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Это очень важное сообщение. Пожалуйста, попросите чтобы вам его перевели.

EXECUTIVE SUMMARY

On behalf of the Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) has prepared this Completion Report for the Short Term Response Action (STRA) recently completed at the former Tidewater Manufactured Gas Plant (MGP) and Power Plant located in Pawtucket, Rhode Island (Site). The work described in this Completion Report was performed consistent with the *Short Term Response Action Plan (STRAP)* for the South Washout Area dated January 25th, 2016, which was approved by the Rhode Island Department of Environmental Management (RIDEM) on April 19th, 2016. The *STRAP*, which was performed by National Grid between July 18, 2016 and August 26, 2016, included the following activities:

- limited removal of vegetation;
- site preparation and grading;
- capping of the former washout area with a subsurface liner system;
- installation of a new drainage system to convey stormwater from the Max Read Field area to the Seekonk River;
- backfilling the former washout area with clean imported fill; and
- site restoration and seeding.

Consistent with the RIDEM-approved *STRAP*, National Grid also provided assistance to the City of Pawtucket in excavating and managing certain limited suspected MGP impacted soils encountered during their reconstruction of Max Read Field. The City of Pawtucket also transported excess soils from the Max Read Field reconstruction project to the Tidewater Site as approved by RIDEM which were used to fill a low lying area.

Throughout the project, National Grid had a representative on-Site who conducted air monitoring consistent with the Site-specific, RIDEM-submitted Air Quality Monitoring Plan as described in the *STRAP*. Consistent with similar work performed previously at the Tidewater Site, air monitoring data was posted on the National Grid Tidewater website and the local bulletin boards on a weekly basis. No exceedances of established site-specific air quality action levels were detected during the work.

EXECUTIVE SUMMARY

En representación de Narragansett Electric Company, de nombre comercial National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) ha elaborado este Informe de cierre sobre la Acción de Respuestas a Corto Plazo (STRA) recientemente aplicada en la antigua planta Tidewater Manufactured Gas Plant (MGP) y la antigua central eléctrica ubicada en Pawtucket, Rhode Island (el Sitio). Las tareas que se describen en este Informe de cierre se llevaron a cabo de conformidad con el *Plan de Acción de Respuestas a Corto Plazo (STRAP)* para el área de lavado sur con fecha del 25 de enero de 2016, que fue aprobado por el Departamento de Gestión Ambiental de Rhode Island (RIDEM) el 19 de abril de 2016. El STRAP, implementado por National Grid entre el 18 de julio de 2016 y el 26 de agosto de 2016, incluyó las siguientes actividades:

- eliminación limitada de la vegetación;
- preparación y nivelación del sitio;
- sellado de la antigua área de lavado con un sistema cobertor subsuperficial;
- instalación de un nuevo sistema de drenaje para transportar las aguas pluviales desde el área de Max Read Field hasta el río Seekonk;
- rellenado de la antigua área de lavado con relleno importado limpio; y
- restauración del sitio y siembra.

De conformidad con el STRAP aprobado por el RIDEM, National Grid también brindó asistencia a la ciudad de Pawtucket para la excavación y el tratamiento de ciertos suelos limitados presuntamente afectados por la MGP que se encontraron durante la reconstrucción de Max Read Field. Además, con la aprobación del RIDEM, la ciudad de Pawtucket trasladó los suelos excedentes del proyecto de reconstrucción de Max Read Field al Sitio Tidewater, donde fueron utilizados para rellenar una zona baja.

Durante el proyecto, National Grid contó con un representante en el Sitio, quien realizó el control del aire conforme al Plan de Control de la Calidad del Aire específico para el Sitio enviado por el RIDEM, como se describe en el STRAP. De conformidad con las tareas similares realizadas con anterioridad en el Sitio Tidewater, la información sobre el control del aire se publicó en el sitio web de National Grid Tidewater y en los tableros de anuncios locales todas las semanas. Durante las tareas, no se detectaron valores que excedieran los niveles de acción de calidad del aire específicos del Sitio establecidos.

EXECUTIVE SUMMARY

Em nome da Companhia Elétrica Narragansett, sob o nome comercial National Grid (National Grid), a GZA GeoEnvironmental, Inc. (GZA) preparou este *Relatório de Encerramento para a Ação de Resposta a Curto Prazo (sigla em inglês, STRA)* recentemente concluída na antiga Fábrica de Gás Manufaturado Tidewater (sigla em inglês, MGP) e usina localizadas em Pawtucket, Rhode Island (o Local). A obra descrita neste Relatório de Encerramento foi executada de forma consistente com o Plano de Ação de Resposta a Curto Prazo (sigla em inglês, *STRAP*) para a área de eliminação ao sul com data de 25 de janeiro de 2016, que foi aprovado pelo Departamento de Gestão Ambiental de Rhode Island (sigla em inglês, RIDEM) em 19 de abril de 2016. O *STRAP*, que foi executado pela National Grid entre 18 de julho de 2016 e 26 de agosto de 2016, incluiu as seguintes atividades:

- remoção limitada de vegetação;
- nivelamento e preparação do local;
- fechamento da antiga área de eliminação com um sistema de revestimento da subsuperfície;
- instalação de um novo sistema de drenagem para conduzir águas pluviais da área de Max Read Field ao Rio Seekonk;
- reaterro da antiga área de eliminação com preenchimento importado limpo; e
- restauração e semeadura do local.

De forma consistente com o *STRAP* aprovado pelo RIDEM, a National Grid também prestou assistência à Cidade de Pawtucket na escavação e gestão de certos solos impactados da MGP suspeitos limitados encontrados durante a sua reconstrução do Max Read Field. A Cidade de Pawtucket também transportou excesso de solo do projeto de reconstrução do Max Read Field para o Tidewater Site, conforme aprovado pelo RIDEM, onde foi usado para preencher uma área baixa.

Por todo o projeto, a National Grid teve um representante no local, que conduziu o monitoramento do ar de forma consistente com o plano de monitoramento da qualidade de ar apresentado pelo RIDEM específico para o local, conforme descrito no *STRAP*. Consistentemente com obra similar realizada anteriormente em Tidewater Site, os dados do monitoramento do ar foram publicados no site da National Grid Tidewater e nos quadros de boletins informativos locais semanalmente. Nenhum valor superior ao admissível para os níveis de ação da qualidade de ar estabelecidos específicos para o local foi detectado durante a obra.

Proactive by Design

SHORT TERM RESPONSE ACTION (STRA) COMPLETION REPORT SOUTH WASHOUT AREA

Former Tidewater Facility
200 Taft Street
Pawtucket, Rhode Island

September 23, 2016
GZA File No.: 05.0043654.00

PREPARED FOR:
Rhode Island Department of Environmental Management (RIDEM)
Providence, Rhode Island

ON BEHALF OF:
nationalgrid

GZA GeoEnvironmental, Inc.
530 Broadway | Providence, RI 02909
401-421-4140

Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

530 Broadway
Providence, RI 02909
T: 401.421.4140
F: 401.751.8613
www.gza.com

Via E-Mail and U.S. Mail

September 23, 2016
File No. 05.0043654.00

Mr. Joseph Martella
Rhode Island Department of Environmental Management (RIDEM)
Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02908

Re: Short Term Response Action (STRA) Completion Report – South Washout Area
Former Tidewater Facility
200 Taft Street
Pawtucket, Rhode Island
RIDEM File No. SR-26-0934

Dear Mr. Martella:

On behalf of The Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) is pleased to present to the Rhode Island Department of Environmental Management (RIDEM) the attached *Short Term Response Action (STRA) Completion Report* for the South Washout Area for the former Tidewater Manufactured Gas Plant (MGP) and Power Plant located in Pawtucket, Rhode Island (herein referred to as the "Site"). The remedial actions described in the attached report were conducted in accordance with the *Short Term Response Action Plan (STRAP)* prepared by GZA dated January 25, 2016 and approved by RIDEM in a letter dated April 19, 2016.

The *STRAP* was prepared to address a sinkhole or "washout" located in the south fill area (SFA) portion of the Site. The majority of these remedial actions were performed between July 18, 2016 and August 26, 2016 and included limited removal of brush/vegetation, grading and preparation of subgrade, stabilization and capping of the washout with a subsurface liner system, installation of two new concrete manholes and approximately 60 linear feet of new concrete stormwater drain line and an engineered outfall to convey stormwater from the Max Read Field area to the Seekonk River, backfill of the washout area to final grade with clean import fill, and hydroseeding to establish grass cover over the former washout area. Consistent with the RIDEM approved *STRAP*, this work also included providing assistance to the City of Pawtucket in excavating and managing certain limited suspected MGP impacted soils encountered during their reconstruction of Max Read Field. The City of Pawtucket's contractor also transported excess soils from the Max Read Field reconstruction project to the Tidewater Site as approved by RIDEM which were used to fill a low lying area.

A Public Involvement Plan (PIP) dated October 2013 has been submitted to RIDEM for this Site. This PIP was prepared consistent with Rule 7.07 (Public Involvement) of the Remediation Regulations and is intended to be an agreement between National Grid and the public about how information will be shared and how the public will be able to comment on plans for assessment

and cleanup of the Tidewater Site. As described further in this *STRA Completion Report*, the procedures for public involvement described in the PIP were followed for the South Washout Area remedial actions.

Should you have any questions or comments regarding the information presented herein, please do not hesitate to contact the undersigned or Jesse Edmands (National Grid) at (781) 907-3682.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Sophia Narkiewicz, P.E.
Assistant Project Manager

Todd R. Greene, P.E.
Senior Consultant

James J. Clark, P.E.
Senior Principal

Attachments: *Short Term Response Action (STRA) Completion Report – South Washout Area*

cc: Michele Leone, National Grid
Jesse Edmands, National Grid
Elizabeth Stone, RIDEM

FIGURES

APPENDICES

1.0 INTRODUCTION

On behalf of The Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) is pleased to present to the Rhode Island Department of Environmental Management (RIDEM) this *Short-Term Response Action (STRA) Completion Report, South Washout Area* for the former Tidewater Manufactured Gas Plant (MGP) and Power Plant located in Pawtucket, Rhode Island (herein referred to as the "Site"). Figure 1 presents a Site Locus Plan. The work described herein was performed consistent with the January 25, 2016 *STRA Plan (STRAP)* prepared by GZA, on behalf of National Grid, submitted to RIDEM and subsequently approved by RIDEM via their letter dated April 19, 2016 (see Appendix C).

The *STRA* described herein was completed in accordance with applicable provisions of the Rhode Island Department of Environmental Management's (RIDEM) *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases* (Remediation Regulations, DEM-DSR-01-93, as amended November 2011).

This *STRA Completion Report* was prepared in general accordance with Rules 6.09 and 6.10 of the Remediation Regulations, is subject to the Limitations provided in Appendix A, and subject to modification if subsequent information is developed by GZA or any other party.

1.1 PROJECT OBJECTIVES

The *STRA* was performed to address a sinkhole or "washout" that was located in the south fill area (SFA) portion of the Site. The "South Washout Area" appears to have resulted from the deterioration of a headwall structure that is part of the City of Pawtucket's stormwater conveyance system and subsequent erosion of surficial fill materials from surface water flow. Two stormwater discharge pipes were located within this deteriorated headwall structure at the western edge of the washout area which extended approximately 60 feet inland from the bank of the Seekonk River. These stormwater discharge pipes originate beyond the eastern edge of Max Read Field and convey stormwater from the field and other upland areas. The attached Figure 2, *Pre-Construction Site Plan*, depicts the conditions of the washout area prior to implementation of this *STRA*. As shown on Figure 2, the washout covered an area, oriented in an approximate southwest-northeast direction, which extended approximately 60 feet to the bank of the Seekonk River. This area ranged in width between approximately 10 to 38 feet wide and was approximately 13 feet deep at its deepest point.

As described further herein, to address this washout area, the scope of the *STRA* involved the installation of an engineered cap, repair of an existing stormwater drainage feature via the installation of two new concrete manholes, approximately 60 linear feet of new concrete drain line, an engineered outfall and restoration of the washout to match existing grade. The *STRA* were completed between July 18 and August 26, 2016. Photographs of the *STRA* are included in Appendix B.

In addition to addressing the washout area and as described in the approved *STRAP,* this work also included providing assistance to the City of Pawtucket in excavating and managing certain limited suspected MGP impacted soils encountered during their reconstruction of Max Read Field. The City of Pawtucket's contractor also transported excess soils from the Max Read Field reconstruction project to the Tidewater Site, as approved by RIDEM, which were used to fill a low lying area.

2.0 BACKGROUND

The following sections present a brief summary of background information for the Site, with focus on the South Washout Area, including relevant historic operations, regulatory history and status, and the nature and extent of environmental impacts. For more details regarding existing and historic Site conditions, including Site plans, previous Site investigations, hydrogeologic setting and observed impacts, please refer to the January 2011 *Site Investigation Data Report (SIDR)*, the July 2011 *Remedial Alternative Evaluation (RAE)* and other reports previously submitted to the RIDEM. Reports and other RIDEM submittals between 2009 and the present are available on the Tidewater website (www.tidewatersite.com). These reports and other RIDEM submittals are also available on the website that RIDEM maintains for the former Tidewater facility (http://www.dem.ri.gov/programs/wastemanagement/site-remediation/tidewater.php).

2.1 SITE DESCRIPTION

The Site is located at the terminus of Tidewater Street and Merry Street in the City of Pawtucket, Rhode Island and is located on the west side of the Seekonk River and bound to the west by residential properties, to the south and southwest by the Francis J. Varieur School and Max Read Athletic Field, and to the north by undeveloped property owned by the City of Pawtucket. It encompasses approximately 23 acres and was the location of the former Tidewater Manufactured Gas Plant (MGP) and the Pawtucket No. 1 Power Station. The Site is currently largely vacant with the exception of an active natural gas regulating station, an active switching station and electric substation, and two transmission towers owned and operated by National Grid. The Site is secured with a locked perimeter chain-link fence.

The majority of the Site is owned by National Grid and a small portion of the Site is owned by the City of Pawtucket. As described in previous reports and shown on the attached Figure 3, *Exploration Location Plan – North Fill Area and Former Gas Plant Area* and Figure 4, *Exploration Location Plan – Former Power Plant Area and South Fill Area*, the Site includes the following four areas:

- North Fill Area (NFA) (northern portions of Assessors Plat (A.P.) 54B Lot 826);
- Former Gas Plant Area (FGPA) (southern portions of A.P. 54B Lot 826 and A.P. 65B Lot 662);
- Former Power Plant Area (FPPA) (A.P. 65B Lot 645); and
- South Fill Area (SFA) (A.P. 65B Lots 647 and 649, portions of Lot 648 and portions of A.P. 67B Lot 11).

The majority of work associated with this *STRA* was conducted on A.P. 65B Lots 645, 647, 648 and 649. Lot 648 is owned by the City of Pawtucket, includes a portion of the Max Read Field as well as the washout area. Lots 645, 647 and 649 are owned by National Grid.

2.2 SITE REGULATORY HISTORY AND ENVIRONMENTAL OVERVIEW OF THE SOUTH FILL AREA

MGP operations at the Site began in the 1880s and were substantially concluded in 1954, although peak shaving operations continued until the late 1960s. Power plant operations were conducted at the Site for approximately 85 years, between sometime in the early 1890s, when construction of the power plant began, until the facility ceased operation in 1975. During this timeframe, the power plant and MGP used coal and petroleum based products for manufactured gas and electricity generation. The SFA was primarily vacant during the operational history of the MGP and power plant.

