PERIMETER AIR MONITORING PLAN

Former Harrison Gas Plant Site
In-Situ Soil Stabilization Interim Remedial Measures

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ADDENDA

NUMBER	REASON FOR ADDENDUM
No. 1	This addendum addresses baseline and confirmatory sampling equipment, analysis, procedures, and frequencies for mercury vapor and particulate.
No. 2	This addendum addresses confirmatory sampling reporting requirements, location of air monitoring stations, and addition of action level exceedance response flow charts.
No. 3	This addendum addresses updated station location information.

1.0 INTRODUCTION

On behalf of Public Service Electric and Gas Company (PSE&G), this Perimeter Air Monitoring Plan (PAMP) was prepared by Paulus, Sokolowski and Sartor, LLC (PS&S) and Emilcott Associates, Inc. (Emilcott) for use during the In-Situ Soil Stabilization (ISS) Interim Remedial Measure (IRM) activities. This PAMP establishes guidelines and requirements for the perimeter air monitoring activities in support of the proposed ISS IRM activities (a.k.a., the Site RA activities) at the former Harrison Gas Plant Site (Site) in the Town of Harrison, Hudson County, New Jersey. This PAMP was prepared to support the ISS IRM presented in the Revised Remedial Action Workplan Addendum for the Former PSE&G Harrison Gas Plant –June, 2017 (RAWPA).

This PAMP has been prepared in accordance with PSE&G Project Management Directives (PMD's) and the current PSE&G Perimeter Air Monitoring Guidance (refer to Appendix D). The PAMP action levels identified herein were determined using the current United States Environmental Protection Agency (USEPA) Risk Based Screening Levels: "*Regional Screening Levels for Chemical Contaminants at Superfund Sites*", Calculator for Site-specific Residential Risk-Based Screening Levels for Ambient Air[1].

1.1 Site Location, History and Current Conditions

1.1.1 Site Location

The Site is a contiguous triangular-shaped parcel of land encompassing approximately 32 acres. The Site is bounded on the east by Frank E. Rodgers Boulevard, on the south-southwest by the Passaic River, and on the west- northwest by rail lines operated by The National Railroad Passenger Corporation (AMTRAK) and Port Authority Trans-Hudson (PATH). The Site contains approximately 1,600-feet of shoreline with the Passaic River located along the southerly Site boundary.

1.1.2 Site History

The Site was acquired through several separate transactions by PSE&G and its predecessors from 1884 through 1924. In 1902, PSE&G first started using the Site as a large oil and manufactured gas (MGP) storage facility for PSE&G's former Market Street Gas Works, located on the southern and opposite side of the Passaic River in Newark, New Jersey. The MGP plant at the Site was constructed between 1924 and 1926 and brought on line in 1926. The MGP plant operated as a base load plant until approximately 1963 when it was converted to peak shaving status. The primary MGP process utilized at the Site was the carbureted water gas process. It was retired from service after the winter of 1986 - 1987. Approximately 0.67 acres located in the northeasterly portion of the Site was recently sold by PSE&G to PATH.

[1] Refer to the USEPA calculator website at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search.

The Site is presently used as headquarters facilities for the following 5 PSE&G units and operations:

1. PSE&G Harrison Gas Distribution headquarters;
2. PSE&G Harrison Appliance Service headquarters;
3. PSE&G Resource recovery and construction groups;
4. PSE&G natural gas Metering and Regulating (M&R) station; and
5. An electric substation for Red Bull Arena.

Since the former MGP plant was removed only to the grade surface, former MGP foundations, pipes and other remnants remain.

In accordance with the NJDEP Land Use mapping database, Land Use/Land Cover layer (NJDEP 2002b), the land use at the Site is classified as Industrial. Land use at the Site has not changed since the MGP facility was decommissioned.

For purposes of evaluating potential health effects on nearby receptors, the Full-Time Resident receptor category was utilized, due to residential units to the west of the remediation area, immediately across Frank E. Rodgers Boulevard. There is also an outdoor workforce on the PSE&G premises, working in close proximity to the remediation area. The Residential category was selected as the critical sensitive receptor because its action levels are more constraining.

