, viscous foam barrier for immediate control of dust, odors and volatile organic compounds (VOCs). AC-645 is designed for use with Rusmar Pneumatic Foam Units.

AC-645 foam is recognized by the Environmental Protection Agency and the U.S. Army Corps of Engineers as providing superior emission control for a period up to 17 hours. AC-645 has been specified for use at Superfund and other hazardous waste sites across the United States and Canada.

FEATURES

- Biodegradable
- Will not add to treatment costs
- No ambient temperature limitations
- Easy to use
- More effective than tarps
- Non-reactive
- Non-hazardous
- Safe for workers and the environment
- Requires only water dilution
- No clean up necessary
- Non-combustible
- Covers any contamination source

APPLICATIONS

The primary application for AC-645 is control of odors, VOCs and dust during active excavation and for overnight coverage of contaminated soils at hazardous waste sites. AC-645 can also be applied on top of liquid surfaces.

SPECIAL ODOR CONTROL PROBLEMS

The remediation of hazardous waste sites often includes excavation of soil contaminated with odorous compounds. AC-645 has little or no odor itself, although a pleasant wintergreen or vanilla scent can be added. It forms a barrier between contaminants and the atmosphere and can be applied during active excavation to provide an immediate and effective barrier to minimize odors. It is completely biodegradable and poses no threat to workers, neighboring residents or ground water. AC-645 will not add to soil volume or treatment costs.

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PRODUCT DATA SHEET

LONG DURATION FOAM AC-645

AC-645 can also be applied on top of trucks for emission control during transport of materials such as contaminated soils or sewage sludge. Ammonia tests performed on trucks containing sewage sludge resulted in a drop of concentration levels from 170 ppm prior to foaming down to 6 ppm after coverage with AC-645.

- Minimizes worker exposure
- Maintains fence-line odor and VOC emission limits
- Works on lagoon and pond closures
- Can be applied to near vertical or liquid surfaces

FUGITIVE DUST

At hazardous waste sites, fugitive dust can present a health hazard. AC-645 can be applied on top of the dusty material to prevent any wind-borne emissions. There is no need to mobilize equipment to immediately cover with soil or tarps. The Pneumatic Foam Unit can be filled and placed at the site to be used at a moment's notice.

EMERGENCY SPILL CLEAN UP

In emergency spills, odor and VOC control is often difficult because of the terrain and accident conditions. AC-645 Long Duration Foam can be applied to any shaped object, as well as steep slopes, water, mud, snow and ice. It is non-flammable and non-reactive - difficult spill problems can be accommodated.

METHOD OF APPLICATION

AC-645 Long Duration Foam is supplied in either 450 pound (55 gal.) drums or by bulk load (approximately 46,000 pounds). Bulk shipments can be stored outside in a Rusmar Bulk Storage-Dilution System. The Bulk Storage and Dilution system is comprised of a 7000 gallon heated and stirred chemical storage tank and a microprocessor to accurately dilute and transfer the chemical. AC-645 is designed to be applied with a Rusmar Pneumatic Foam Unit. The Pneumatic Foam Units are available in a variety of sizes to accommodate a range of site conditions and application needs.

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PRODUCT DATA SHEET

LONG DURATION FOAM AC-900 SERIES

GENERAL DESCRIPTION

The AC-900 Series Long Duration Foam products produce an impermeable, flexible membrane that seals a surface to prevent emissions. AC-900 Series foam products utilize foam as a distribution method for latex. After the foam has been applied, the air bubbles begin to collapse and the latex coagulates to form a continuous flexible membrane that adheres to the substrate. AC-900 Series products are designed for use with Rusmar Pneumatic Foam Units.

AC-900 Series foams are recognized by the Environmental Protection Agency and the U.S. Army Corps of Engineers as providing superior emission control for periods up to 6 months. AC-900 Series foams have been specified for use at Superfund and other hazardous waste sites across the United States and Canada.