A *SIDR* was submitted to RIDEM in January 2011. This *SIDR* was prepared consistent with applicable sections of Rule 7.00 of the RIDEM Remediation Regulations. A *RAE* was submitted to RIDEM on July 29, 2011. This evaluation, combined with

the January 2011 SIDR, fulfilled the requirements of Sections 7.03, 7.04, and 7.05 of the Remediation Regulations for a *Site Investigation Report* (*SIR*).

Soils proximate to this *STRA* work area consist of fill underlain by estuarine deposits, glacial till and bedrock. The fill is estimated to be over 20 feet in thickness and consists of sand, coal, slag, ash and building debris. Certain portions of this fill material have been observed to be impacted by former MGP residuals. Exceedances of select RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC) exist due to the presence of select total petroleum hydrocarbons (TPH), polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and certain inorganic compounds (primarily arsenic and lead) that have been detected within the South Washout area of the Site. In addition, more sporadic exceedances of select RIDEM Method 1 GB Leachability Criteria and Upper Concentration Limits (UCLs) were noted in soils in the SFA. Dense non-aqueous phase liquid (DNAPL) in the form of coal tar was observed adjacent to the riverfront within groundwater monitoring wells MW-1 and MW-320S/D and naphthalene and benzene have been detected at concentrations in excess of RIDEM GB Groundwater Objectives in groundwater samples collected from MW-320D. See the attached Figure 4 for exploration and monitoring well locations in the SFA area.

2.3 PERMITS AND OTHER APPROVALS

The *STRA* was implemented consistent with the following approvals[1]:

- RIDEM Office of Waste Management:
  - *STRAP* Approval, dated April 19, 2016
- Rhode Island Coastal Resources Management Council (CRMC):
  - Assent A2010-10-076, dated April 19, 2011
  - Modification to Assent A2010-10-076, dated April 12, 2016
- RIDEM Office of Water Resources:
  - Water Quality Certification (WQC) 11-011, dated April 6, 2011
  - Modification to WQC 11-011, dated March 4, 2016
- RIDEM Office of Air Resources (OAR):
  - Letter of Non-Applicability of Air Pollution Control (APC) No. 9, dated April 7, 2016
- Army Corp of Engineers (ACOE):
  - General Permit Approval NAE-2010-2326, dated March 23, 2016

The work was performed with no deviations from the above listed permits and approvals. Copies of all these permits and approvals are included in Appendix C.

[1] All work associated with the Max Read Field upgrade work was permitted separately by the City of Pawtucket. This listing does not include permits obtained by the City of Pawtucket for the Max Read Field upgrade work.

3.0 PUBLIC INVOLVEMENT PLAN (PIP) ACTIVITIES

A finalized Public Involvement Plan (PIP) for the Tidewater Site was submitted to RIDEM in October 2013 and is available on the Tidewater website (www.tidewatersite.com). The PIP is intended to be an agreement between National Grid and the public about how they will share information and how the public will be able to comment on plans for assessment and cleanup of the Site. As described previously, the requirements of the PIP were followed as part of these *STRA* activities.

The PIP consists of four basic components: public notice, fact sheets and enhanced communications, community meetings, and information repositories. National Grid carried out the following PIP activities as part of these *STRA* activities:

- Prior to *STRA* implementation:
    - *STRAP* Preparation and Distribution. The *STRAP* included a summary of background information, proposed response activities, public involvement requirements, estimated air emissions and air monitoring requirements and the proposed schedule. The *STRAP* was submitted to RIDEM, the Tidewater Site mailing list, email list, websites and other information repositories, as outlined in the PIP on January 25, 2016. As described previously, RIDEM approved the *STRAP* on April 19, 2016. No comments from the public were received on the *STRAP*.
    - Abutter Notification and Fact Sheet. This notification and fact sheet included a description of the proposed *STRAP* activities, air monitoring activities, schedule, and contact information. The fact sheet was provided in English, Spanish and Portuguese, with a translation header in multiple languages stating: "This is an important notice. Please have it translated." The notification and fact sheet was disseminated on May 5, 2016 to RIDEM, the Tidewater Site mailing list, email list, websites, bulletin boards and other information repositories, as outlined in the PIP. A copy of this notification and fact sheet is included in Appendix D.
    - Public Meeting. National Grid hosted a public meeting to present the *STRAP* activities on May 24, 2016 at the Francis J. Varieur Elementary School, located at 486 Pleasant Street in Pawtucket, Rhode Island. Translation assistance was provided for non-English speaking individuals. RIDEM was in attendance. A written summary of the meeting was submitted to RIDEM, the Tidewater Site email list, websites, bulletin boards and other information repositories on June 2, 2016. A copy of this summary is included in Appendix D.
- During *STRA* implementation:
    - Daily Updates. On a daily basis during earthwork, a color coded system for the bulletin boards and website was used to indicate whether active intrusive (i.e., earth disturbing) activities were occurring.
    - Timely Air Monitoring Results. National Grid posted all air monitoring results to the bulletin boards and website on a weekly basis, every Monday morning. National Grid also established a phone message network to distribute time-sensitive information to interested parties in the event it's use was required.
    - RIDEM Bi-Weekly Updates. National Grid provided bi-weekly updates regarding the *STRA* to RIDEM. The bi-weekly updates included a summary of air monitoring activities and the status of the *STRA* schedule. The bi-weekly updates were posted on the bulletin boards and website.

- After finishing *STRA* remedial activities:

  - Project Completion Abutter Notification. This project completion notification included a description of the *STRA,* air monitoring activities conducted during the work, and contact information. The notification was provided in English, Spanish and Portuguese, with a translation header in multiple languages stating: "This is an important notice. Please have it translated." The notification was disseminated on August 29, 2016 to RIDEM, the Tidewater Site mailing list, email list, websites, bulletin boards and other information repositories, as outlined in the PIP. A copy of this notification is included in Appendix D.

  - *STRA* Completion Report. This document was prepared to provide a summary of the *STRA*, public involvement activities, and air monitoring results. Additionally, an executive summary has been prepared to act as the cover sheet for this *STRA Completion Report* (see the first pages). The executive summary has been provided in English, Spanish and Portuguese, with a translation header in multiple languages stating: "This is an important notice. Please have it translated." The *STRA Completion Report* will be disseminated to RIDEM, the Tidewater Site mailing list, email list, websites, bulletin boards and other information repositories, as outlined in the PIP.

4.0 STRA ACTIVITIES

4.1 DRAINAGE REPAIR AND SOUTH WASHOUT RESTORATION ACTIVITIES

This section presents the activities performed to implement the RIDEM-approved *STRAP*. The majority of the *STRA* activities were performed between July 18, 2016 and August 26, 2016.

4.1.1 Construction Summary

As described in more detail herein and consistent with the RIDEM-approved *STRAP*, the construction activities involved limited removal of brush/vegetation, grading and preparation of subgrade, stabilization and capping of the washout area with a geomembrane liner system, installation of two new concrete manholes and approximately 60 linear feet of new concrete stormwater drain line and an engineered outfall to convey stormwater from the Max Read Field area to the Seekonk River, backfilling of the washout area to final grade with clean import fill, and hydroseeding and watering to establish grass cover over the former washout area. All imported soils were tested for compliance with the RIDEM Method 1 Residential Direct Exposure Criteria (R-DEC), in accordance with the testing frequency and analysis outlined in the RIDEM-approved *STRAP*.

In addition to these washout repair activities, this work also included providing assistance to the City of Pawtucket in excavating and managing certain limited suspected MGP impacted soils encountered during their reconstruction of Max Read Field. The City of Pawtucket's contractor also transported excess soils from the Max Read Field reconstruction project to the Tidewater Site as approved by RIDEM which were used to fill a low lying area. As described below, excess materials from the Max Read Field upgrade work (see Section 4.2) were used to backfill a low-lying area of the Site (known herein as former tank area) which is outside of the 200-foot CRMC buffer.

Photographs of the *STRA* work are included as Appendix B.

4.1.2 Project Oversight, Contractor List and Equipment Utilized

A representative of GZA was present on-Site full time, during all phases of the work. GZA monitored and documented construction activities to ensure that the engineered cap and stormwater system were constructed consistent with the

design plans/specifications, the RIDEM-approved *STRAP,* and all relevant permits and approvals. In addition, GZA performed perimeter air monitoring during all intrusive activities and material density testing activities. The results of the perimeter air monitoring are described in Section 4.3. National Grid and GZA held weekly Site meetings with the primary construction contractor, National Response Corporation (NRC) of Franklin, Massachusetts to discuss construction progress, schedule, material specifications, etc.

NRC was the primary construction contractor for this *STRA* remedial work. NRC's subcontractors included: Mabbett and Associates of Bedford, Massachusetts (Site Safety and Health Officer); Cook Landscaping of Upton, Massachusetts (clearing and grubbing); National Land Surveyors of Woonsocket, Rhode Island (land surveying); American Environmental Group of Richfield, Ohio (liner installation services); B.P. Van Gorden (hydroseeding contractor); and Bay Crane Northeast of Smithfield, Rhode Island (crane services).

Construction equipment utilized during this work included excavators (both full size and minis), a crane, loaders, backhoes, a dump truck, forklifts, a lawn tractor, vibratory plate compactors, vibratory rollers, and hand equipment. NRC also had a pneumatic foam unit equipped with AC-645 odor and vapor suppressing foam on Site. As presented below in Section 4.3, there were no exceedances of site-specific action levels. The foam unit was not deployed for the south washout *STRA* remedial work.

4.1.3 Import Material Characterization

Processed gravel, topsoil, riprap, ¾-inch crushed stone and 1½-inch crushed stone were imported to the Site as part of the *STRA* activities.

Prior to the import of the quarry run aggregate materials (¾-inch crushed stone and 1½-inch crushed stone) to the Site, NRC provided certification from the sources that the aggregate was from a clean source. Prior to the import of the engineered soil materials (processed gravel and topsoil), NRC provided certification from the source that the materials were from a clean source and performed analytical sampling as described below.

The processed gravel and topsoil were furnished from dedicated stockpiles at Material Sand and Stone Corporation's yard located at 618 Greenville Road in North Smithfield, Rhode Island. The ¾-inch crush stone and 1 ½-inch crushed stone were furnished from Lorusso Corporation in Plainville, Massachusetts. The riprap was furnished from Kimball Sand Company in Mendon, Massachusetts. The following provides a summary of the material imported to the Site:

- Processed Gravel: 1517.6 tons (approximately 829 CY)
- Topsoil: 192 tons (approximately 192 CY)
- ¾-inch crushed stone: 114.22 tons (approximately 76 CY)
- 1 ½-inch crushed stone: 92.15 tons (approximately 61 CY)
- Riprap: 6.66 tons (approximately 4.5 CY)

Consistent with the *STRAP*, the frequency of sampling and testing of the processed gravel and topsoil was as follows:

- Full suite of analysis (as shown in the below table) for up to 2,000 cubic yards, with an additional full suite for each subsequent 2,000 cubic yards of material; and
- Arsenic each 500 cubic yards of material.

Analyte	EPA Test Method
Total Petroleum Hydrocarbons (TPH)	8100M
Volatile Organic Compounds (VOCs)	8260
Semi-Volatile Organic Compounds (SVOCs)	8270
Priority Pollutant Metals (PP-13)	6010 & 7471A

All soil samples collected were transported under chain-of-custody protocol to ESS Laboratories in Cranston, Rhode Island for analysis. No exceedances of the RIDEM Method 1 R-DEC were identified. Analytical results as well as associated chain-of-custody forms are presented in Appendix E. Quarry certifications are presented in Appendix F.

4.1.4 Site Preparation and Clearing and Grubbing

Prior to the start of work, NRC obtained clearance from Dig Safe (Clearance #2016-2605616) and installed the following control measures to mitigate the potential migration of sediments and dusts and to control surface water flow:

- Sedimentation and erosion control measures were installed around the downgradient portion of the work area. Sedimentation and erosion control measures consisted of compost wattles (Filtrexx Siltsoxx).

- An anti-tracking pad (wheel wash) was constructed at the entrance/exit to the *STRA* work area near the substation. The anti-tracking pad consisted of an approximate 20-foot wide by 50-foot long, 12-inch thick layer of 1 ½-inch crushed stone built over 8-ounce non-woven geotextile fabric.

- A turbidity curtain was installed within the Seekonk River to the east of the washout area to serve as a secondary measure to mitigate the potential migration of sediments into the Seekonk River during the implementation of the *STRA* remedial work. The curtain consisted of a Granite Environmental Type II-DOT Turbidity Curtain manufactured by Granite Environmental of Sebastian, Florida.

- NRC installed temporary stormwater diversion piping to convey upgradient stormwater flow from the Max Read Field area during the work. This diversion included utilizing 15-inch diameter high density polyethylene (HDPE) piping to convey stormwater flow to a temporary riprap outlet located north of the washout area.

Photos of these controls are included in Appendix B. GZA inspected the sedimentation and erosion controls on a daily basis and after major precipitation events. GZA did not observe any deficiencies related to the sedimentation and erosion controls that required repair or replacement.

Prior to any excavation activities, vegetation in the washout area and in the *STRA* work area was cleared to facilitate access. Grubbing was only conducted in the washout area. Cook Landscaping performed all vegetation removal activities. The majority of clearing and grubbing activities for the work was conducted on July 18 and July 19, 2016. Cut vegetation was processed through a wood chipper and spread on-Site for dust control. All grubbed material was transported to the former tank area of the Site. Photographs of clearing and grubbing are provided in Appendix B.

4.1.5 Subgrade Preparation

Prior to the installation of the geomembrane liner system, the work area was graded to facilitate the installation of the geomembrane and the drainage structures. The as-built subgrade elevations for the geomembrane liner system are depicted on a figure entitled “Subgrade As-Built Plan” in Appendix G. The soils below the geomembrane liner system were compacted to the extent possible in place by NRC with minimum of six passes with a remote controlled vibratory roller

and observed by GZA to be firm and stable. As described in Section 4.1.9, any soils that were deemed unsuitable for re-use (primarily concrete or grubbed debris) were utilized to fill the former tank area of the Site.

4.1.6 Geomembrane Installation

Subsequent to subgrade preparation and prior to installation of the stormwater management system components, a 40-mil linear low density polyethylene (LLDPE) double-sided Microspike liner system was installed on top of subgrade soils to serve as an engineered barrier/cap. The geomembrane liner system consisted of an 8-ounce non-woven geotextile (Mirafi 180N) overlain by the 40 mil LLDPE liner (Agru America) overlain by an additional layer of 8-ounce non-woven geotextile (Mirafi 180N). The 8-ounce non-woven geotextile was installed to cushion the LLDPE liner. The 40 mil LLDPE liner sections were welded together to create one continuous, welded liner. During installation, American Environmental Group (the liner installation company) performed Quality Assurance and Quality Control (QA/QC) field testing as follows: trial weld testing for peel and sheer strength (two samples) and non-destructive pressure tests on all panel seams (four seams). The results of the QA/QC testing confirmed the liner fusion equipment was functioning properly, with peel and shear values in excess of the project specifications (50 pounds (lbs))/inch (minimum) peel value and 60 lbs/inch (minimum) shear value). The liner seams were observed to be air tight with seam pressure maintained at 30 pounds per square inch (psi) for 5 minutes. An anchor trench was installed along the northern, southern and western sides of the geomembrane liner. The liner system was installed in accordance with the project specifications. The location of the geomembrane liner system and anchor trench are shown on figures entitled “Subgrade As-Built Plan” and “Drainage As-Built Plan” in Appendix G. Liner QA/QC testing results are attached in Appendix H. Photos of the geomembrane liner system installation are included in Appendix B.