1.2 Proposed Remedial Activities

Based on an evaluation of the Site history, the contaminants of concern include MGP products or coal tar, volatile organic compounds, certain metals, and poly-aromatic hydrocarbons (PAHs). As documented in the RAWPA, to address soils impacted with coal tar, the planned remedial actions involve the removal, by excavation, of soil within the upper 10 feet. After the excavation is complete, the selected remedial contractor will install a working platform on the excavation bottom/subgrade. The remedial contractor will then use the working platform to treat coal tar-impacted soil using ISS methods as shown on the attached Figure RAA-02A.

1.3 Key Personnel

The following are the key personnel for the Site sediment remediation activities. PS&S is the construction oversight engineer (COE) and PAMP implementation consultant for PSE&G. The Remedial Action (RA) Contractor is TBD. (Emilcott) is PS&S's PAMP Program consultant.

PSE&G Personnel

Jacques Benaroch, P.E. Senior Project Manager

Eric Rubin, Remediation Specialist

PS&S Personnel

Janos Szeman, P.E., Project Manager
James Boyer, P.E., Construction Oversight Engineer COE)
Claire Bearden, Perimeter Air Monitoring Technician (PAMT)
David Tomsey, Emilcott PAM Program Operations Manager

RA Contractor Personnel

Edward Zielanski, Project Manager (PM)

Allan Thomas, Project Engineer (PE)

Randy Barney, Project Superintendent

Robert Marker, Site Safety and Health Officer (SHSO)

1.3.1 Responsibilities

The PSE&G Project Manager has the overall responsibility for the implementation of the PAMP.

PS&S, on behalf of PSE&G, has prepared this PAMP and will be responsible for the day-to-day perimeter air monitoring activities. The PAMT will be responsible for the operation of the air monitoring equipment, collection of air samples and submission of the samples to the laboratory, and compiling the results of the air monitoring data. The COE is responsible for immediately notifying the RA Contractor of any exceedances of the action levels so that the appropriate control measures can be taken.

The RA Contractor has the responsibility for the implementation of the odor, emission, and dust control measures to reduce levels of organic vapors and dusts below the action levels specified herein. The RA Contractor's SHSO will work with the PAMT and COE throughout the Site remediation activities to monitor worker exposure and manage the RA Contractor operations in compliance with this PAMP.

The RA Contractor, the PAMT, and the COE will be members of the Odor Assessment Team (OAT).

2.0 PROJECT OBJECTIVES

2.1 Perimeter Air Monitoring Objectives

The purpose of this PAMP is to provide that members of the general public, including the PSE&G workforce located at the Site but not involved with this remediation project, are not exposed to hazardous airborne contaminants originating from the Site RA as determined by measured concentrations above the action levels provided in this PAMP.

This PAMP was designed to accomplish the following objectives:

1. Protect human health from exposure to unacceptable risk levels of contaminants resulting from fugitive emissions of former MGP process residuals, based on application of the USEPA risk-based calculator (cited above);
2. Minimize risk of community exposure to contaminants resulting from remediation work performed at the Site;
3. Determine the need for, and evaluate the effectiveness of, vapor and/or dust emission controls;
4. Monitor and document ambient air quality at project perimeter locations during remediation activities to prevent elevated off-Site exposures;
5. Establish/foster community confidence;
6. Evaluate the monitoring data to evaluate exposure risks at the project perimeter;
7. Verify real-time air monitoring data through the collection of confirmatory samples; and,
8. Complete a summary of the PAM Program for inclusion into a Remedial Action Report (RAR) to document the results and evaluate the exposure risk.

The following assumptions and variables were used as input parameters into the USEPA calculator:

Sensitive Receptor:	Full-Time Resident
Project Duration:	150 work-days, 30 calendar weeks
Work Shifts:	5 days/week, 10 hours/day

The calculator was run for all analytes having detected values of soil samples.

2.2 Data Quality Objectives

The Data Quality Objectives (DQOs) for this PAMP are established to define the data gathered in relation to the methods used to collect the data and the data's anticipated end use. The DQOs apply to the equipment that are being used, their calibration and maintenance, and other factors that may impact sample integrity and the quality of the data collected.