FEATURES

- Adheres to vertical and irregular surfaces
- Completely controls odors & VOCs
- Prevents erosion
- Easy to use, no mixing necessary
- Available in black, red, green or brown
- Non-hazardous
- Controls dusting
- Repels water
- No temperature limitations
- More effective than tarps

APPLICATIONS

AC-900 Series foams are the technology of choice when conditions demand superior coverage for periods up to 6 months. Some of the more common uses are:

ODOR AND VOC CONTROL

As a medium for controlling odors and VOCs, AC-900 Series has proven to be very effective with diverse applications.

- Can be left in place or disposed of with soil - will not interfere with thermal or bioremediation process
- Extended odor & VOC control of open excavations or exposed trash
- Extended odor & VOC control of stockpiled soils or debris
- Special odor control problems, such as sewage sludge
- Baled trash cover – the membrane seals the surface completely

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PRODUCT DATA SHEET

LONG DURATION FOAM AC-900 SERIES

FUGITIVE DUST

Exposed soil can often become a dust problem in windy locations, presenting a potential health hazard. Hazardous waste sites, receiving periodic shipments of dusty materials, can prevent windborne dust by immediately applying AC-900 Series foam.

- No need to mobilize equipment to immediately cover with soil or tarps. The Pneumatic Foam Unit can be filled and placed at the site to be used at a moment's notice.
- Extended dust control of stockpiled soils or debris

EROSION CONTROL

Graded areas can be covered with AC-900 Series Membrane reducing erosion damage caused by rain, melting snow or ice and wind.

- On outside slopes of the landfill – prevents trash from being exposed
- On landfill caps - prevents erosion before growth of new vegetation
- Stockpiles

SEALING HIGH PERCOLATION SOILS

Sand and other high percolation soils do not effectively repel rain water or melting snow and ice. Covering areas with AC-900 Series foam dramatically reduces soil permeability.

- Improved run-off from inside surfaces of the landfill
- Reduced leachate generation

WASTE TRANSPORTATION

Trucks or railcars transporting trash, odorous or dusty materials can be quickly covered with AC-900 Series foam to form a complete barrier between emissions and the atmosphere.

- No wind blown losses
- Produces a better visual appearance

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PRODUCT DATA SHEET

LONG DURATION FOAM AC-900 SERIES

METHOD OF APPLICATION

AC-900 Series Long Duration Foam products are supplied in either 450 pound (55 gal.) drums or by bulk load (approximately 46,000 pounds). Bulk shipments can be stored outside in a Rusmar Bulk Storage-Dilution System. The Bulk Storage and Dilution system is comprised of a 7000 gallon heated and stirred chemical storage tank and a microprocessor to accurately transfer the chemical.

AC-900 Series products are designed to be applied with a Rusmar Pneumatic Foam Unit. The Pneumatic Foam Units are available in a variety of sizes to accommodate a range of site conditions and application needs.

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REMEDIATION PRODUCT DATA SHEET

PNEUMATIC FOAM UNIT 1600/40

A completely self-contained and portable foam generating system designed to withstand the rugged demands and harsh elements found at remediation sites. Quick start-up time means that emission control is available when you need it. Recommended for medium to large size remediation projects, dredging operations and hazardous waste sites. Can be towed around site with a back-hoe or other large vehicle. Typically, foam is applied using a hand-line.

System includes air compressor, pump, hoses, nozzles, solution storage tank and proprietary foam generating technology. Unit has freeze protection for outdoor storage year-round.

FEATURES

- Simple to operate
- Durable, rugged construction
- No clean-up necessary
- Can be filled and placed aside until needed

SPECIFICATIONS

Solution Storage Tank	1600 Gallons
Coverage Rate	430 Sq. Ft./Min. @ 3" depth
Coverage Area	18,000 - 22,000 Sq. Ft.
Size	24' L x 8' W x 8'6" H
Weight	17,000 Pounds
Hose	200 Feet of 1-1/2" Diameter
Products	All Long Duration and Soil Equivalent Foam Products
Freeze Protection System	120V or 230V, 30 amp, single phase

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REMEDIATION PRODUCT DATA SHEET

PNEUMATIC FOAM UNIT 400/25

A completely self-contained and portable foam generating system designed to withstand the rugged demands and harsh elements found at remediation sites. Quick start-up time means that emission control is available when you need it. Recommended for small to medium size remediation projects, dredging operations and hazardous waste sites. Can be towed around site with a pick-up truck. Foam is applied using a hand-line.