4.1.7 Stormwater System Installation

Components for the stormwater system included pre-cast concrete structures and piping. Pre-cast concrete structures delivered to the Site included the drop manhole structures (DMH#1 and DMH#2), piping sections (24-inch diameter reinforced concrete pipe (RCP)) and ArmorFlex cellular concrete block matting. The layout, dimensions, and invert elevations of the stormwater management systems were surveyed by National Land Surveyors and as-built details including invert elevations are depicted on a figure entitled “Drainage As-Built Plan” in Appendix G.

After the geomembrane liner system was installed, NRC placed and compacted processed gravel in 12-inch thick lifts to prepare the subgrade to install the stormwater system components. Material density testing was performed on the processed gravel, with results ranging from 95% to 97%. NRC installed wrapped stone bedding (3/4-inch crushed stone wrapped with 8-ounce non-woven geotextile (Mirafi 180N) on all sides) above the compacted processed gravel under each component of the stormwater system.

Fifteen-inch diameter high density polyethylene (HDPE) piping sections with adapters were utilized to connect the existing 15-inch RCP sections to DMH#1. Approximately 40 linear feet (LF) of 24-inch diameter RCP was installed between DMH#1 and DMH#2 and approximately 12 LF of 24-inch diameter RCP was installed between DMH#2 and the 24-inch diameter RCP flared end outfall (7 LF RCP section).

The 24-inch diameter RCP flared end extends onto the ArmorFlex energy dissipation matting to provide the outfall to the Seekonk River. The mat was designed to limit scouring associated with potential high velocity of stormwater from the Max Read Field. The two drop manholes also were designed to limit stormwater flow velocity.

Photos of the stormwater system installation are included in Appendix B.

4.1.8 Final Backfill and Site Restoration Activities

After the installation of the new stormwater system components, NRC backfilled the area to final grades. Imported processed gravel was placed with an excavator in approximately 12-inch thick loose lifts and compacted with a minimum of six passes with a remote controlled vibratory drum roller. All placed soils were observed by GZA to be firm and stable. NRC placed at least 6-inches of imported topsoil above the final processed gravel surface. The as-built final grade elevations are depicted on a figure entitled "Drainage As-Built Plan" in Appendix G.

New 5-foot high, chain-link fencing was installed to the south of the *STRA* work area to extend the existing fence to the east and west. New fencing is illustrated on a figure entitled "Drainage As-Built Plan" in Appendix G.

Hydroseeding and installation of final erosion controls was performed on August 19, 2016. Final erosion controls consisted of the installation of erosion control netting and additional sections of compost wattles.

NRC watered and established the new grass surface between August 22 and September 15, 2016. Photos of the grassed restored washout area are included in Appendix B.

4.1.9 Soil Disposal

No soil was disposed from the Site as part of this *STRA*.

As described previously, a limited amount (approximately 60 CY) of excess materials were removed from the washout area to achieve subgrade elevations which were placed in a low lying area of the Site (known as the former tank area) outside of the 200-foot CRMC buffer.

4.2 MAX READ FIELD UPGRADE WORK SOIL MANAGEMENT ASSISTANCE

4.2.1 Suspected MGP-Impacted Soil Management during the Upgrade Work

As described previously and consistent with the January 2016 approved *STRAP*, NRC/GZA on behalf of National Grid provided certain assistance in managing suspected MGP impacted soils encountered during the Max Read Field upgrade project. This field upgrade project is being performed by the City of Pawtucket with construction activities conducted by DiGregorio Corporation (DiGregorio) of Smithfield, Rhode Island under the direction of Pare Corporation (PARE) of Foxboro, Massachusetts. A GZA representative was on-Site on behalf of National Grid to conduct air monitoring and to guide soil management activities for suspected MGP impacted soils consistent with the RIDEM-approved *STRAP*. NRC provided assistance with excavating and managing these soils on behalf of National Grid. This work was conducted between July 25, 2016 and August 3, 2016.

Consistent with the results of previous site investigations, the suspected MGP impacted soils were encountered during trenching related to the installation of new subsurface stormwater piping and structures proximate to the eastern edge of the field. All suspected MGP impacted soils encountered during the Max Read Field work were placed in triaxle trucks and transported to the former tank area of the Tidewater Site. Each trench was sprayed with odor and vapor controlling foam and lined with a non-woven geotextile to limit worker exposure from suspected MGP impacted soils. Each triaxle truck was sprayed with odor and vapor controlling foam and covered with a screen prior to transporting to the Site. NRC transported approximately 600 CY of these soils utilizing Bills of Lading (BOLs). Excavated materials were covered with 6-mil polyethylene sheeting at the end of each work day. BOLs from the work are included in Appendix I.

4.2.2 Excess Soils Generated During the Upgrade Work

DiGregorio transported an additional approximately 3,300 CY of excess soils from the Max Read Field upgrade work to the former tank area on the Tidewater Site between August 4, 2016 and September 23, 2016. These soils generally consisted of a sandy urban fill material and were placed on top of the suspected MGP impacted materials described in the previous section.

4.3 HEALTH AND SAFETY AND ENVIRONMENTAL MONITORING

4.3.1 Health and Safety

Prior to initiating *STRA* activities, GZA and NRC prepared written health and safety plans, which were adhered to during the work. A daily health and safety briefing was held on-Site during which individuals working on-Site were briefed on potential health and safety related issues prior to starting work. The remedial activities described herein were completed without any reported worker health and safety issues.

4.3.2 Field Air Monitoring Instrument Results

In accordance with the RIDEM-approved January 2016 *STRAP* and the April 2011 *Air Quality Monitoring Plan (AQMP)*, real time air monitoring was performed during the *STRA* involving the use of the following hand held instrumentation:

- Portable Photoionization Detector (PID) ppb RAE3000 – this instrument measured total volatile organic compounds (TVOC) with a detection limit of 1 parts per billion (ppb) or 0.001 parts per million (ppm). TVOC readings were measured every 10 seconds and an average was electronically logged every 3 minutes.

- DustTRAK Dust Meter – this dust meter used infrared electromagnetic radiation to sense airborne particles less than 10 microns in size. The detection limit for this instrument was 1 microgram per cubic meter ($\mu g/m^3$). Similar to the PID, the readings from this hand held instrument were measured every 10 seconds and an average was electronically logged every 3 minutes.

- A portable field gas chromatograph (Photovac Voyager) – this instrument was used to monitor real time benzene concentrations in the field. The detection limit for benzene was 10 ppb (0.01 ppm). The Photovac Voyager collected and electronically recorded a measurement approximately every three minutes. Benzene was only monitored during intrusive work, which included any and all management of suspected MGP-impacted soils.

The PID, Photovac Voyager and DustTRAK Dust Meter were calibrated at the beginning of each day. Regular monitoring was conducted at the work zone and the perimeter monitoring locations shown on the attached figure in Appendix J. Air monitoring equipment was moved periodically (approximately once every two hours) between perimeter sampling locations to check parameters. During the remainder of time, the equipment was stationed proximate to the work zone. Graphs presenting the recorded TVOC, dust and benzene concentrations are included in Appendix K. As presented in the data graphs, results of the real time monitoring were below the Action Levels for the constituents monitored.

4.3.3 Time Integrated Sampling Results

Consistent with the RIDEM-approved January 2016 *STRAP* and the April 2011 *AQMP*, two VOC air samples, one upwind and one downwind from the work zone, were collected during each day when intrusive activities were being performed. The sampling locations, as shown on the attached figure in Appendix J, were chosen based on actual and predicted wind conditions for the sampling day. VOC samples were collected using SUMMA stainless steel canisters in conjunction with

US EPA Method TO-15 GC/MS Full Scan, as presented in "The Compendium of Methods for the Determination of Toxic Organic Compounds in the Ambient Air."

As indicated previously, there were no exceedances of the site-specific real-time monitoring Action Levels. As such and per the AQMP, submittal of the collected SUMMA canisters for laboratory analysis is not required. However, consistent with the *AQMP*, at least one set of SUMMA canisters should be submitted for laboratory analysis to confirm field real-time air monitoring results. Therefore, one set of SUMMA canisters (those collected on July 26, 2016) was submitted for laboratory analysis. The VOC air samples were submitted for analysis by Con-Test Analytical Laboratory of East Longmeadow, Massachusetts. The laboratory certificate of analysis and a summary table of the analysis is presented in Appendix L. All constituents were well below the Action Levels established in the *AQMP*.

4.4 DEVIATIONS FROM THE RIDEM-APPROVED STRAP

No deviations from the RIDEM-approved *STRAP* were performed.

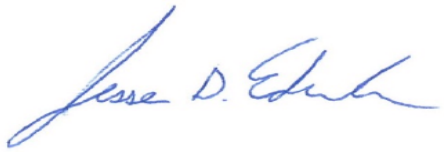
5.0 CERTIFICATION

To address Section 6.10 of the Remediation Regulations, the following certifications of completeness are provided:

GZA certifies that the information provided in this Short Term Response Action Completion Report is complete and accurate to the best of GZA's knowledge.

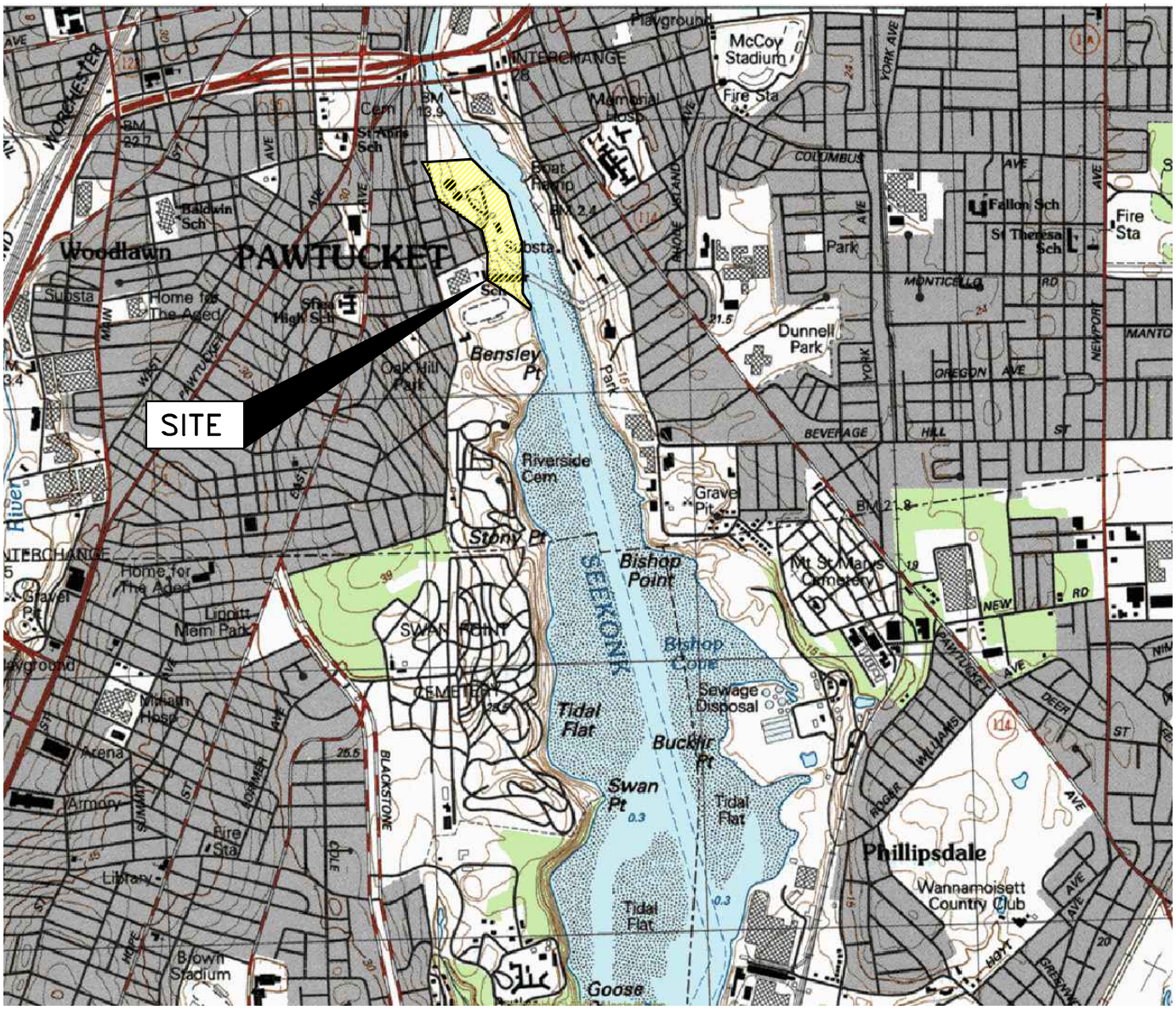
Todd Greene, P.E.
Senior Consultant
GZA GeoEnvironmental, Inc.

Jesse Edmands, representative of the Narragansett Electric Company d/b/a National Grid, certifies to the best of his knowledge that this Short Term Response Action Completion Report is a complete and accurate representation of the circumstances known about the release and the subsequent response



Jesse Edmands, CHMM, QEP, ASP, LEP
Project Manager
National Grid

FIGURES



0 1000' 2000' 4000' 6000'

APPROXIMATE SCALE IN FEET

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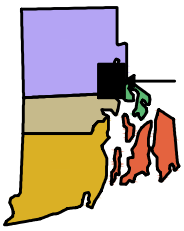


QUADRANGLE LOCATION

SOURCE:

BASE MAP FROM THE FOLLOWING USGS QUADRANGLE MAP:
PROVIDENCE, RHODE ISLAND (1987)

DIGITAL TOPOGRAPHIC MAPS PROVIDED BY MAPTECH. INC.