Both real-time screening level and confirmatory data will be collected to evaluate contaminant levels in the air at the perimeter of the Site RA (refer to Figure 2). The DQOs are directed at confirming the integrity of the PAMP procedures for real-time monitoring and for collection, custody, transportation, and analysis of confirmatory

samples. The following DQO levels will be utilized during the performance of Site RAs.

1. **Real-time screening data**: Field screening will be performed using PAMP field stations equipped with a photo-ionization detector (PID) and an aerosol dust monitor. The quality assurance/quality control (QA/QC) for this equipment includes routine calibration in accordance with the manufacturer's specifications. The data collection QA/QC control is limited to basic calibration checks. The real-time data will be used to document airborne concentrations measured during Site RA activities and assist Site personnel with determining the need for additional vapor and/or dust suppression activities or alteration of work activities. The real-time data will be used to show compliance with the acute action levels for perimeter air quality.

2. **Confirmatory data**: This DQO level applies to analyses performed off-site at an analytical laboratory. The analyses will be conducted in accordance with the appropriate USEPA, Occupational Safety and Health Administration (OSHA), and/or National Institute of Occupational Safety and Health (NIOSH) air sampling methods. The data will include QA/QC elements specified by the appropriate analytical method. The data will be used to show compliance with the chronic action levels for specific target compounds. Periodic confirmatory samples will be collected once every 5 working days during intrusive activities to monitor average perimeter air concentrations over the duration of the Site RAs. Action level exceedance confirmatory samples will be collected whenever there is an action level trigger condition on the real-time PAMP Program equipment to provide definitive data for evaluation of the alarm condition (refer to Section 4.0).

3.0 TARGET PAMP PARAMETERS AND ACTION LEVELS

In accordance with the current PSE&G Perimeter Air Monitoring Guidance document (refer to Appendix D), the following PAMP Action Levels are required.

A. Acute Air Monitoring Action Levels

B. One Hour Short-Term Air Monitoring Action Levels

C. Chronic Air Monitoring Action Levels

3.1 Development of PAMP Action Levels

The PAMP Program presented herein is based on a review of the 2017 waste classification sampling program (WCSP) data for the ISS IRM Pilot Study Area (refer to Figure 2). From the standpoint of the PAMP, the four BTEX constituents of concern (COCs) are benzene, toluene, xylene, and ethylbenzene which are reportedly present in significant proportions, as would be expected at a former MGP site. Based on the reported soil concentrations, the amount of benzene that could be released into the air is approximately 20 percent (%) of the total VOCs, and the 4 BTEX constituents comprise 97% of the TVOC concentration. Detectable VOCs, SVOCs, and metals indicated in soil sample results and evaluated in action level calculations are included in Appendix A.

The chronic action levels for VOCs, SVOCs, and metals included in Appendix A were derived using the USEPA "*Regional Screening Levels for Chemical Contaminants at Superfund Sites*" which is a calculator that produces risk-based screening levels based on human inhalation factors. The NJDEP Benchmark Concentrations calculated from Unit Risk Factors for Inhalation was the basis for the lead chronic action level.

Calculations for deriving these action levels are provided in Appendix A in two tables, one for particulates (PM-10) and the other for VOCs. All constituents that had detected samples in the waste class data are listed, although not all these constituents were available in the USEPA calculator database. Constituents without an EPA screening level are included in Appendix A's Action Level Calculation Tables and indicated with Not Applicable (NA).

3.1.1 Acute Air Monitoring Action Levels

Among the VOC constituents, the most restrictive is benzene, with a site-specific screening level of 28 parts per billion (ppb).

The acute PM-10 action level criteria were evaluated based on evaluating calculated screening levels for the various metals and SVOCs found in the soil results. For these parameters, the calculated real-time chronic action levels are much greater than any particulate levels that would realistically be encountered in typical field operations (refer to Appendix A). By comparison, the acute action level for PM-10 from the National Ambient Air Quality Standard (NAAQS) for PM-10 is 0.150 mg/m^3 as specified in USEPA 40 CFR Part 50. This value will be used as the PM-10 action level for this PAMP.