System includes air compressor, pump, hoses, nozzles, solution storage tank and proprietary foam generating technology. Unit has freeze protection for outdoor storage year-round.

FEATURES

- Simple to operate
- Durable, rugged construction
- No clean-up necessary
- Can be filled and placed aside until needed

SPECIFICATIONS

Solution Storage Tank	400 Gallons
Coverage Rate	270 Sq. Ft./Min. @ 3" depth
Coverage Area per fill	2,000 - 6,000 Sq. Ft.
Size	16'8" L x 8'6" W x 7'8" H
Dry Weight	6,880 Pounds
Hose	200 Feet of 1-1/2" Diameter
Products	All Long Duration and Soil Equivalent Foam Products
Freeze Protection System	120V or 230V, 30 amp, single phase

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Appendix C of CERP

Transportation Plan

Appendix C of CERP
Transportation Plan
254 Maspeth Avenue Parcel IRM

Equity Works Former Manufactured Gas Plant Site
Brooklyn, New York

Appendix C of CERP
Transportation Plan
254 Maspeth Avenue Parcel IRM

Equity Works Former Manufactured Gas Plant Site
Brooklyn, New York

Prepared By: Shail Pandya, Project Manager

Reviewed By: Mike Gardner, P.E., Principal Engineer

Contents

List of Appendices

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List of Acronyms

MGP	Manufactured Gas Plant
GVN	Gross Vehicle Weight
cy	cubic yards
NYCRR	New York Codes, Rules, and Regulations
DOT	Department of Transportation

1.0 Introduction

National Grid USA (National Grid) is responsible for the implementation of interim remedial measures (IRMs) of the 254 Maspeth Avenue property (Project Site) of the Equity Works former Manufactured Gas Plant (MGP) site (Site) located on 222, 252, and 254 Maspeth Avenue in Brooklyn, New York. The IRMs will include the removal of MGP-related source material observed in the unsaturated soils on the Project Site and installation of non-aqueous phase liquid recovery wells.

The remediation work will require the transport of the following materials (amounts are approximate):

- Export 20 tons of debris
- Export 3,000 tons of impacted soil
- Import 1,000 tons of clean backfill
- Mobilize and demobilize remedial equipment

Transportation required for this work will be performed in accordance with all local, state, and federal laws, as well as with the Project Specifications. Additionally, transportation must meet the requirements described in this document. These requirements include truck selection (Section 2), truck loading (Section 3), transportation routes (Section 4), and transportation management (Section 5).

2.0 Truck Section

Either 18-wheel trailer dumps or tri-axle dump trucks will be used dependent upon site conditions, contract documents, and availability. Trailer dumps typically have an empty weight of 34,000 to 35,000 pounds and may legally have a Gross Vehicle Weight (GVW) of 80,000 pounds. This would allow a dump trailer to carry up to 23 tons of soil (13.5 cubic yards (cy) of soil volume at a bulk density of 1.7 tons per cy). Under some circumstances, trucks traveling within New York State may obtain permits to carry up to 30 tons of soil (17.6 cy of soil volume at a bulk density of 1.7 tons per cy).

Tri-axle dump trucks typically have an empty weight of 23,600 pounds to 31,000 pounds and normally carry a GVW of 58,400 pounds. This would allow a tri-axle dump trailer to haul up to 17.5 tons of soil per load (11 cy of soil volume at a bulk density of 1.7 tons per cy). Under some circumstances, trucks traveling within New York State may obtain permits to carry up to 24 tons of soil (14 cy of soil volume at a bulk density of 1.7 tons per cy).