CONTOUR ELEVATIONS REFERENCE NGVD 29,
CONTOURS ARE SHOWN IN METERS AT 3 METER INTERVALS

FORMER TIDEWATER FACILITY
PAWTUCKET, RHODE ISLAND

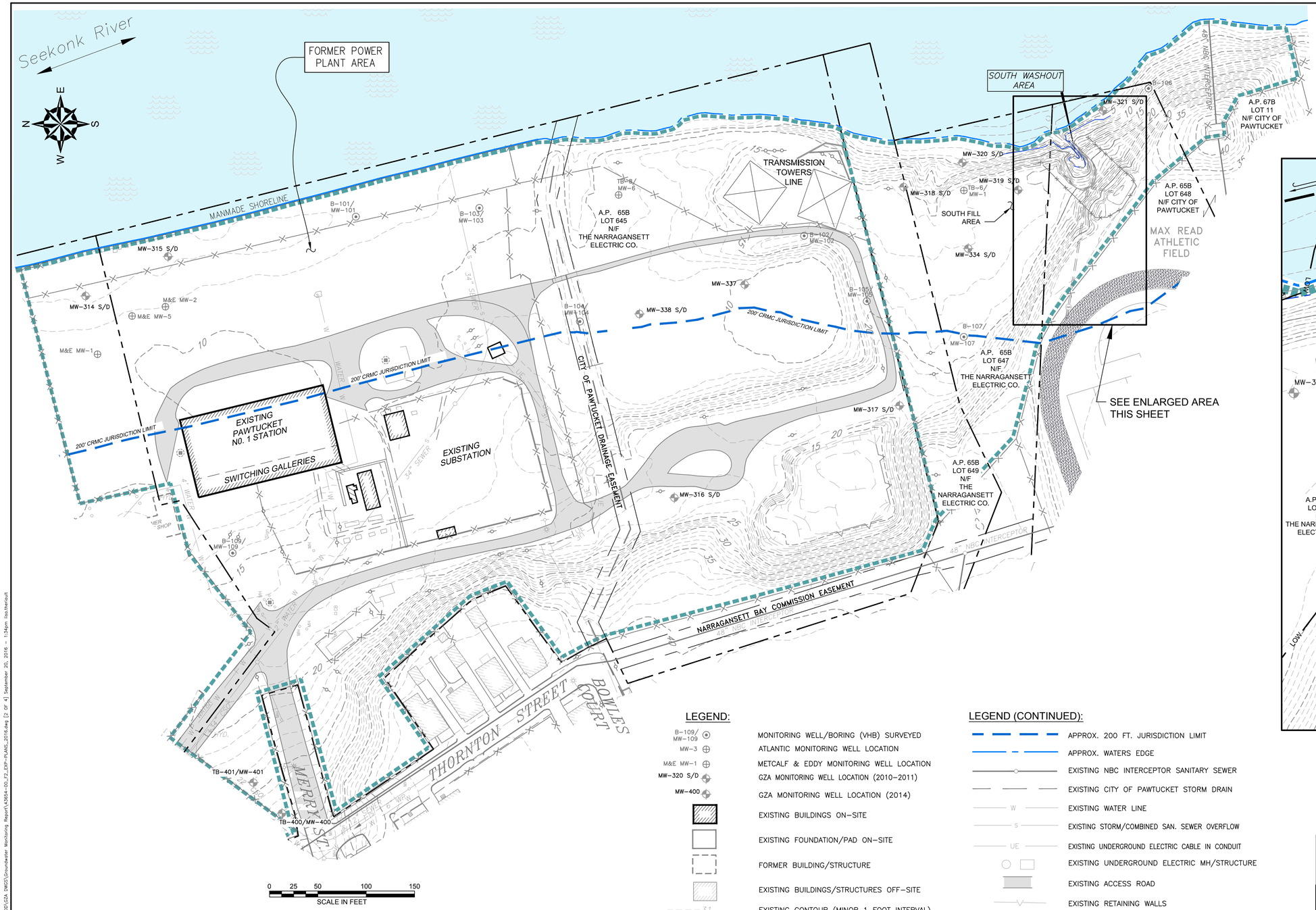
PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

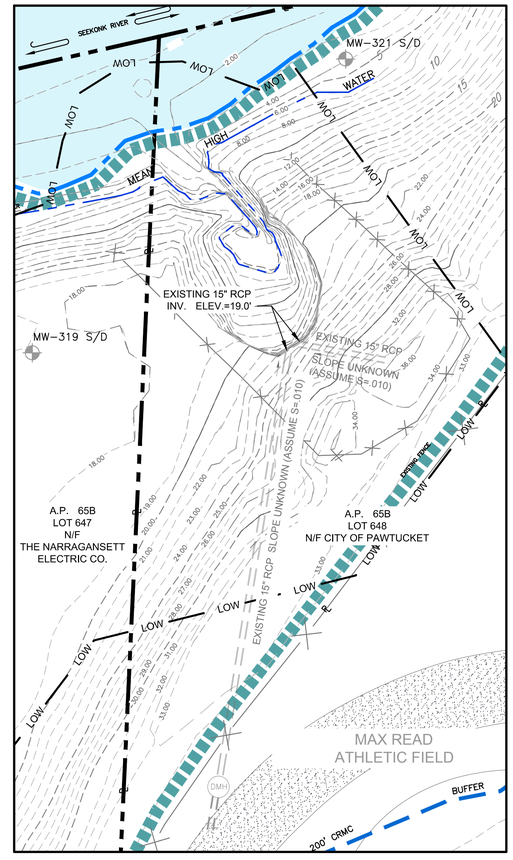
PREPARED FOR:
nationalgrid

LOCUS PLAN

PROJ MGR: MSK	REVIEWED BY: MSK	CHECKED BY: JJC	FIGURE 1
DESIGNED BY: SDN	DRAWN BY: CRD	SCALE: AS NOTED	
DATE: SEPTEMBER 2016	PROJECT NO. 43654.00	REVISION NO. 0	SHEET NO. 1 OF 4

2016 - GZA GeoEnvironmental, Inc. GZA-J:\ENV\43654.msk\CADD\GZA DWGS\43654 LOCUS PLAN.dwg [1 of 4] September 20, 2016 - 12:11pm lisa.theriault





ENLARGED (WASHOUT AREA)

LEGEND:

- B-109/MW-109 — MONITORING WELL/BORING (VHB) SURVEYED
- MW-3 — ATLANTIC MONITORING WELL LOCATION
- M&E MW-1 — METCALF & EDDY MONITORING WELL LOCATION
- MW-320 S/D — GZA MONITORING WELL LOCATION (2010-2011)
- MW-400 — GZA MONITORING WELL LOCATION (2014)
- EXISTING BUILDINGS ON-SITE
- EXISTING FOUNDATION/PAD ON-SITE
- FORMER BUILDING/STRUCTURE
- EXISTING BUILDINGS/STRUCTURES OFF-SITE
- 31 — EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- 35 — EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)

LEGEND (CONTINUED):

- APPROX. 200 FT. JURISDICTION LIMIT
- APPROX. WATERS EDGE
- EXISTING NBC INTERCEPTOR SANITARY SEWER
- EXISTING CITY OF PAWTUCKET STORM DRAIN
- W — EXISTING WATER LINE
- S — EXISTING STORM/COMBINED SAN. SEWER OVERFLOW
- UE — EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
- EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
- EXISTING ACCESS ROAD
- EXISTING RETAINING WALLS
- EXISTING FENCE
- EXISTING CATCH BASIN LOCATIONS
- PROPERTY LINE
- SITE AREA BOUNDARIES
- EXISTING 15" RCP
- DMH — EXISTING STORMWATER MANHOLE STRUCTURE
- EXISTING UTILITY POLE

GENERAL NOTES:

1. EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
   - ELECTRONIC FILES FROM GEI CONSULTANTS, INC. (FORMERLY AES) ENTITLED "HISTORIC STRUCTURES AND SAMPLE LOCATIONS", ORIGINAL SCALE 1"=80', DATED JULY 1999
   - ELECTRONIC FILES FROM VANASSE HANGEN BRUSTLIN, INC. ENTITLED "SOIL BORING, TEST PIT AND MONITOR WELL LOCATIONS", SCALE: 1"=60', UNDATED
   - ELECTRONIC FILES FROM WELSH ASSOCIATES LAND SURVEYORS, INC., ENTITLED "TOPOGRAPHIC SURVEY (AS-BUILT), FORMER TIDEWATER FACILITY, DEMOLITION OF GAS HOLDERS NOS. 7 & 8", DATED DECEMBER 17, 2010
   - ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS DURING 2009 AND 2016.
2. PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM INFORMATION PROVIDED ON A DRAWING ENTITLED "PERIMETER SURVEY OF LAND AT THE TIDEWATER FORMER MGP SITE IN PAWTUCKET, RHODE ISLAND FOR ATLANTIC ENVIRONMENTAL SERVICES INC." DEVELOPED BY LOUIS FEDERICI AND ASSOCIATES AND AN AUTO CAD FILE ENTITLED "MAX READ FIELD TRACK EXPANSION 2007" PROVIDED BY THE CITY OF PAWTUCKET.
3. HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
4. VERTICAL DATUM IS BASED ON NGVD 1929 FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
5. REFERENCE SEWER DATA FROM SCANNED IMAGE PROVIDED BY THE CITY OF PAWTUCKET, ENTITLED "STUDY OF SEWERAGE FACILITIES" BY WATERMAN ENGINEERING CO. & ANDERSON NICHOLS CO. DATED NOV. 1975, ORIGINAL SCALE 1"=400' & SCANNED IMAGES OF HISTORIC PLAN & PROFILE DRAWINGS PROVIDED BY THE CITY OF PAWTUCKET.
6. SITE UTILITIES TAKEN FROM 1984 SANBORN MAP AND HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY.

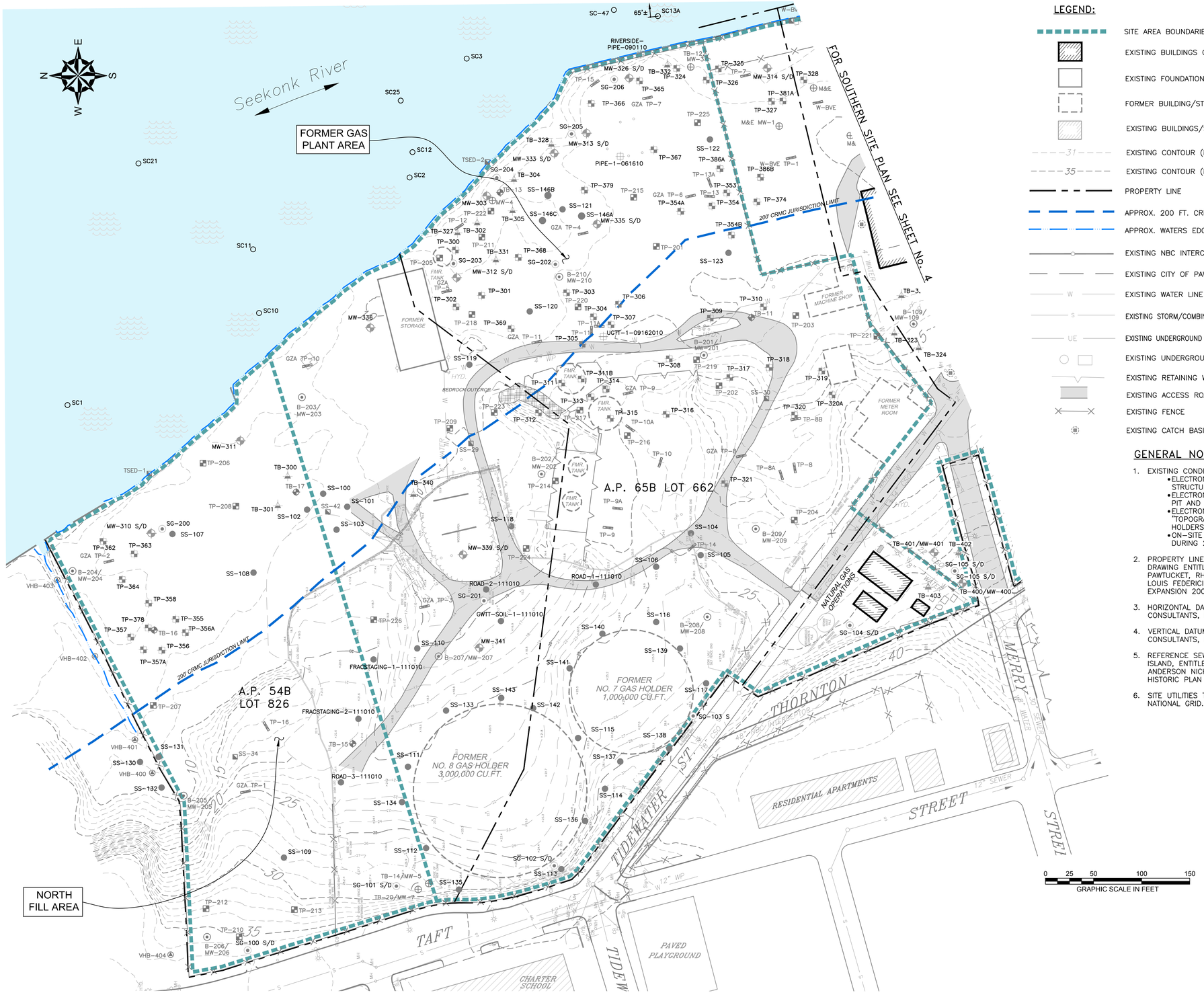
FORMER TIDEWATER FACILITY
PAWTUCKET, RHODE ISLAND

PRE-CONSTRUCTION SITE PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
530 BROADWAY
PROVIDENCE, RHODE ISLAND 02909
(401) 421-4140

PREPARED FOR: nationalgrid

PROJ MGR: MSK	REVIEWED BY: JJC	CHECKED BY: JJC	FIGURE 2
DESIGNED BY: WF	DRAWN BY: CRD	SCALE: AS NOTED	
DATE: SEPTEMBER 2016	PROJECT NO.: 43654.00	REVISION NO.: 0	SHEET NO. 2 OF 4



LEGEND:

- SITE AREA BOUNDARIES
- EXISTING BUILDINGS ON–SITE
- EXISTING FOUNDATION/PAD ON–SITE
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- EXISTING BUILDINGS/STRUCTURES OFF–SITE
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- EXISTING ACCESS ROAD
- EXISTING FENCE
- EXISTING CATCH BASIN LOCATIONS

SAMPLE LEGEND

SS–9	ATLANTIC SURFACE SOIL SAMPLE LOCATION
TSED–6	ATLANTIC SEDIMENT SAMPLE LOCATION
W–BVE SS–3	WESTON/BLACKSTONE VALLEY ELECTRIC SEDIMENT SAMPLE LOCATION
RIDEM SS–3	RIDEM SURFACE SOIL SAMPLE LOCATION
B–109/ MW–109	MONITORING WELL/BORING (VHB) SURVEYED
TP–3A	ATLANTIC TEST PIT LOCATION
W–BVE	WESTON/BLACKSTONE VALLEY ELECTRIC TEST PIT LOCATION
GZA TP–8	GZA/VALLEY GAS TEST PIT LOCATION
TB–15	ATLANTIC SOIL BORING LOCATION
MW–3	ATLANTIC MONITORING WELL LOCATION
M&E MW–1	METCALF & EDDY MONITORING WELL LOCATION
VHB–400	VHB SURFACE SOIL SAMPLE LOCATION NON–SURVEYED
TP–204	VHB TEST PIT (2006)
GZ–01	GZA TEST PIT (2009)
TB–300	GZA TEST BORING LOCATION (2010–2011)
MW–320 S/D	GZA MONITORING WELL LOCATION (2010–2011)
TP–306	GZA TEST PIT LOCATION (2010)
SS–100	GZA SURFACE SOIL SAMPLE LOCATION (2010)
SC31	ARCADIS SEDIMENT SAMPLE LOCATION (2008)
PIPE–1–061610	GZA RESIDUAL MATERIAL SAMPLE (2010)
SG–200	INTERIOR SOIL GAS SAMPLING LOCATION
SG–100	PERIMETER SOIL GAS SAMPLING LOCATION
TB–400	GZA BORING LOCATION (2014)
MW–400	GZA MONITORING WELL LOCATION (2014)