3.1.2 One Hour Short-Term Air Monitoring Action Levels

The One Hour Short-Term Air Monitoring Action Levels will be utilized for the VOC Site primary COC, benzene, is 280 ppb. This is derived from the ratio of the 10-hour work shift to a 1-hour duration for comparison with a SUMMA canister for analytical exceedance sampling.

3.1.3 Chronic Air Monitoring Action Levels

Among the VOC constituents, the most restrictive is benzene, with a site-specific screening level of 28 ppb and a calculated 15 minute time weighted average real-time TVOC action level of 2.3 ppm (refer to Appendix A). This value will be rounded to 2 ppm for use as the TVOC action level for this PAMP.

The exposure parameters used in the calculation of the chronic action levels were selected to match the Site RA plans for the ISS pilot program. Soil disturbance or intrusion is projected to take place over a period of approximately 150 working days (5 days per week, over nominal 10-hour work day). During these periods, it is assumed that the Site RA soil excavation, ISS and other Site RA disturbance activities could lead to fugitive airborne vapors and/or particulates that could be transported off-site. As such, the chronic action levels are tailored to be protective and reflective of the Site RA and the RAWPA. The critical receptor category used in the calculations is a Full-Time Resident, based on the proximity of nearby residences. In addition, PSE&G outdoor workforce is present on the extended Site but not involved with the proposed Site RA efforts. The PSE&G outdoor workforce is also a sensitive receptor.

In summary, the real-time PAMP action levels are summarized in the following Table 1.

Table 1 – PAMP Action Levels

Action Level	PM-10	VOC
Acute Air Monitoring Action Level	**0.150 mg/m^3**	**2 ppm (TVOC)[2]**
One Hour Short-Term Air Monitoring Action Level	**N/A**	**280 ppb[1]**
Chronic Air Monitoring Action Level	**0.150 mg/m^3**	**28 ppb[1]**

1) Values are specific to benzene, additional chronic air monitoring action levels can be observed in Appendix A.
2) TVOC – total volatile organic compounds as measured by a PID.

3.1 Analytical Sampling

A program of analytical sampling is recommended both for confirmatory purposes and exceedance oversight. For this PAMP, the sampling program will be include VOCs, PAHs and metals, including mercury. The following table summarizes the sampling methods to be used.

Table 2 – Analytical Sampling		
Constituent	**Method**	**Sampling Media**
VOCs: BTEX	EPA Method TO-15	Summa Canister
PAHs	NIOSH Method 5506	XAD-2 PUF/PTFE Filter
Metals: lead, arsenic, nickel, cadmium, beryllium	NIOSH Method 7300	Mixed Cellulose Ester (MCE) Filter
Mercury	NIOSH Method 6009	MCE Filter/Anasorb Tube

4.0 INSTRUMENTATION

The following monitoring and sampling instruments will be utilized by PAMT to implement the PAMP.

A. PIDs with data-logging capabilities will be used to monitor the levels of Total VOC (TVOC). PIDs can measure the concentration of TVOC within the ambient air, but are unable to distinguish specific compounds. The PID to be used will be a RAE Systems MiniRAE-3000 or equivalent.
B. Particulate monitors with data-logging capabilities will be used to detect concentrations of PM-10. The monitor to be used will be a TSI model DustTrak-II, 8530, or equivalent.
C. An automated weather station will be used to monitor wind direction, wind speed, temperature, relative humidity, and barometric pressure.
D. These FSME instruments will be part of an integrated air-monitoring system transmitting data from the FSME instruments to a secure off-site database server through cellular telemetry. The server will maintain the master database and will generate alerts and alarms, which will be communicated to the PAMT at the base-station console and by cell phone or another web enabled device. Each PAMP station will contain a PID and PM-10 FSME and will also maintain a local database of environmental measurements for redundancy. The base PAMP station computer will correlate wind-speed and direction to the environmental measurements in real-time.

Confirmatory air sampling equipment (CSE)

6-liter Summa canisters with air intake regulators will be used to sample for VOCs. One and eight-hour regulators will be available on-site to account for varying sampling needs. XAD-2 PUF cartridges and PTFE filters, along with a SKC or Gilian sampling pump, will be used to sample for PAHs. MCE filters, along with a SKC or Gilian sampling pump, will be used to sample for arsenic, beryllium, cadmium, nickel, and lead. MCE filters and Anasorb tubes, along with a SKC or Gilian sample pump, will be used to sample for mercury vapor and particulate.