The truck capacities described in this section are from similar past projects. The Contractor shall verify all allowable truck weights for this project.

All trucks will have the required licenses and permits, including 6 NYCRR Part 364 Waste Transporter Permits.

3.0 Truck Loading

The soil that will be removed from the Project Site will be excavated and loaded in a manner that minimizes the release of odors. Excavation will be monitored and managed using odor control methods, such as the application of odor-control foam. In keeping with this plan, the loading and shipping of impacted soils will also need to be performed in a manner that minimizes the potential for the release of odors.

The impacted soil will be loaded with a conventional excavator or front-end loader onto trucks. Each truck will be lined with 12-mil-thick polyethylene sheeting prior to loading by the on-site remediation contractor. Use of the liner minimizes the need for decontamination of the truck after contaminated soil is dumped at the disposal or treatment facility, and provides containment for any residual liquids which may be associated with wet soils. The plastic liner is also wrapped over loaded soils to minimize odors during transport.

Note that soils with free liquids will not be shipped from the Project Site. Saturated soils, if any, will be allowed to drain before being loaded onto trucks for shipping.

The trucks will be loaded directly from excavations, or from an on-site stockpile area to ensure impacted material is not spread throughout the Project Site. Odor-suppressing foam will be applied to the excavations, stockpiles, and the material on the trucks, when necessary. If necessary, an odor-masking agent may also be applied to the impacted soil while loading and stockpiling activities are ongoing, to reduce nuisance odors.

All trucks will be covered with a tarpaulin supplied by the trucking firm prior to leaving the Project Site to ensure that no material is blown off the truck during transportation and to minimize the release of odors. Each truck will be dispatched from the site with the appropriate bill-of-lading or manifest, and will follow the prescribed transportation route to its destination. The local noise ordinance will be in effect for the IRMs, therefore, loading can only take place on weekdays from 7:00 am to 5:00 pm, unless otherwise approved.

After loading, all trucks will enter a decontamination pad where all residual soil will be removed from the truck body, wheels, and tires to ensure that impacted soil from the site is not tracked onto the streets of Brooklyn. Tracking, dropping, or depositing of soil or any other material onto local, county, or state roadways or paved parking areas by or from any vehicle is prohibited. Any inadvertently spilled material shall be cleaned immediately by the contractor.

4.0 Transportation Routes

Trucks will be required to enter and exit the Project Site via I-278 and Vandervoort Avenue in Brooklyn, New York. The entry and exit trucking routes are shown on Figures 1 and 2.

The entry truck route (Figure 1) shall be as follows:

- Traveling on I-278
- Take Exit 33 for Meeker Avenue onto Meeker Avenue
- Right onto Vandervoort Avenue
- Left onto Maspeth Avenue
- Right into 254 Maspeth Avenue

The exit trucking route (Figure 2) shall be:

- Left out of Project Site onto Maspeth Avenue
- Right on Vandervoort Street
- Left onto Meeker Avenue
- I-278W Ramp onto I-278W

5.0 Transportation Management

Truck traffic will be managed in a way to minimize any impact on the vehicular and pedestrian traffic in the Greenpoint neighborhood of Brooklyn.

5.1 Truck Staging

An off-site staging area (to be determined) may be identified for trucks waiting to be loaded or to deliver, due to a lack of space for staging at the Project Site. Trucks cannot be staged on the streets adjoining the Project Site, or in other areas awaiting entrance into the loading area due to their narrowness and the residential and commercial nature of the neighborhood. Due to tight Project Site conditions, truck staging will be limited to two (2) trucks prior to loading if space is available on-site. Trucks staged on-site shall not be allowed to idle longer than 5 minutes in duration and shall be in compliance with 6 NYCRR subparts 217-3.

Drivers will be responsible for communicating with on-site staff to ensure that the site is ready to accept them. When applicable, trucks will collect at the off-site staging area and travel to the Project Site together in convoys of 2 trucks. Likewise, conveys of 2 trucks will travel together when exiting the Project Site.