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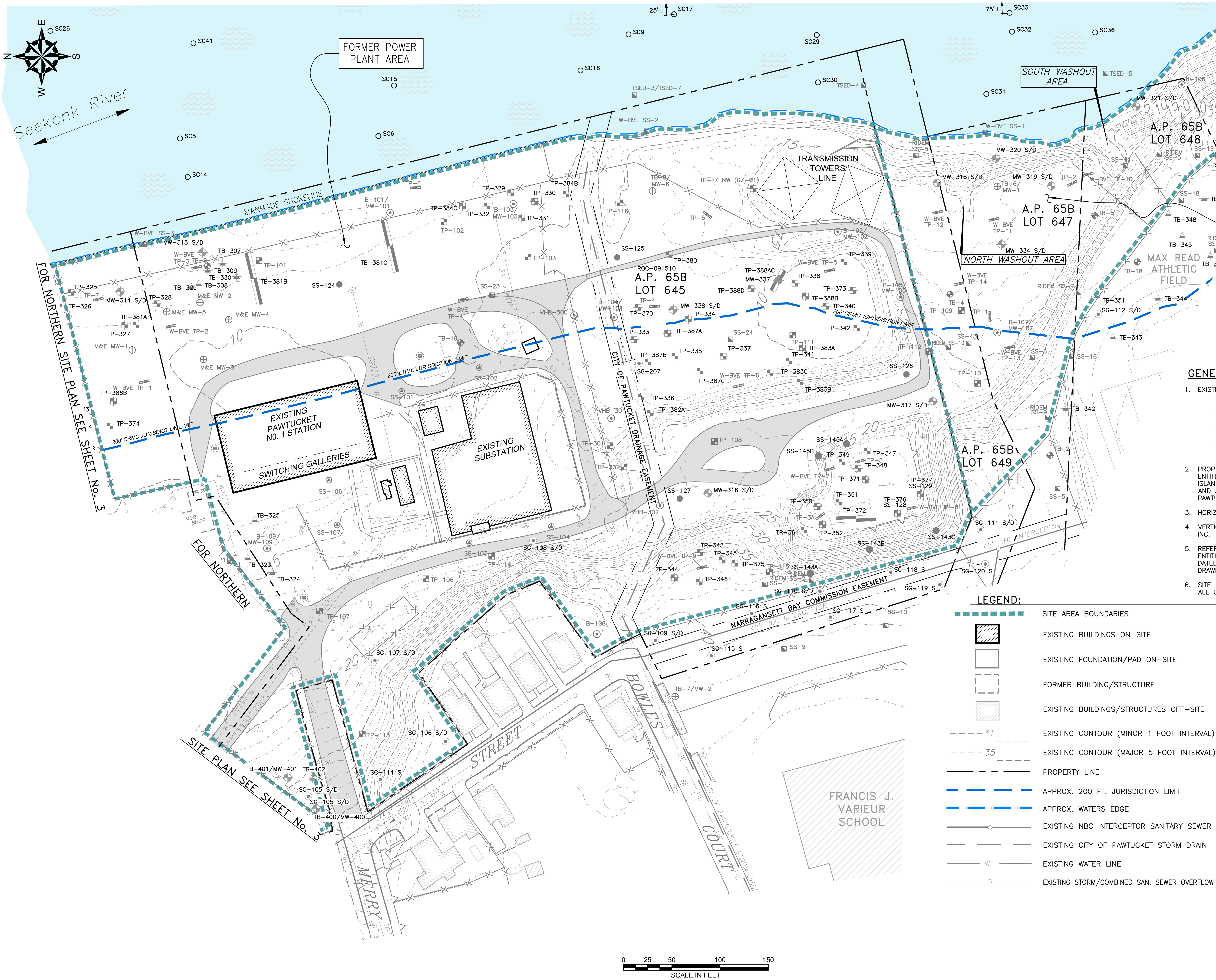
FORMER TIDEWATER FACILITY

PAWTUCKET, RHODE ISLAND

EXPLORATION LOCATION PLAN

NORTH FILL AREA AND FORMER GAS PLANT AREA

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists, 530 BROADWAY, PROVIDENCE, RHODE ISLAND 02909, (401) 421-4140		PREPARED FOR: nationalgrid	
PROJ MGR: MSK	REVIEWED BY: SDN	CHECKED BY: SDN	FIGURE 3
DESIGNED BY: SFD	DRAWN BY: CRD	SCALE: AS NOTED	
DATE: SEPTEMBER 2016	PROJECT NO.: 43654.00	REVISION NO.: 0	SHEET NO. 3 OF 4



SAMPLE LEGEND

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TB-300	GZA TEST BORING LOCATION (2010-2011)
MW-320 S/D	GZA MONITORING WELL LOCATION (2010-2011)
TP-306	GZA TEST PIT LOCATION (2010)
SS-100	GZA SURFACE SOIL SAMPLE LOCATION (2010)
SC31	ARCADIS SEDIMENT SAMPLE LOCATION (2008)
PIPE-1-061610	GZA RESIDUAL MATERIAL SAMPLE (2010)
SG-200	INTERIOR SOIL GAS SAMPLING LOCATION
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   - ELECTRONIC FILES FROM VANASSE HANGEN BRUSTLIN, INC. ENTITLED "SOIL BORING, TEST PIT AND MONITOR WELL LOCATIONS", SCALE: 1"=60', UNDATED
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   - ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS DURING 2009 AND 2010.
2. PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM INFORMATION PROVIDED ON A DRAWING ENTITLED "PERIMETER SURVEY OF LAND AT THE TIDEWATER FORMER MGP SITE IN PAWTUCKET, RHODE ISLAND FOR ATLANTIC ENVIRONMENTAL SERVICES INC." DEVELOPED BY LOUIS FEDERICI AND ASSOCIATES AND AN AUTO CAD FILE ENTITLED "MAX READ FIELD TRACK EXPANSION 2007" PROVIDED BY THE CITY OF PAWTUCKET.
3. HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
4. VERTICAL DATUM IS BASED ON NGVD 1929 (MSL) FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
5. REFERENCE SEWER DATA FROM SCANNED IMAGE PROVIDED BY THE CITY OF PAWTUCKET, RHODE ISLAND, ENTITLED "STUDY OF SEWERAGE FACILITIES" BY WATERMAN ENGINEERING CO. & ANDERSON NICHOLS CO. DATED NOV. 1975, ORIGINAL SCALE 1"=400' & SCANNED IMAGES OF HISTORIC PLAN & PROFILE DRAWINGS PROVIDED BY THE CITY OF PAWTUCKET, RHODE ISLAND.
6. SITE UTILITIES TAKEN FROM 1984 SANBORN MAP AND HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY.

LEGEND:

- SITE AREA BOUNDARIES
- EXISTING BUILDINGS ON-SITE
- EXISTING FOUNDATION/PAD ON-SITE
- FORMER BUILDING/STRUCTURE
- EXISTING BUILDINGS/STRUCTURES OFF-SITE
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL) (31)
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL) (35)
- PROPERTY LINE
- APPROX. 200 FT. JURISDICTION LIMIT
- APPROX. WATERS EDGE
- EXISTING NBC INTERCEPTOR SANITARY SEWER
- EXISTING CITY OF PAWTUCKET STORM DRAIN
- EXISTING WATER LINE (W)
- EXISTING STORM/COMBINED SAN. SEWER OVERFLOW (S)
- EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT (UE)
- EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
- EXISTING ACCESS ROAD
- EXISTING RETAINING WALLS
- EXISTING FENCE
- EXISTING CATCH BASIN LOCATIONS

FORMER TIDEWATER FACILITY

PAWTUCKET, RHODE ISLAND

EXPLORATION LOCATION PLAN
FORMER POWER PLANT AREA AND SOUTH FILL AREA

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
530 BROADWAY
PROVIDENCE, RHODE ISLAND 02909
(401) 421-4140

PREPARED FOR: nationalgrid

PROJ MGR: MSK	REVIEWED BY: SDN	CHECKED BY: SDN	FIGURE 4
DESIGNED BY: SFD	DRAWN BY: CRD	SCALE: AS NOTED	
DATE SEPTEMBER 2016	PROJECT NO. 43654.00	REVISION NO. 0	SHEET NO. 4 OF 4

APPENDIX A

LIMITATIONS

GEOHYDROLOGICAL LIMITATIONS

1. This Short Term Response Action Completion Report has been prepared on behalf of and for the exclusive use of National Grid, solely for use in describing work completed at the Tidewater Site ("Site"). This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of GZA or National Grid. However, GZA acknowledges and agrees that the report may be conveyed to the Rhode Island Department of Environmental Management (RIDEM) in support of National Grid's obligations under the Remediation Regulations.

2. GZA's work was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and GZA observed that degree of care and skill generally exercised by other consultants under similar circumstances and conditions. GZA's findings and conclusions must be considered not as scientific certainties, but rather as our professional opinion concerning the significance of the limited data gathered during the course of the study. No other warranty, express or implied is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during the work described in this report.

3. The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based upon services performed and observations made by GZA.

4. In the event that National Grid or others authorized to use this report obtain information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

5. The conclusions and recommendations contained in this report are based in part upon the data obtained from environmental samples obtained from relatively widely spread subsurface explorations. The nature and extent of variations between these explorations may not become evident until further exploration. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the conclusions and recommendations of this report.

6. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the boring logs.

7. In the event this work included the collection of water level data, these readings have been made in the test pits, borings and/or observation wells at times and under conditions stated on the exploration logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made.

8. The conclusions contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed by GZA and the conclusions and recommendations presented herein modified accordingly.

9. In the event this work included the performance of a risk evaluation, GZA's risk evaluation was performed in accordance with generally accepted practices of the Rhode Island Department of Environmental Management and other consultants undertaking similar studies. The findings of the risk evaluation are dependent on numerous assumptions and uncertainties inherent in the risk assessment process. Sources of uncertainty may include the description of Site conditions and the nature and extent of chemical distribution and the use of toxicity information. Consequently, the findings of the risk assessment are not an absolute characterization of actual risks, but rather serve to highlight potential sources of risk at the Site. Although the range of uncertainties has not been quantified, the use of conservative assumptions and parameters throughout the assessment would be expected to err on the side of protection of human health and the environment.

APPENDIX B

CONSTRUCTION PHOTOGRAPHS

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
1	7/18/16

Direction Photo Taken:
Looking west

Description:
Clearing in the former tank area

Photo No.	**Date:**
2	7/18/16

Direction Photo Taken:
Looking north

Description:
Clearing in the south fill area

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
3	7/19/16

Direction Photo Taken:
Looking southwest

Description:
Chipping brush in the former tank area

Photo No.	**Date:**
4	7/19/16

Direction Photo Taken:
Looking southwest

Description:
Washout after clearing brush

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
5	7/20/16

Direction Photo Taken:
Looking southwest

Description:
Installed compost wattles

Photo No.	**Date:**
6	7/20/16

Direction Photo Taken:
Looking east

Description:
Turbidity curtain installed

Appendix B - Photographic Log

Client Name: National Grid	Site Location: STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	Project No. 05.00436564.00

Photo No.	Date:
7	7/26/16

Direction Photo Taken:
Looking southwest

Description:
Trenching at the Max Read Field

Photo No.	Date:
8	7/27/16

Direction Photo Taken:
Looking southwest

Description:
Subgrade slope prior to installing liner

Client Name: National Grid	Site Location: STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	Project No. 05.00436564.00

Photo No.	Date:
9	7/28/16

Direction Photo Taken:
Looking south

Description:
Foaming trench at the Max Read Field

Photo No.	Date:
10	7/28/16

Direction Photo Taken:
Looking northwest

Description:
Temporary bypass piping

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
11	7/29/16

Direction Photo Taken:
Looking east

Description:
Lined trench ready for pipe installation at Max Read Field

Photo No.	**Date:**
12	8/1/16

Direction Photo Taken:
Looking south

Description:
Liner installation

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
13	8/1/16

Direction Photo Taken:
Looking south

Description:
Installing and testing liner

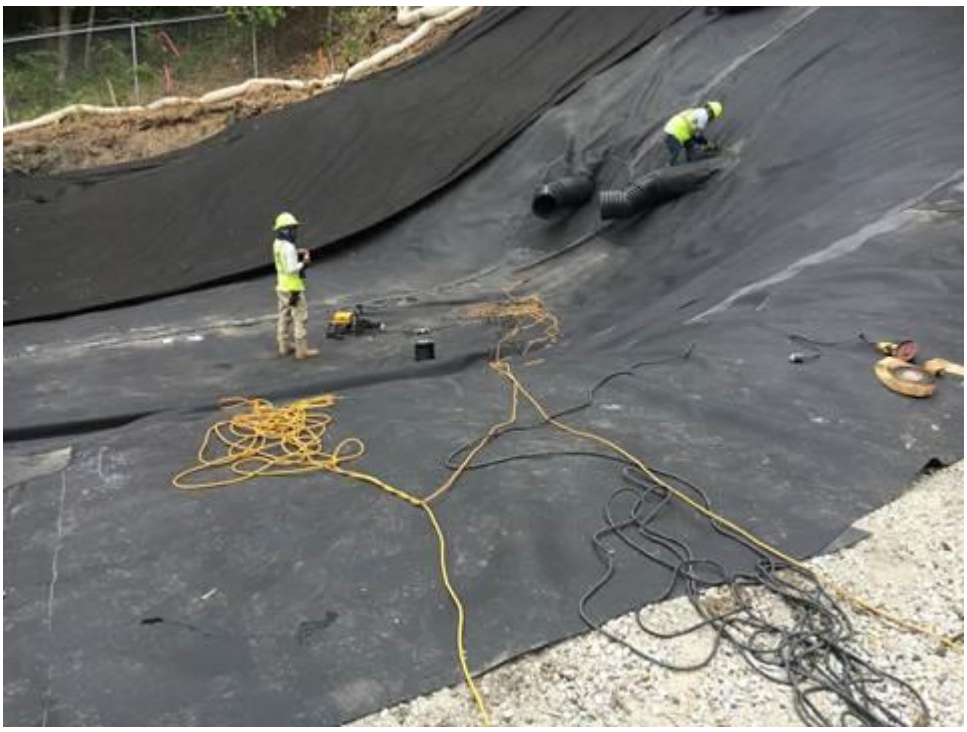


Photo No.	**Date:**
14	8/1/16

Direction Photo Taken:
Looking north

Description:
DiGregorio installing piping and manholes at Max Read Field

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
15	8/2/16

Direction Photo Taken:
Looking southeast

Description:
Setting DMH#1

Photo No.	**Date:**
16	8/4/16

Direction Photo Taken:
Looking west

Description:
Backfilling DMH#1

Client Name: National Grid	Site Location: STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	Project No. 05.00436564.00