5.0 PERIMETER AIR MONITORING PLAN

5.1 Number and Placement of PAMP Station Locations

Five PAMP stations will be used for real-time monitoring during the remedial action. Four PAMP stations will be located at cardinal locations at the Site perimeter with the mobile North and South stations positioned each day based on the soil excavation activities and ISS Site RA operations, wind direction, and location of sensitive receptors. The perimeter air monitoring stations may be moved outside of the exclusion zone if by doing so the stations would be more representative of nearby receptors' exposure to fugitive dust or VOCs. The 5th PAMP station will be stationed between the eastern perimeter of the exclusion zone and the PSE&G Gas Chemistry Laboratory. Figure 2 provides the locations of the proposed PAMP stations.

Each PAMP station will be configured with air intake ports at a height of 4 feet to 6 feet above grade surface to represent the breathing zone. The PAMP stations will be housed in a tripod mounted weatherproof enclosure to allow for movement based on Site RA activities. The PAMT will have available an extra set of real-time monitoring equipment as a backup and to verify the proper operation of the instruments at the PAMP stations. Should more than one instrument of the same type fail, Site RA operations may continue for up to 24 hours with only 4 of the 5 PAMP stations in service. In this instance the PAMT, in consultation with the COE, will modify the established perimeter air monitoring configuration until the system can be restored to the full set of five PAMP stations. The implementation of the modified configuration will be recorded on the Site map, and the reasons for the equipment outage will be noted in the Site Log.

5.2 Baseline Air Monitoring

Prior to the disturbance of soil at the Site, air monitoring will be conducted at the project perimeter to establish baseline air quality levels for the primary COCs. Real-time air monitoring will be performed for a period of 5 days for approximately 8 hours a day to establish baseline conditions prior to the start of the intrusive Site RA activities. In addition, one set of confirmatory air samples for VOCs, PAHs, and metals (beryllium, cadmium, arsenic, lead, and nickel) will be collected each day from the prevailing downwind location. In addition, at least one day of confirmatory sampling will be conducted for mercury vapor and particulate. The mercury vapor and particulate sample(s) will be collected from the prevailing downwind location.

The results of the baseline monitoring will be used for comparison to the perimeter air quality readings obtained during intrusive activities, and specifically to establish background threshold levels of TVOC and PM-10 for application in triggering alarm and action-level notifications.

5.3 Real-Time Air Monitoring During Intrusive Activities

TVOC and PM-10 concentrations and meteorological measurements will be recorded by the FSME along the Site RA perimeter during major intrusive activities (as defined above). These data measurements will be transmitted continuously in real-time to the PS&S database server of the PAMP. The PS&S server will maintain the master database and will generate notification of alarm and action levels, which will be communicated to the PAMT by any internet-enabled device such as a PC, tablet, or smartphone. The FSME system will also correlate wind-speed and direction to the environmental measurements in real-time, so that the PAMT will be aware of airflow patterns across the Site RA footprint when responding to alarms or other incidents of interest. The FSME system will also present real-time information about its own performance and status, eliminating the need for the PAMT to traverse the jobsite to verify operation of the FSME instruments. The PAMT will have a dedicated set of hand-held FSME (PID and dust monitor, such as a personal data ram) to confirm the readings of the PAMP stations in the event of an alarm condition.

PS&S will perform continuous PM-10 and TVOC monitoring during the Site remediation activities, regardless of adverse weather conditions (e.g., precipitation, humidity, or temperature). In the case of severe adverse weather events, the PAMT, in consultation with the PSE&G Project Manager, the COE, and the Contractor's SHSO, will determine the appropriateness of PAMP operations based on the current Site remediation activities.