5.2 Traffic Control

Due to the narrow nature of the surrounding streets and the limited maneuverability of trailer/ tri-axel dump rigs, there will need to be Department of Transportation (DOT)-certified flaggers present whenever trucks enter or exit the Project Site. All flaggers will be equipped with the appropriate signage or flags and appropriate personnel protective equipment.

The Contractor will be responsible for coordinating, via radio or telephone, careful arrival of truck to avoid congestion.

Extreme caution must be taken when entering and exiting the site, as it is in close proximity to local shops, and there is likely to be both vehicular and pedestrian traffic very close to the work area.

5.3 Driver Code of Conduct

All truck drivers are expected to adhere to the following code of conduct:

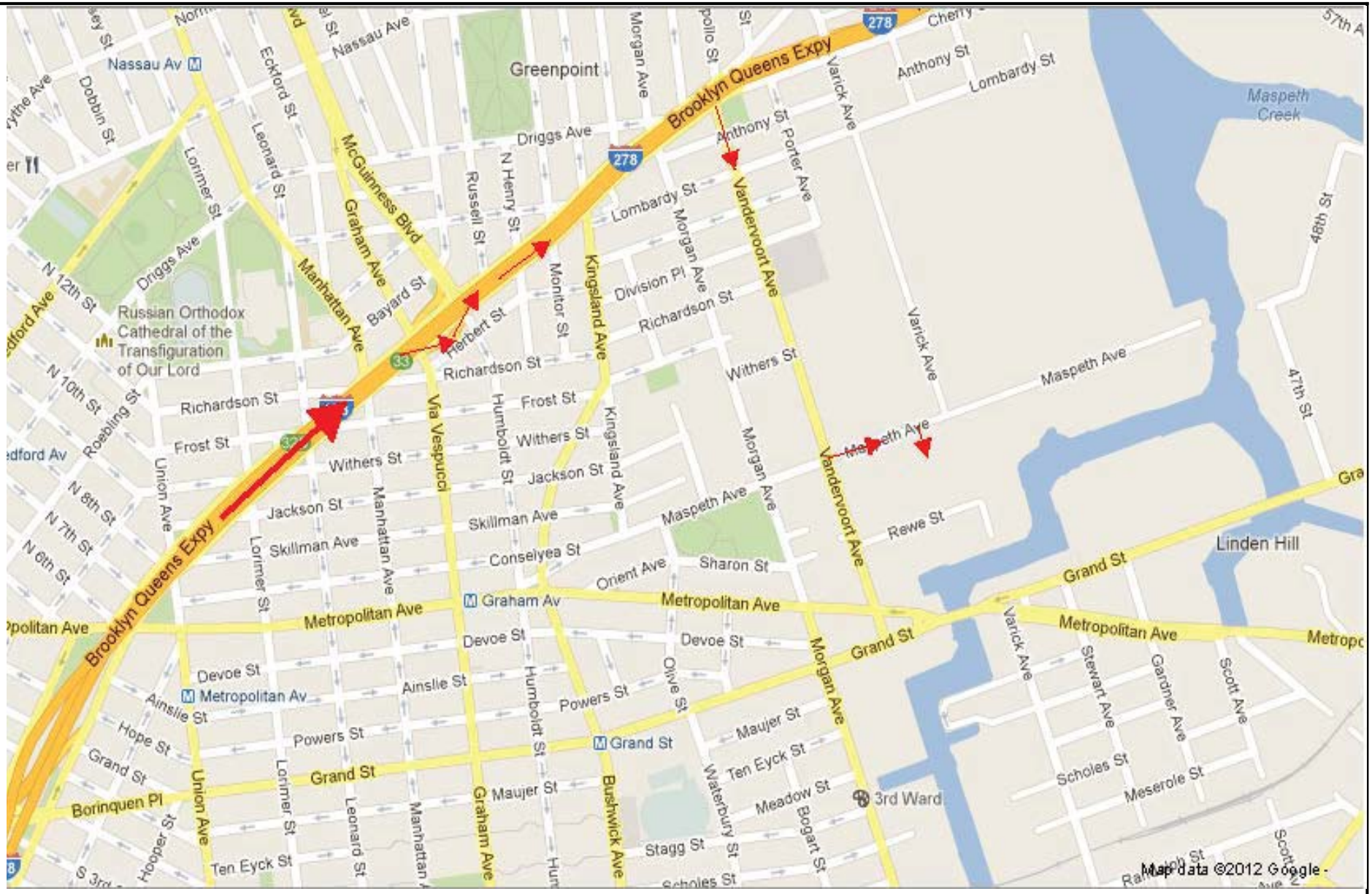
- Drivers must treat safety as a top priority at all times
- Drivers must obey all applicable laws (no speeding, no double parking, etc.)
- Drivers must act in a professional manner (no spitting, no cursing, etc.)