Photo No.	Date:
17	8/5/16

Direction Photo Taken:
Looking east

Description:
RCP sections between DMH#1 and DMH#2

Photo No.	Date:
18	8/9/16

Direction Photo Taken:
Looking northeast

Description:
Installing RCP piping from DMH#2

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
19	8/10/16

Direction Photo Taken:
Looking south

Description:
Installing anchor trench

Photo No.	**Date:**
20	8/11/16

Direction Photo Taken:
Looking north

Description:
Installing frame on DMH#1

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
21	8/12/16

Direction Photo Taken:
Looking southeast

Description:
Installing armorflex mats with a crane

Photo No.	**Date:**
22	8/12/16

Direction Photo Taken:
Looking northeast

Description:
Installing armorflex mats with crane

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
23	8/12/16

Direction Photo Taken:
Looking northeast

Description:
Installed armorflex

Photo No.	**Date:**
24	8/15/16

Direction Photo Taken:
Looking north

Description:
Installing flared end

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
25	8/15/16

Direction Photo Taken:
Looking northwest

Description:
Backfilled slope

Photo No.	**Date:**
26	8/17/16

Direction Photo Taken:
Looking east

Description:
Installing anchor trench

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No. 27	**Date:** 8/18/16
Direction Photo Taken: Looking north	
Description: Loamed washout surface	

Photo No. 28	**Date:** 8/19/16
Direction Photo Taken: Looking south	
Description: Installing erosion control netting onto hydroseeded surface	

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
29	8/19/16

Direction Photo Taken:
Looking east

Description:
Washout surface with final erosion control netting and wattles

Photo No.	**Date:**
30	8/31/16

Direction Photo Taken:
Looking east

Description:
Grass growing on washout surface

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
31	8/31/16

Direction Photo Taken:
Looking west

Description:
Grass growing on washout surface and flared end

Photo No.	**Date:**
32	9/5/16

Direction Photo Taken:
Looking west

Description:
Grass growing on washout surface

Appendix B - Photographic Log

Client Name: National Grid	**Site Location:** STRA Completion Report – South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island	**Project No.** 05.00436564.00

Photo No.	**Date:**
33	9/5/16

Direction Photo Taken:
Looking south

Description:
Grass growing on surface with flared end and armor flex

Photo No.	**Date:**
34	8/1/16

Direction Photo Taken:
Looking east

Description:
Continued grass growth

APPENDIX C

PERMITS AND OTHER APPROVALS

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

SHORT-TERM RESPONSE ACTION APPROVAL LETTER April 19, 2016
File No. SR-26-0934A

Ms. Michele V. Leone
Director, Rhode Island Strategy & Performance Management National Grid
280 Melrose Street
Providence, RI 02907

RE: Tidewater Manufactured Gas Plant (former)
Tidewater Street
Pawtucket, Rhode Island
Plat Map 65B / Lots 647, 648 & 649

Dear Ms. Leone:

On November 9, 2011, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) amended the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in a timely and cost-effective manner. A Short-Term Response Action Approval Letter is a document used by the Department to approve limited remedial actions pursuant to Section 6.00 of the Remediation Regulations at contaminated sites that do not involve the use of complex engineered systems or techniques (i.e., groundwater pump and treat systems, soil vapor extraction systems, etc.).

In the matter of the above-referenced property (the Site), the OWM is in receipt of the following final documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. Short Term Response Action Plan – South Washout Area, Former Tidewater Facility, 200 Taft Street, Pawtucket, Rhode Island, RIDEM File No. SR-26-0934, received by the Department on January 25, 2016, prepared by GZA GeoEnvironmental, Inc. (GZA); and

2. Email from National Grid to the Department, Re: Tidewater - South Washout Area - Tree Plantings, prepared by National Grid, and received April 8, 2016.

Together these documents fulfill the requirements of Section 6.00 (Emergency or Short-term Response) of the Remediation Regulations.

The Short Term Response Action Work Plan requires constructing an access road to the washout

area, clearing and grubbing of the work area, installation of temporary erosion controls around the work perimeter, repair of the drainage outfall structure and piping, stabilization of the river bank area within the washout area, lining the repaired washout area with a geotextile demarcation layer over impacted soil, placement of clean imported backfill over the geotextile to match surrounding grades, and utilization of hydroseed and bio-degradable erosion control mats to stabilize the backfilled area and limit the potential for erosion. The proposed final remedy for the South Fill Area portion of the overall Tidewater Site, which includes this washout repair area, is an engineered cap, monitoring, and certain use restrictions. The washout area repair STRAP activities described above shall be constructed such that the proposed engineered cap for this area can be implemented as part of the final overall Site remedy. The final remedy in this area shall include a revegetation/replanting plan subject to Department and Rhode Island Coastal Resources Management Council (CRMC) review and approval.

At this time, the OWM offers its concurrence with the proposed remedial action for the property. The OWM approves the STRA Work Plan provided that all activities and procedures detailed in the STRA Work Plan are strictly adhered to.

The Performing Party shall notify all abutting property owners, tenants, easement holders, the municipality, and any community well suppliers associated with any well head protection areas which encircle the site, that the Short-Term Remedial Action is complete and make available to them the findings of the Short-Term Response Report submitted in accordance with Rule 6.06 II of the Remediation Regulations. Please submit a draft notification in the appropriate languages to the Department via E-mail for review and approval prior to distribution.

Within thirty (30) days of completion of all the abovementioned remedial work outlined in the STRA Work Plan, please submit a STRA Closure Report in accordance with Rule 6.09 inclusive of any disposal documentation and laboratory sampling analysis to the OWM for review and approval.

This Short Term Response Action Approval Letter does not remove your obligation to obtain any other necessary permits from other local, State, or Federal agencies. The OWM shall require at least forty-eight (48) hours notice in advance of any remedial work.

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 7109, or by E-mail at joseph.martella@dem.ri.gov.

Sincerely,

Joseph T. Martella II
Senior Engineer
Office of Waste Management

Authorized by,

Kelly J. Owens
Supervising Engineer
Office of Waste Management

cc: Elizabeth Stone, RIDEM/OOD
Ruth Gold, RIDEM. OAR
Barbara Morin, RIDOH
Tracy A. Silvia, RI CRMC
Barney S. Heath, Pawtucket/P&R
Andrew Silvia, Pawtucket/DPW
Julie Nora, Ph.D, International Charter School
Carolyn Sheehan, Blackstone Academy
Mary Murray, Francis J. Varieur Elementary School
Dania Alejandra Flores-Heagney, EJLRI
Margaret S. Kilpatrick, GZA

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767 TDD 401-831-5508

7 April 2016

Margaret S. Kilpatrick, P.E., Senior Project Manager
GZA GeoEnvironmental, Inc.
530 Broadway
Providence, RI 02909

Dear Ms. Kilpatrick:

The Office of Air Resources is in receipt of your 25 January 2016 submission "Short Term Response Action Plan (STRAP), South Washout Area, Former Tidewater Facility" submitted to Joseph T. Martella II of the Office of Waste Management at the RI Department of Environmental Management. The submission was filed on behalf of the Narragansett Electric Company d/b/a National Grid.

Emissions of benzene, toluene, ethylbenzene, xylenes, and naphthalene will be potentially emitted from the site.

Based on the information provided, the quantity of air contaminants are expected to be emitted at levels below the regulatory thresholds of those listed in Air Pollution Control Regulation No. 9 entitled "Air Pollution Control Permits", Subsection 9.3.1. Therefore, if the STRAP is designed, constructed, and operated consistent with your representations, a permit under the Office of Air Resources, Regulation No. 9 is not required.

This letter does not relieve the National Grid from compliance with any applicable state and federal air pollution control rules and regulations.

Should you have any further questions, I may be reached at 401-222-2808, extension 7110 or at ruth.gold@dem.ri.gov.

Sincerely,

Ruth A. Gold
Supervising Air Quality Specialist
Office of Air Resources

cc: Joseph T. Martella II, OWM

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

March 4, 2016

City of Pawtucket
c/o Mr. Dylan M. Zelazo, Chief of Staff
City Hall 1st Floor
137 Roosevelt Avenue
Pawtucket, RI 02860

RE: **MODIFICATION: Water Quality Certificate – Max Read Field Outlet Repair - Pawtucket**
WQC File No. 11-011

Dear Mr. Zelazo:

The RIDEM-Office of Water Resources has reviewed the above referenced project for compliance with the State Water Quality Regulations. The project involves restoration of a washout area on the riverbank, caused by erosion due to storm water flow from upland areas (including Max Read Field) into a deteriorated storm water drainage outlet and channel. A series of two (2) drop manholes interconnected with 24-inch diameter piping will be installed within the limits of the washout area. The piping will outfall through a reinforced concrete flared end section located at approximately the mean high water elevation. Permanent erosion controls consisting of two (2) rows of interconnecting concrete mats will be installed at the outlet and extend approximately 20 feet towards the Seekonk River.

We have reviewed the subject application and site plans entitled "Drainage Improvements for the South Washout Area, Former Tidewater Facility, Pawtucket, Rhode Island", sheets 1 through 7, prepared by Todd Greene, P.E., of GZA GeoEnvironmental, Inc., and are dated February 2016, date stamp received by the Department March 4, 2016. The State Water associated with this project is the Seekonk River, Class SB1{a}.

It is the determination of the Water Quality Certification Program that said project is in compliance with the requirements of the State Water Quality regulations provided that the applicant complies with the above plans and the following conditions:

1. Material used for fill and construction is clean and free of matter that could cause pollution of the waters of the State.

2. The City of Pawtucket shall be responsible for the long-term maintenance of the stormwater drainage structures and channel associated with this project.

3. Prior to construction, proper erosion and sedimentation controls/procedures, as identified in the above-referenced plans are installed and maintained in functional condition for the duration of the construction project.

4. No sewage, refuse, or waste of any kind shall be discharged into waters of the State from activities associated with the remedial activities.

5. You **must** notify this Program in writing immediately prior to the commencement of site alterations and upon completion of the project.

6. A copy of this permit **must** be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit must be made available for review by any DEM or Town representative upon request.

7. Prior to commencement of site alterations, you **shall** erect or post a sign resistant to the weather and at least twelve (12) inches wide and eighteen (18) inches long, which boldly identifies the initials "DEM" and the WQC application number of this permit. The sign must be maintained at the site in a conspicuous location until such time that the project is complete.

8. You **must** provide written certification from a registered land surveyor or registered professional engineer that the storm water drainage systems identified within the above-referenced plan set have been constructed/installed in accordance with the site plans approved by this permit. This written certification must be submitted to this Program within twenty (20) days of its request or upon completion of the project.

9. This WQC for the construction phase of this project shall expire on July 1, 2019. Project construction is to be completed by that date. You shall be required to submit a request for any modification(s) or extension(s).

10. This WQC does not relieve your obligation to obtain any other applicable local, state, and federal permits prior to commencing construction.

In addition to any necessary enforcement actions stemming from the violation of any of the terms or conditions of this Water Quality Certificate, issuance of this Water Quality Certificate does not bar the Department, or any of its various Divisions, from instituting any investigation and /or enforcement actions that it may deem necessary for violations of any and all applicable statutes, regulations and/or permits, including but not limited to violations of the terms or conditions of any previous Water Quality Certificate(s) issued to you as an applicant or for this site.

This is the State's Water Quality Certification, which shall have the full force and effect of a permit issued by the Director. Violation of the terms and conditions of this Certification may result in violation of the State's Water Quality Regulations and appropriate enforcement action.

Sincerely,

Alisa Richardson, MS, P.E.
Supervising Sanitary Engineer
Construction Stormwater Engineering & 401Permitting
Office of Water Resources

AR/nbp
Z/W/U/N/State WQC/11-011 MOD-City of Pawtucket-Max Read Field Outlet Repair-Pawtucket.doc

ec: Tracy A. Silvia, CRMC
Todd Greene, GZA GeoEnvironmental, Inc.

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

April 6, 2011

Ronald Leitao, Acting Director of Public Works
City of Pawtucket
250 Armistice Blvd
Pawtucket, RI 02860

RE: **Water Quality Certificate - Max Read Field**
WQC File No. 11-011

Dear Mr. Leitao:

The RIDEM-Office of Water Resources has reviewed the above referenced project for compliance with the State Water Quality Regulations. The project involves restoration of a washout area, caused by erosion due to storm water flow from upland areas (including Max Read Field) into a deteriorated storm water drainage outlet and channel. A series of two (2) drop manholes interconnected with 18-inch diameter piping will be installed within the limits of the washout area. The piping will outfall through a reinforced concrete flared end section located at approximately the mean high water elevation. Permanent erosion controls consisting of two rows of interconnecting concrete mats will be installed at the outlet and extend approximately twenty (20) feet towards the Seekonk River.

We have reviewed the subject application and site plans entitled "City of Pawtucket Property (Plat 65B, Lot 648), Pawtucket Rhode Island Proposed Drainage Improvements for the South Washout Area," sheets 1 through 6, dated February 2011. The State water associated with this project is the Seekonk River, Class SB1(a).

It is the determination of the Water Quality Certification Program that said project is in compliance with the requirements of the State Water Quality regulations provided that the applicant complies with the above plans and the following conditions.

1. Material used for fill and construction is clean and free of matter that could cause pollution of the waters of the State.

2. The City of Pawtucket shall be responsible for the long-term maintenance of the stormwater drainage structures and channel associated with this project.

3. Prior to construction, proper erosion and sedimentation controls/procedures, as identified in the above referenced plans, are installed and maintained in adequate condition for the duration of the construction project.

4. No sewage, refuse, or waste of any kind shall be discharged into waters of the State from this facility.

5. This Water Quality Certification does not relieve your obligation to obtain any other applicable local, state, and federal permits prior to commencing construction.

In addition to any necessary enforcement actions stemming from the violation of any of the terms or conditions of this Water Quality Certificate, issuance of this Water Quality Certificate does not bar the Department, or any of its various Divisions, from instituting any investigation and /or enforcement actions that it may deem necessary for violations of any and all applicable statutes, regulations and/or permits, including but not limited to violations of the terms or conditions of any previous Water Quality Certificate(s) issued to you as an applicant or for this site. This Water Quality Certificate shall expire three (3) years from the date of issuance if project construction is not completed in that time.

This is the State's Water Quality Certification, which shall have the full force and effect of a permit issued by the Director. Violation of the terms and conditions of this Certification may result in violation of the State's Water Quality Regulations and appropriate enforcement action.

Sincerely,

Russell J. Chateauneuf, P.E., Chief
Groundwater/Wetlands Protection

RJC/TJW

cc: Grover Fugate, RICRMC
Todd Greene, GZA Geoenvironmental, Inc.

State of Rhode Island and Providence Plantations
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 116
Wakefield, RI 02879-1900

(401) 783-3370
Fax (401) 783-3767

ASSENT MODIFICATION

April 12, 2016

City of Pawtucket
Att: Mike Wilcox
175 Main Street, 3rd Floor
Pawtucket, RI 02860

RE: **Modification of CRMC Assent A 2010-10-076** – Repair and revegetate an existing stormwater discharge washout area and to install system elements designed to convey stormwater to the Seekonk River in a non-erosive fashion. Located at plat 65B, lot 648; 200 Taft Street (Pleasant Street), Pawtucket, RI.

Dear Sir:

The Rhode Island Coastal Resources Management Council has reviewed your request for modification of assent no. A2010-10-076 and approves the modification with the following alterations to stipulations:

Stipulations of Approval:

A. The applicant shall record this assent in its entirety in the land evidence records of the City/Town of Pawtucket within thirty (30) days of the date of assent issuance. Certification by the Town Clerk's office that this stipulation has been complied with shall be furnished to Coastal Resources Management Council by the applicant within fifteen (15) days thereafter. Failure to comply with provision will render this assent null and void.

B. The approved modification plans shall be those titled "Drainage Improvements for the South Washout Area Former Tidewater Facility, Pawtucket, Rhode Island", sheets 1-7 dated February 2016, by GZA Engineers. Except as stipulated or modified herein, all details and specifications thereon shall be strictly adhered to. Any and all changes require written approval from this office.