5.4 Confirmatory Air Sampling

Periodic confirmatory air samples for VOCs, PAHs and metals will be collected during baseline air monitoring and then once every five working days during intrusive activities. The baseline survey program and the sampling methods are described above. The day of the week the confirmatory sample is collected will vary each week. The confirmatory sample will be collected from the downwind location or the location that is likely to have the highest concentration of airborne contaminants. The confirmatory samples will be collected for a duration of 8 hours, to approximate the length of the typical work shift.

Action level exceedance confirmatory air samples will be collected if an alarm condition occurs as described in the alarm condition response plan (refer to Section 5.5). For TVOC alarms, a sample using a 1-hour SUMMA canister will be collected following the alarm condition. For PM alarms, samples for PAHs and metals indicated in Table 2 will be collected for the remainder of the work day. If an alarm condition occurs, and the resulting alarm can be attributed to activities not associated with soil excavation and ISS operation activities (wind blowing dust, idling trucks, etc.), no alarm sampling or response plan will occur.

5.5 Alarm Condition Response Plan

For alarm and action-levels, the notification of an alarm condition will be based on actual real-time measured value. If an alarm condition occurs, and the resulting alarm can be attributed to activities not associated with soil excavation and Site RA activities (wind blowing dust, idling trucks, etc.), no alarm sampling or response will occur. The Procedure for Notification of an Exceedance of an Action Level is enclosed as Appendix C.

5.5.1 VOC Emission Response Plan for Acute Air Monitoring Action Levels

The real-time PAMP monitoring acute action level of 2 ppm was calculated for TVOC, as cited above.

1. If instantaneous TVOC readings exceed 2.0 ppm at the project perimeter, the PAMT will immediately notify the SHSO. The PAMT will observe TVOC concentrations for 1 minute at the location of the exceedance. The PAMT and SHSO will attempt to identify the source of the VOC emissions. The SHSO will also prepare to address the source.

2. If the time weighted average (TWA) perimeter TVOC concentration is sustained above 2.0 ppm for 1 minute, the PAMT or HSO will use an instantaneous Draeger tube to determine if benzene is present. If benzene is not present, no action is required by the COE or PAMT, if benzene is present, the PAMT and SHSO shall identify the source of the emission. The PAMT will continue to observe TVOC concentrations on the real-time monitoring equipment at that location for 15 minutes.

3. If the time weighted average (TWA) perimeter TVOC concentration is sustained above 2.0 ppm for 5 minutes, the PAMT will notify the SHSO to implement the use of emission control measures (i.e., foam, water) and prepare to collect an exceedance sample. The PAMT will continue to observe TVOC concentrations on the real-time monitoring equipment at that location for 15 minutes.

4. If the perimeter TWA TVOC concentration is sustained above 2.0 ppm for an additional 10 minutes (15 minutes total), intrusive activities will cease. Real-time monitoring and VOC emissions control will continue until the alarm condition is no longer present, per Item 5, below. The PAMT will collect an action level exceedance confirmatory sample at the location of the exceedance for analysis of VOCs. Work procedures will later be re-evaluated to lessen emissions, and if applicable, Site RA activities will be updated.

5. When the perimeter TWA TVOC concentration falls below 2.0 ppm over 15 minutes TWA, the alarm condition will be deemed to be no longer present, and Site RA intrusive work may resume.

5.5.2 Particulate Monitoring Response Plan for Acute Risk

1. If the instantaneous PM concentration exceeds 0.150 mg/m^3 at any of the PAMP stations along the project perimeter, the PAMT will immediately notify the SHSO. The PAMT will observe PM-10 concentrations for 1 minute at the location of the exceedance. The PAMT, COE and SHSO will attempt to identify the source of the PM-10 emissions. The SHSO will also prepare to address the source.
2. Sustained TWA readings over the action level of 0.150 m g/m^3 for 5 minutes at a PAMP Station requires the RA Contractor to implement measures to control the emissions (i.e. application of water, tarps, plastic sheeting, and clean fill cover). PAMT will monitor the real-time readings and prepare to collect an exceedance sample.
3. Sustained TWA readings over the action level for an additional 10 minutes at a perimeter monitoring station (15 minutes total) requires the emission-generating activity to cease. Sustained readings over the action level for an additional 10 minutes at a perimeter monitoring station (15 minutes total) will trigger collection of an exceedance sample for PAHs and metals. The project team will confirm that all applicable dust best management practices (BMPs) are being employed. Work activity should focus on lessening fugitive dust emissions being generated.
4. When the perimeter TWA PM concentration falls below 0.150 mg/m^3 over a 15 minute TWA, the alarm condition will be deemed to be no longer present, and Site RA intrusive work may resume.