5.4 Traffic Accidents and Releases

In the event that a loaded truck is involved in an incident that results in a release of the transported materials, the cleanup shall follow local and State DOT spill response procedures. The remediation

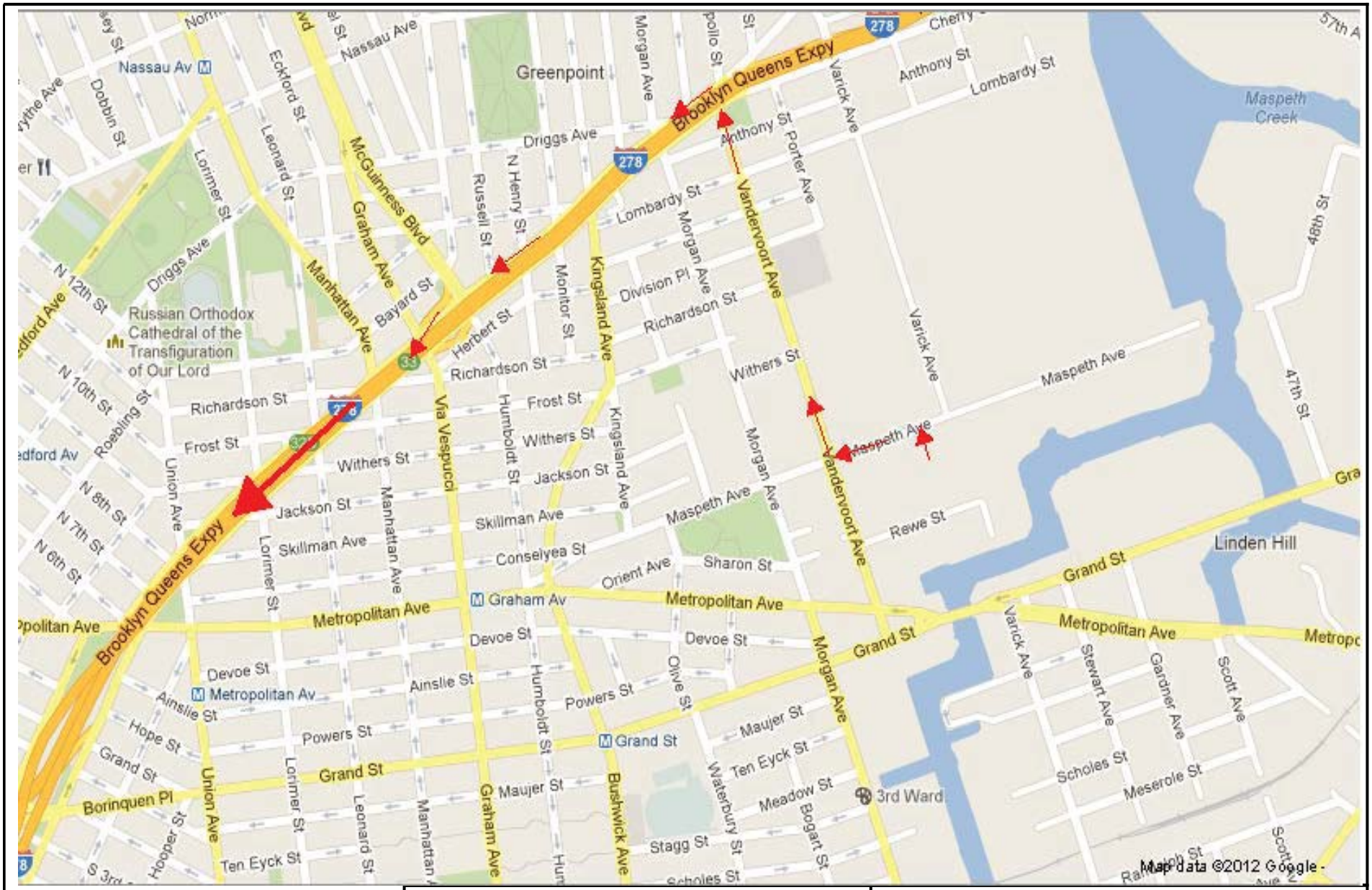
contractor will contact all involved parties immediately, including AECOM and National Grid representatives. The remediation Contractor and/or transporter will be responsible for the cleanup of any releases which may occur during transport to the disposal facility. It will be the responsibility of the remediation contractor to keep all haul routes and public rights-of-way free of any site materials due to transportation operations.