Additional Stipulations:

C. This modification authorizes a delay in restoration plantings required under the original approved plans for this parcel. This modification also authorizes the installation of interim temporary vegetation as shown on the new approved plans.

D. This modification also requires the final restoration of the washout site with plantings which are appropriate to the currently existing landscape conditions upon completion of the DEM-required site remediation activity. A final revegetation plan which includes a timeframe for vegetative restoration shall be submitted to the CRMC once remediation activities have begun and shall require CRMC approval.

In accordance with revisions to RIGL 46-23-6.3 Expiration Tolling Periods (as amended effective June 19, 2015), all work being permitted must be completed on or before **July 1, 2019** after which date this assent is null and void, (unless written application requesting an extension is received by CRMC sixty (60) days prior to expiration date).

Sincerely,

Jeffrey M. Willis, Deputy Director
Coastal Resources Management Council

/lat

State of Rhode Island and Providence Plantations
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 116
Wakefield, RI 02879-1900

(401) 783-3370
Fax (401) 783-3767

January 25, 2016

City of Pawtucket
Pawtucket City Hall
175 Main Street, 3rd Floor
Pawtucket, RI 02860

RE: CRMC File No. 2010-10-076
Site Location: Pawtucket
Plat(s): 65B Lot(s): 648

To Whom it May Concern:

In accordance with revisions to R.I.G.L. 46-23-6.3 - Tolling of expiration periods, signed into law November 9, 2009, and as amended effective June 19, 2015, all work being permitted under this Assent must now be completed on or before July 1, 2019 after which date this assent is null and void, (unless written application requesting an extension is received by CRMC sixty (60) days prior to expiration date).

All aspects, conditions and stipulations of CRMC Assent #A2010-10-076 remain in full force and effect.

If you have any questions regarding this letter, please contact the CRMC at 401-783-3370.

Thank you.

Sincerely,

Jeffrey M. Willis, Deputy Director
Coastal Resources Management Council

/lat

cc: Igor Runge, GZA

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

COASTAL RESOURCES MANAGEMENT COUNCIL
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, R.I. 02879-1900

(401) 783-3370
FAX: (401) 783-3767

ASSENT

CRMC File No.: 2010-10-076 CRMC Assent No.: A2010-10-076

Whereas, of

City of Pawtucket
Att: Jack Carney
175 Main Street, 3rd Floor
Pawtucket, RI 02860

has applied to the Coastal Resources Management Council for assent to: repair and revegetate an existing stormwater discharge washout area and to install system elements designed to convey stormwater to the Seekonk River in a non-erosive fashion; and represents that they are the owner(s) of the riparian rights attached to the property involved and submitted plans of the work to be done.

Now, said Council, having fully considered said application in accordance with all the regulations as set forth in the Administrative Procedures Act does hereby authorize said applicant, subject to the provisions of Title 46, Chapter 23 of the General Laws of Rhode Island, 1956, as amended, and all laws which are or may be in force applicable thereto: **repair and revegetate an existing stormwater discharge washout area and to install system elements designed to convey stormwater to the Seekonk River in a non-erosive fashion**; located at plat 65B, lot 648, Pawtucket, RI, in accordance with said plans submitted to this Council and approved by this Council. In accordance with revisions to RIGL 46-23-6.3 Expiration Tolling Periods (as amended effective June 25, 2010), all work being permitted must be completed on or before **July 1, 2014**, after which date this assent is null and void, (unless written application requesting an extension is received by CRMC sixty (60) days prior to expiration date).

Applicant agrees that as a condition to the granting of this assent, members of the Coastal Resources Management Council or its staff shall have access to applicant's property to make on-site inspections to insure compliance with the assent.

Licensee shall be fully and completely liable to State, and shall waive any claims against State for contribution or otherwise, and shall indemnify, defend, and save harmless State and its agencies, employees, officers, directors, and agents with respect to any and all liability, damages (including damages to land, aquatic life, and other natural resources), expenses, causes of action, suits, claims, costs (including testing, auditing, surveying, and investigating costs), fees (including attorneys' fees and costs), penalties (civil and criminal), and response, cleanup, or remediation costs assessed against or imposed upon Licensee, State, or the Property, as a result of Licensee's control of the Property, or Licensee's use, disposal, transportation, generation and/or sale of Hazardous Substances or that of Licensee's employees, agents, assigns, sublicensees, contractors, subcontractors, permittees, or invitees.

Nothing in this assent shall be construed to impair the legal rights of this granting authority or of any person. By this assent the granting authority by no manner, shape, or form assumes any liability or responsibility implied, or in fact, for the stability or permanence of said project; nor by this assent is there any liability implied or in fact assumed or imposed on the granting authority. Further, the granting authority by its representatives or duly authorized agents shall have the right to inspect said project at all times including, but not limited to, the construction, completion, and all times thereafter.

This Assent is granted with the specific proviso that the construction authorized therein will be maintained in good condition by the owner thereof, his heirs, successors, or assigns for a period of fifty (50) years from the date thereof, after which time this permission shall terminate necessitating either complete removal or a new application.

Permits issued by the CRMC are issued for a finite period of time, confer no property rights, and are valid only with the conditions and stipulations under which they are granted. Permits imply no guarantee of renewal, and may be subject to denial, revocation, or modification.

If this matter appeared before the full Council, a copy of the legal decision from this proceeding may be acquired by contacting the CRMC office in writing.

A copy of this Assent shall be kept on site during construction.

Application for future alteration of the shoreline or other construction or alteration within the CRMC jurisdiction shall be submitted to the CRMC for review prior to commencing such activity.

All applicable policies, prohibitions, and standards of the RICRMP shall be upheld.

All local, state or federal ordinances and regulations must be complied with.

Please be advised that as a further conditions of this Assent, it is hereby stipulated that you and/or your agents shall comply at all times with Federal and State Water Quality Standards and other State standards and regulations regarding water quality, and shall exercise such supervision over and control of these facilities to prevent the dumping or discarding or refuse, sanitary wastes and other pollutants in the tidal waters, either from vessels docked at said facilities or from land adjacent thereto.

No work that involves alteration to wetlands or waters of the United States shall be done under this Assent until the required Federal Permit has been obtained.

Non-compliance with this assent shall result in legal action and/or revocation of this permit.

CAUTION:

The limits of authorized work shall be only for that which was approved by the CRMC. Any activities or alterations in which deviate from the approved plans will require a separate application and review. If the information provided to the CRMC for this review is inaccurate

or did not reveal all necessary information or data, then this permit may be found to be null and void. Plans for any future alteration of the shoreline or construction or alteration within the 200' zone of CRMC jurisdiction or in coastal waters must be submitted for review to the CRMC prior to commencing such activity.

Permits, licenses or easements issued by the Council are valid only with the conditions and stipulation under which they are granted and imply no guarantee of renewal. The initial application or an application for renewal may be subject to denial or modification. If an application is granted, said permit, license and easement may be subject to revocation and/or modification for failure to comply with the conditions and stipulations under which the same was issued or for other good cause.

ATTENTION: ALL STRUCTURES AND FILLED AREAS IN THE TIDAL, COASTAL, OR NAVIGABLE WATERS OF THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS ARE SUBJECT TO:

1. The Superior Property Rights of the State of Rhode Island and Providence Plantations in the Submerged and Submersible Lands of the Coastal, Tidal, and Navigable Waters;
2. The Superior Navigation Servitude of the United States;
3. The Police Powers of the State of Rhode Island and the United States to regulate Structures in the Tidal, Coastal, or Navigable Waters.

THE SUBMERGED AND SUBMERSIBLE LANDS OF THE TIDAL, COASTAL, AND NAVIGABLE WATERS OF THE STATE ARE OWNED BY THE STATE AND HELD IN TRUST FOR THE PUBLIC. CONVEYANCE OF THESE LANDS IS ILLEGAL; TITLES PURPORTING TO TRANSFER SUCH LANDS ARE VOID. ASSENTS THAT INVOLVE THE FILLING OR USE OF THE STATES SUBMERGED LANDS ARE GRANTED WITH THE PROVISO THAT IT IS SUBJECT TO THE IMPOSITION OF A USAGE FEE TO BE ESTABLISHED BY THE COASTAL RESOURCES MANAGEMENT COUNCIL.

SPECIFIC STIPULATIONS OF APPROVAL

General Stipulations

A. For the purpose of this permit, the coastal feature shall be coastal bank; and the inland edge of the coastal feature shall be the top of the coastal bank.

B. The approved plans shall be those entitled "City of Pawtucket…Proposed Drainage Improvements for the South Washout Area…" five sheets dated June 2010 by GZA GeoEnvironmental, Inc., as stamped received by the CRMC on October 25, 2010. Except as stipulated or modified herein, all details and specifications thereon shall be strictly adhered to. Any and all changes require written approval from this office.

Earthwork Stipulations

A. The approved soil erosion and sediment controls shall be those shown on the approved plans.

B. Upon successful stabilization of exposed soils all haybales and stakes shall be removed from site and disposed of at a suitable, legal upland location.

C. There shall be no stockpiling or disposal of soils, construction materials, debris, etc., on the coastal feature, or in coastal waters.

D. All excess excavated materials, excess soils, excess construction materials, and debris shall be removed from the site and disposed of at an inland landfill or a suitable and legal upland location outside of CRMC jurisdiction. No materials shall be deposited on the coastal feature, within 200 feet of the inland edge of the coastal feature or in coastal waters.

E. All fill materials shall be clean, free of debris and rubble, and free of materials which may cause pollution of surface waters or groundwater.

F. All areas of exposed soil which are disturbed by construction and related activities shall be revegetated as immediately as is physically possible so as to minimize erosion and sedimentation. If the season is not conducive to immediate revegetation, all exposed soils shall be temporarily stabilized with hay mulch, jute mat netting or similar erosion control materials. Soil stabilization methods shall be employed during, as well as after, the construction phase to the maximum extent possible.

G. Excavation and grading shall be limited to the area approved. Excess earthwork beyond that authorized by this assent is not permitted.

H. There shall be no discharge or disposal of hazardous wastes or hazardous materials which may be associated with construction machinery, etc. on the site or in the waterway. All used oil, lubricants, construction chemicals, etc. shall be disposed of in full compliance with applicable State and Federal regulations.

In Witness Whereof, said Coastal Resources Management Council have hereto set their hands and seal this nineteenth day of April in the year two-thousand-eleven.

Jeffrey M. Willis, Deputy Director
Coastal Resources Management Council

/kc

State of Rhode Island and Providence Plantations

COASTAL RESOURCES MANAGEMENT COUNCIL
NOTICE OF

ASSENT

CRMC Assent No.: A2010-10-076 Date: April 19, 2011

This certifies that City of Pawtucket has permission to repair and revegetate an existing stormwater discharge washout area and to install system elements designed to convey stormwater to the Seekonk River in a non-erosive fashion.

situated at
Plat No. 65B Lot No. 648

Said construction operations to be done in accordance with an approved assent on file in the Offices of the Coastal Resources Management Council and subject further to all the provisions of the building ordinances of the :

City/Town of **Pawtucket**

and to all the applicable State, Local and Federal provisions. This assent shall expire July 1, 2014.

Official Designee
Coastal Resources Management Council

THIS CARD MUST BE DISPLAYED IN A CONSPICUOUS PLACE ON THE PREMISES.
FAILURE TO DISPLAY WILL RESULT IN LEGAL ACTION.

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

March 23, 2016

Regulatory Division
CENAE-R-PEB
Permit Number: NAE-2010-2326

Barney S. Heath
Director of Planning and Development
Pawtucket City Hall
137 Roosevelt Avenue
Pawtucket, Rhode Island 02860

Dear Mr. Heath:

We have reviewed the application submitted by your consultant to perform work at the former Tidewater facility along the Seekonk River. The site is located east of Max Read Field in Pawtucket, Rhode Island. The City is authorized to restore a washout area and drainage system. They will install and maintain a 16' x 20' Armorflex riprap splash pad in the Seekonk River that is associated with a new 24" stormwater pipe. The project was described in your Coastal Resources Management Council (CRMC) application, File Number 2010-10-076. It is shown on the enclosed 8.5" x 11" sections of large plans titled "FORMER TIDEWATER FACILITY PAWTUCKET, RHODE ISLAND" dated "FEBRUARY 2016."

Based on the information you have provided, we have determined that the proposed activity will have only minimal individual or cumulative impacts on waters of the United States, including wetlands. Therefore, this work is authorized as a Category 2 activity under the attached Federal permit known as the Rhode Island General Permit (GP). The work must be performed in accordance with the terms and conditions of the GP.

You are responsible for complying with all of the GP's requirements. Please review the attached GP carefully, in particular the GP conditions beginning on Page 4, to familiarize yourself with its contents. You should ensure that whoever does the work fully understands the requirements and that a copy of the permit document and this authorization letter are at the project site throughout the time the work is underway.

This authorization expires on February 22, 2017, unless the GP is modified, suspended or revoked. You must complete the work authorized herein by February 22, 2017. If you do not, you must contact this office to determine the need for further authorization before continuing the activity. We

recommend you contact us before this permit expires to discuss a time extension or permit reissuance.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

This authorization requires you to complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date. You must also complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law, as listed on Page 2 of the GP. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) provided above or all the terms and conditions of the GP may subject you to the enforcement provisions of our regulations.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Please contact Michael Elliott of my staff at (978) 318-8131 if you have any questions.