5.5.3 VOC Emissions Monitoring for Chronic Risk

Individual VOCs will be monitored for chronic risk by collection of one confirmatory sample in a SUMMA canister over one work day (i.e., 8 hours) each work week and analyzed by USEPA Method TO-15. The sample will be collected from a downwind perimeter location. The results will be compared to the individual BTEX chronic action levels (Appendix A). Should the respective chronic action levels be exceeded in a confirmatory sample, the Site RA activities will be re-evaluated to lessen VOC emissions to the project perimeter. Actions taken to maintain the TVOC levels below the respective chronic action levels may include use of vapor-controlling foam or the use of wind screens. The goal is to have average concentrations for these parameters over the course of the Site RA implementation, based on the confirmatory samples, less than the chronic action levels for the individual VOCs.

5.5.4 PAH and Metals Monitoring for Chronic Risk

Individual PAHs and metals will be monitored for chronic risk through collection of confirmatory samples during the work day (i.e., 8-10 hours) each work week and analyzed by NIOSH method 5506 for PAHs, NIOSH method 7300 for metals, and NIOSH 6009 for mercury. The sample will be collected from a downwind perimeter location. The results will be compared to the individual metal and PAH chronic action levels (Appendix A). Should the respective chronic action levels be exceeded in a confirmatory sample, the Site RA activities will be re-evaluated to lessen particulate emissions to the project perimeter. Actions taken to maintain the particulate levels below the respective chronic action levels may include use of water mists or the use of wind screens. The goal is to have average concentrations for these parameters over the course of the Site RA implementation, based on the confirmatory samples, less than the chronic action levels for the individual metals and PAHS.

5.6 Odor Evaluation

Control of odors and odor suppression is a key issue during the soil excavation and Site RAISS operations with the handling of contaminated material at MGP remediation sites. Although several methods are available to help control and suppress odors, it is difficult to completely prevent odors from leaving the Site RA perimeter and potentially impacting the surrounding community. The community at this location consists of commercial and industrial areas and heavy urban traffic. Odors generated during Site RA activities have the potential to impact these receptors.

The RA Contractor performing the soil excavation activities and the ISS operations has been directed to aggressively control odors. Odor suppression measures may include the use of foam suppressant, drip neutralizer, misting, plastic or tarps, or applying a clean fill cover. The RA Contractor has been directed by PSE&G to utilize any or all of these measures when odors are present, being more aware when excavating at or near the Site perimeter. In the event that these measures fail to adequately control odors, Site RA activities will be terminated and the situation will be re-evaluated.

5.6.1 Odor Assessment Team

Three individuals, the OAT, will be responsible for assessing the effectiveness of odor control measures being implemented at the Site – the PAMT, the COE and the RA Contractor's Project Manager. Odor assessments will be performed by these individuals or their designees. Odor assessments will be performed by a minimum of three personnel and documented on the Odor Assessment Form provided in Appendix B.

5.6.2 Odor Assessment Locations

The odor assessments will be conducted weekly, at a minimum, along the perimeter of the Site RA footprint (refer to Figure RAA-02A).

Should odors be detected at these locations, the odor assessment area may be expanded, at the discretion of the odor assessment team. Any additional locations surveyed by the team will be noted on the Odor Assessment Form provided in Appendix B.

5.6.3 Odor Assessment Classifications

Odors will be classified by the OAT using the following classifications during Site odor assessments.

a. "0" – There are odor-generating activities on the Site, but there is no impact to the community. Odor is not detectable off-site, or very minimal and very infrequent.

b. "1" – Off-site odors are present, but the odors are not strong, not steady, and there is minimal impact to the community, or the odors are not noticed by the community. This is an indication that odor control measures at the Site are adequate and activities may proceed.

c. "2" – Odors are stronger than a "1" and relatively steady. The community is not necessarily aware of the odors, but it is agreed by the odor assessment team that community recognition is inevitable and additional odor control measures must be implemented. A follow-up tour must be conducted after implementation of additional odor control measures.

d. "3" – A "2" condition still exists after increased odor control measures, odors are very strong and the community is aware of and reacting to the odors. Odor-generating activities must cease and full odor control measures implemented. The situation must be re-evaluated prior to re-initiating odor-generating activities.