Figures



AECOM

NATIONAL GRID EQUITY WORKS FORMER MANUFACTURED GAS PLANT 60137362-630	TRUCK ENTRY ROUTE
DATE: 07/2012	FIGURE 1



AECOM	NATIONAL GRID EQUITY WORKS FORMER MANUFACTURED GAS PLANT 60137362-630	TRUCK EXIT ROUTE
	DATE: 07/2012	FIGURE 2

Appendix A

Instruction to Truckers

Equity Works Former Manufactured Gas Plant – 254 Maspeth Avenue IRM
Brooklyn, New York

Guidelines for Truck Drivers

1. All truckers must provide permits at the staging area.
2. Trucks are not allowed onsite before **7:00am** for any reason. Loading can only take place on weekdays (unless approved otherwise) from 7:00 am until 5:00 pm. Trucks must offload at facility the same day truck is loaded.
3. Trucks will be required to enter and exit the Project Site via I-278 and southbound Vandervoort Avenue in Brooklyn, New York.
4. The entry truck route (Figure 1) shall be as follows:
   - Traveling on I-278
   - Take Exit 33 for Meeker Avenue onto Meeker Avenue
   - Right onto Vandervoort Avenue
   - Left onto Maspeth Avenue
   - Right into Project Site

   The exit trucking route (Figure 2) shall be:
   - Left out of Project Site onto Maspeth Avenue
   - Right on Vandervoort Street
   - Left onto Meeker Avenue
   - I-278W Ramp onto I-278W

   An **off-site staging area** (to be determined) may be identified for trucks waiting to be loaded or to deliver, due to a lack of space for staging at the Project Site. Trucks must **remain** in staging area until radioed by contractor.

5. Stay in cab during loading, shut off the truck once in loading position.
6. Each truck will be lined with 12-mil-thick polyethylene sheeting prior to loading.
7. All trucks will be covered with a tarpaulin supplied by the trucking firm prior to leaving the Project Site.
8. After loading, all trucks will enter a decontamination pad where all residual soil will be removed from the truck body, wheels, and tires.
9. Trucks must off load at the disposal facility the same day they are loaded, must leave Project Site with enough time before facility closes.
10. All trucking traffic must obey New York City traffic regulations. In the event of a violation, immediate action up to and including permanent driver dismissal from the project will be taken. Particular care must be taken in sensitive areas, along residential streets, and near historic structures.
11. In the event that a loaded truck is involved in an incident that results in a release of the transported materials, the cleanup shall follow local and State Department of Transportation spill response procedures and Site Contractor shall be notified immediately. Truck must remain at the scene of the accident or spill until clean up is complete.