5.6.4 Baseline Odor Assessment

A baseline odor assessment will be performed by the OAT to familiarize themselves with the odor assessment locations and protocol, and to generate an agreed upon odor profile. The baseline assessment will consist of a tour of the odor assessment locations identified above, and completion of the Odor Assessment Form. Several baseline assessments may be performed, both prior to and during odor-generating activities on the Site, for the OAT to create an agreed upon odor profile.

5.6.5 Ongoing Odor Assessments

The PAMT will be responsible for determining if an odor assessment is necessary during odor-generating activities. If site-related odors are detected at the Site RA perimeter by the PAMT, an odor assessment will immediately be conducted by the odor assessment team. The odor assessment will be documented on the Odor Assessment Form provided in Appendix B. If the odor classification is a "0" or "1", activities will continue. If the odor classification is a "2", odor control measures will be implemented and a follow-up odor assessment performed. If the odor classification is a "3", activities will cease immediately and full odor control measures implemented.

Additional odor assessments may be conducted at the discretion of any member of the OAT.

6.0 QUALITY ASSURANCE

6.1 Calibration

FSME instruments will be calibrated on a routine basis in accordance with the manufacturer's specifications. FSME instrument calibration will be documented on calibration sheets. FSME instruments will be calibrated or zeroed before each shift. Calibration checks may be used during the day to confirm instrument accuracy.

6.2 Operations

PAMP instruments will be operated in accordance with the manufacturer's specifications. The PAMT will maintain manufacturer's literature, including an operations manual, for each piece of monitoring equipment on Site.

6.3 Laboratory Quality Control

Laboratory QA/QC will be in accordance with the method requirements. Sample collection, holding times, calibration procedures, and handling times will be in accordance with "The Compendium of Methods for the Determination of Toxic Organic Compounds in the Ambient Air," USEPA Document No. EPA/600/4-89/017 and the requirements of the appropriate method.

6.4 Documentation

Each real-time monitoring PAMP station will be inspected by the PAMT at the beginning and end of each work shift every two hours throughout the work shift, and when and if the integrated air monitoring system reports any problems with, or lack of data transmission from, the PAMP stations. In addition, alarms and subsequent source evaluations and corrective measures will be documented. In addition to the above, the PAMT will maintain a daily air monitoring log that will include a general description of the Site activities, a detailed description of Site RA activities during an alarm condition, and potential sources of emissions causing such alarms. The environmental and meteorological data will be downloaded from the database server by the PAMT at the end of each work shift. The analytical laboratory reports for confirmatory samples from the analytical laboratory will be maintained on Site by the PAMT and COE. Following completion of the PAMP Program, a Final Perimeter Air Monitoring Report will be prepared to document the monitoring and sampling activities, results, and field and laboratory QA/QC procedures that were implemented during the Site RA.

FIGURE 1

Site Location Plan

FIGURE 2

Site Location Plan

APPENDIX A

Perimeter Air Monitoring Action Level Calculations

APPENDIX B

Odor Assessment Form

PSE&G Odor Assessment Form

Site: _____

	Observer Location	Wind			Time	Rating	Odor Description/Comments
Parameter	Description of location (Use streets landmarks, addresses, etc.)	Direction (wind blows from)	Orientation (Downwind/ Upwind)	Approx. Wind Speed		(0-3 Rating)	Description of odors (e.g. strength & persistence), other source(s) of odors, variable weather, etc.
Field Observations							

Additional Notes:	Sketch/Map
Relevant work activities occurring on-site during odor assessment:	
Odor Assessment Team Members:	

APPENDIX C

Procedure for Notification of an Exceedance of an Action Level

APPENDIX D

PSE&G Perimeter Air Monitoring Guidance