Sincerely,

Barbara Newman for

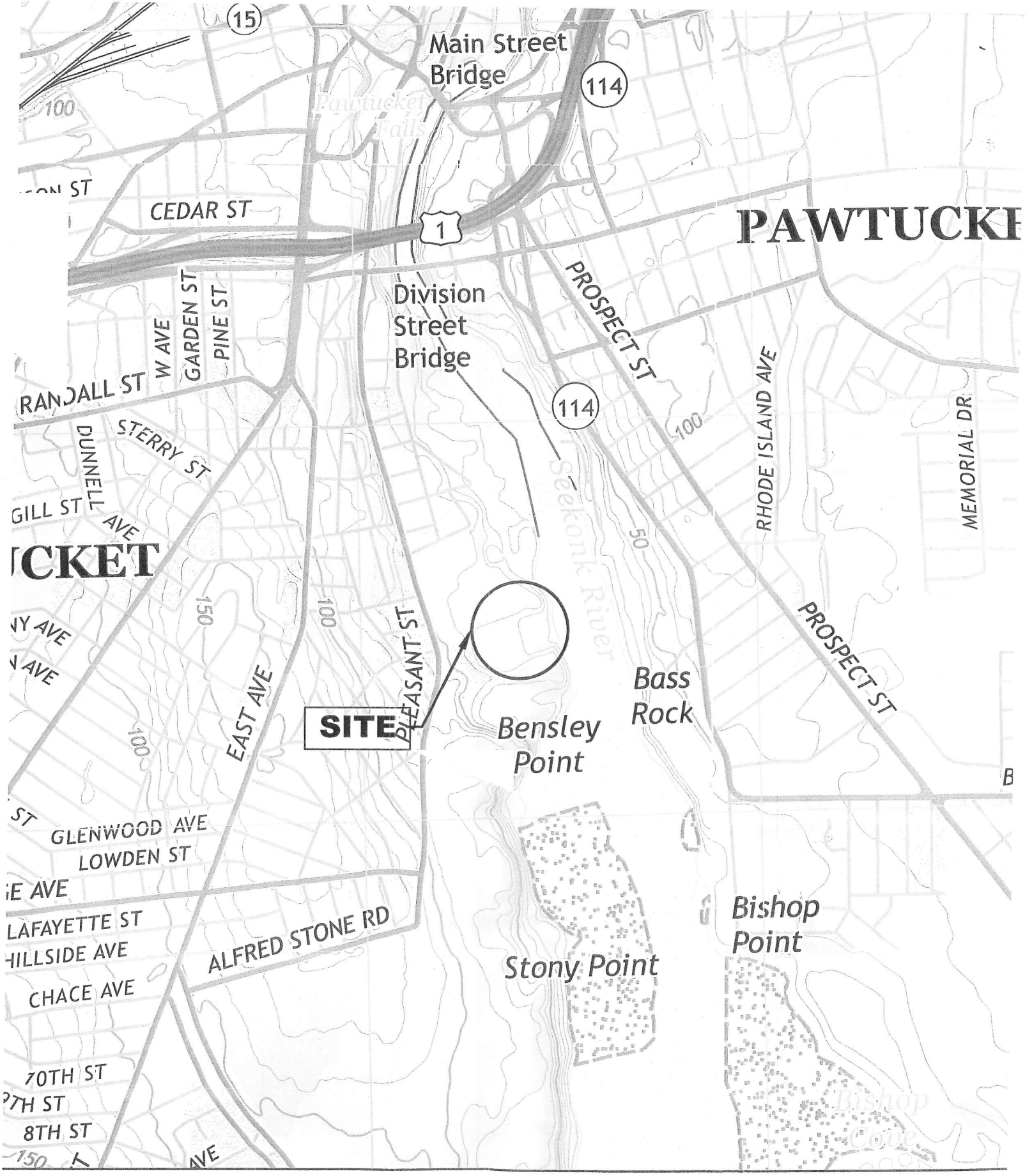
Robert J. DeSista
Chief, Permits & Enforcement Branch
Regulatory Division

Enclosures

Copies Furnished:

Kathy Caduto - RI-CRMC - kcaduto@crmc.ri.gov

Igor Runge, Ph.D., P.H. - GZA GeoEnvironmental, Inc. - Igor.Runge@gza.com



PROJECT LOCUS MAP

SOURCE: USGSSTORE.GOV

PERMITTING SET
NOT FOR CONSTRUCTION

FORMER TIDEWATER FACILITY

PAWTUCKET, RHODE ISLAND

DRAINAGE IMPROVEMENTS FOR THE SOUTH WASHOUT AREA PROPOSED CONDITIONS PLAN

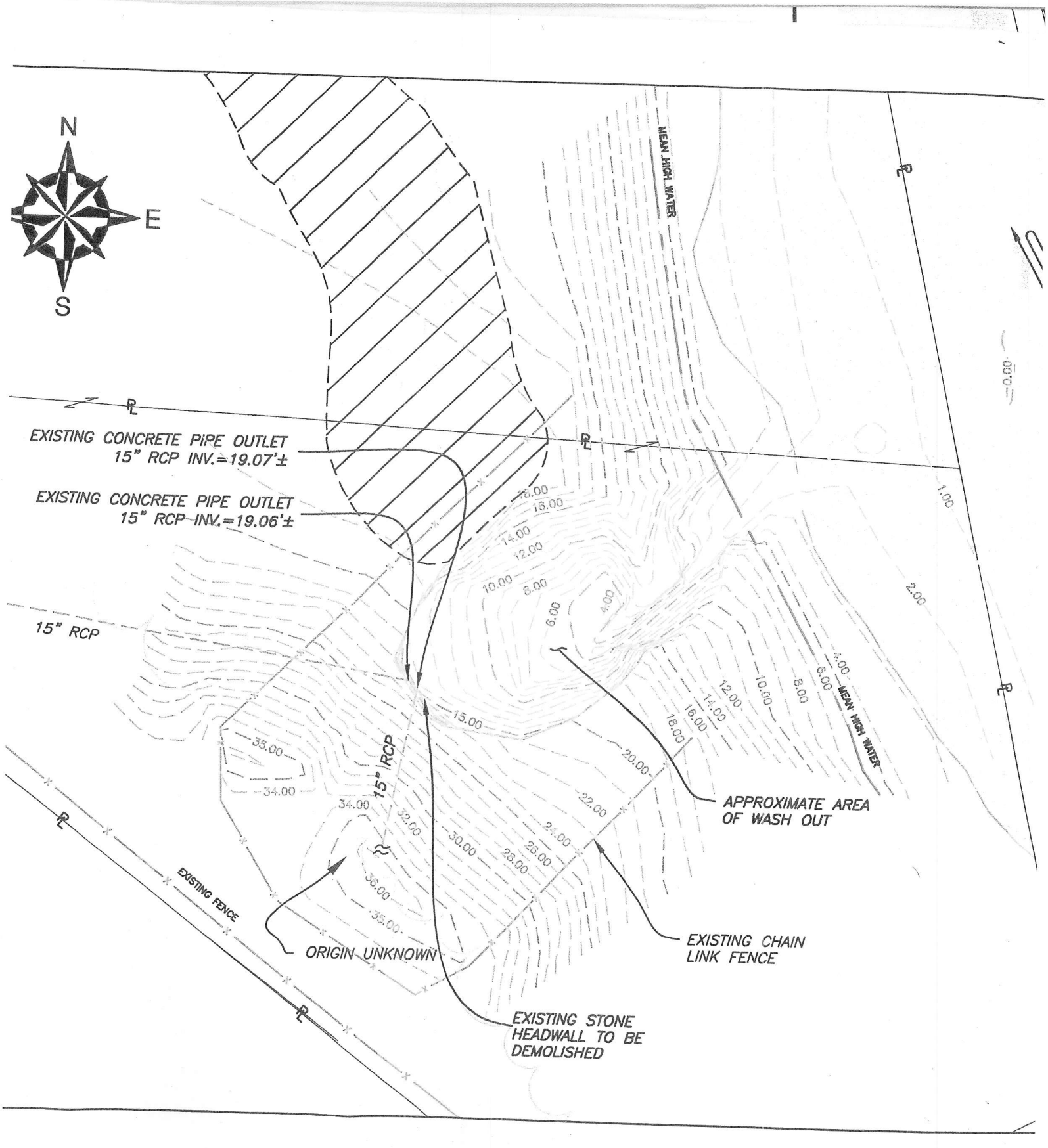
PREPARED BY:

GZA GeoEnvironmental, Inc.
Engineers and Scientists
530 BROADWAY JJC
PROVIDENCE, RHODE ISLAND 02909
(401) 421-4140

PREPARED FOR:

nationalgrid

PROJ MGR: MSK	REVIEWED BY: JJC	CHECKED BY: JJC	FIGURE 4
DESIGNED BY: TRG	DRAWN BY: NEF	SCALE: AS NOTED	
DATE: FEBRUARY 2016	PROJECT NO.: 43654.00	REVISION NO.: 0	SHEET NO. 4 OF 7



EXISTING CONDITIONS PLAN

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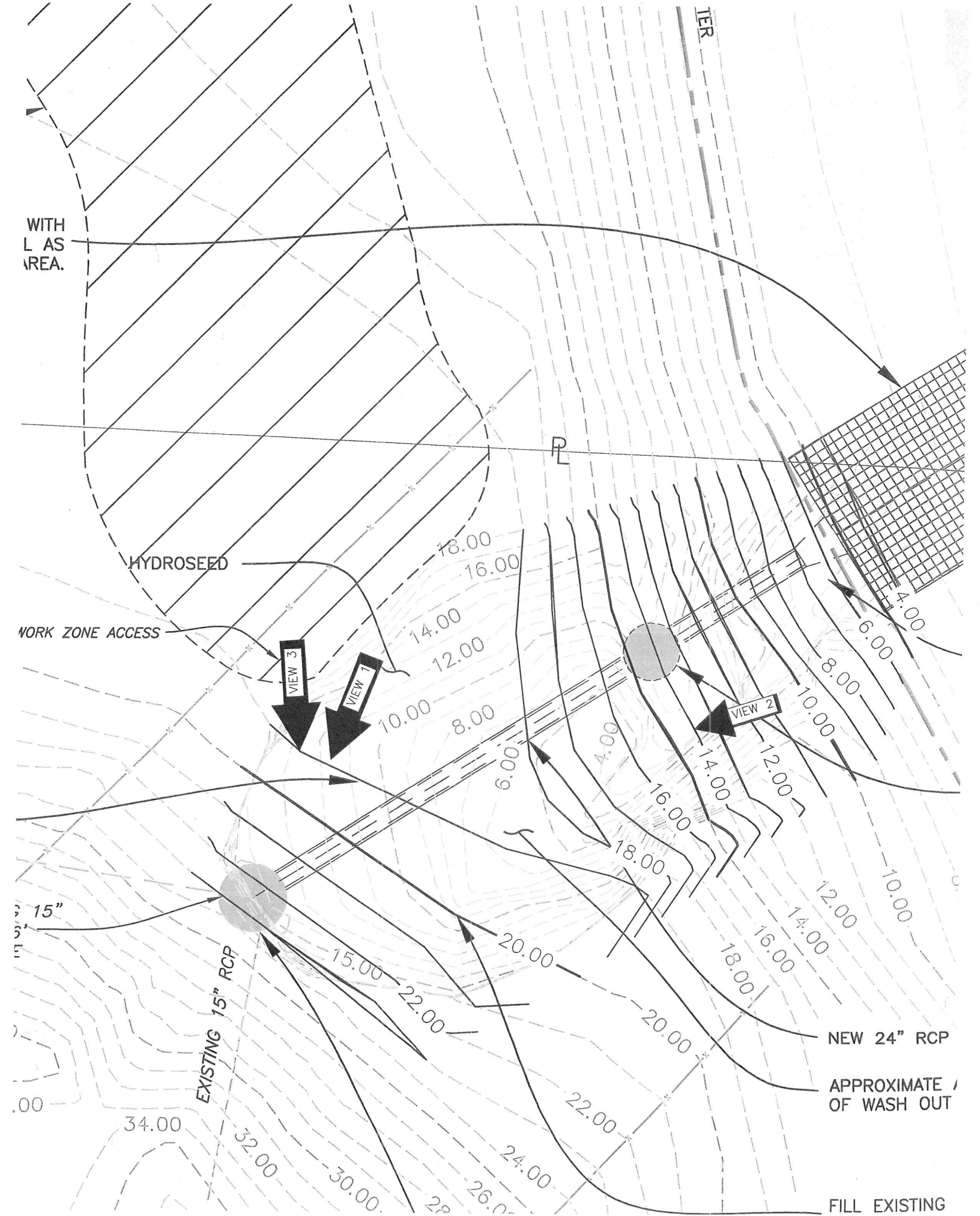
SCALE IN FEET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NEW 24" RCP
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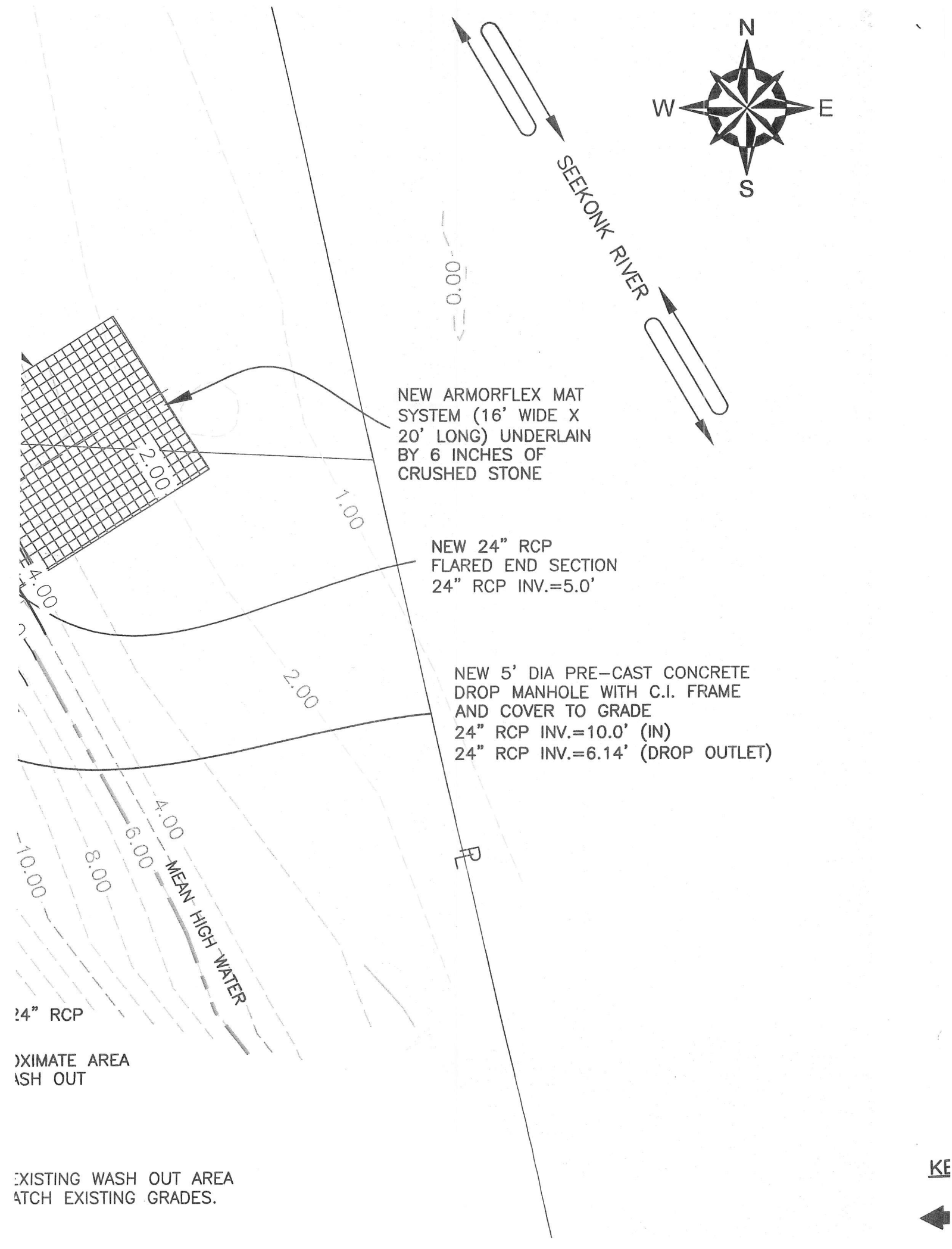
N
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E
S
SEEKONK RIVER
NEW ARMORFLEX MAT SYSTEM (16' WIDE X 20' LONG) UNDERLAIN BY 6 INCHES OF CRUSHED STONE
NEW 24" RCP FLARED END SECTION 24" RCP INV.=5.0'
NEW 5' DIA PRE-CAST CONCRETE DROP MANHOLE WITH C.I. FRAME AND COVER TO GRADE
24" RCP INV.=10.0' (IN)
24" RCP INV.=6.14' (DROP OUTLET)
MEAN HIGH WATER
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4.00
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4.00
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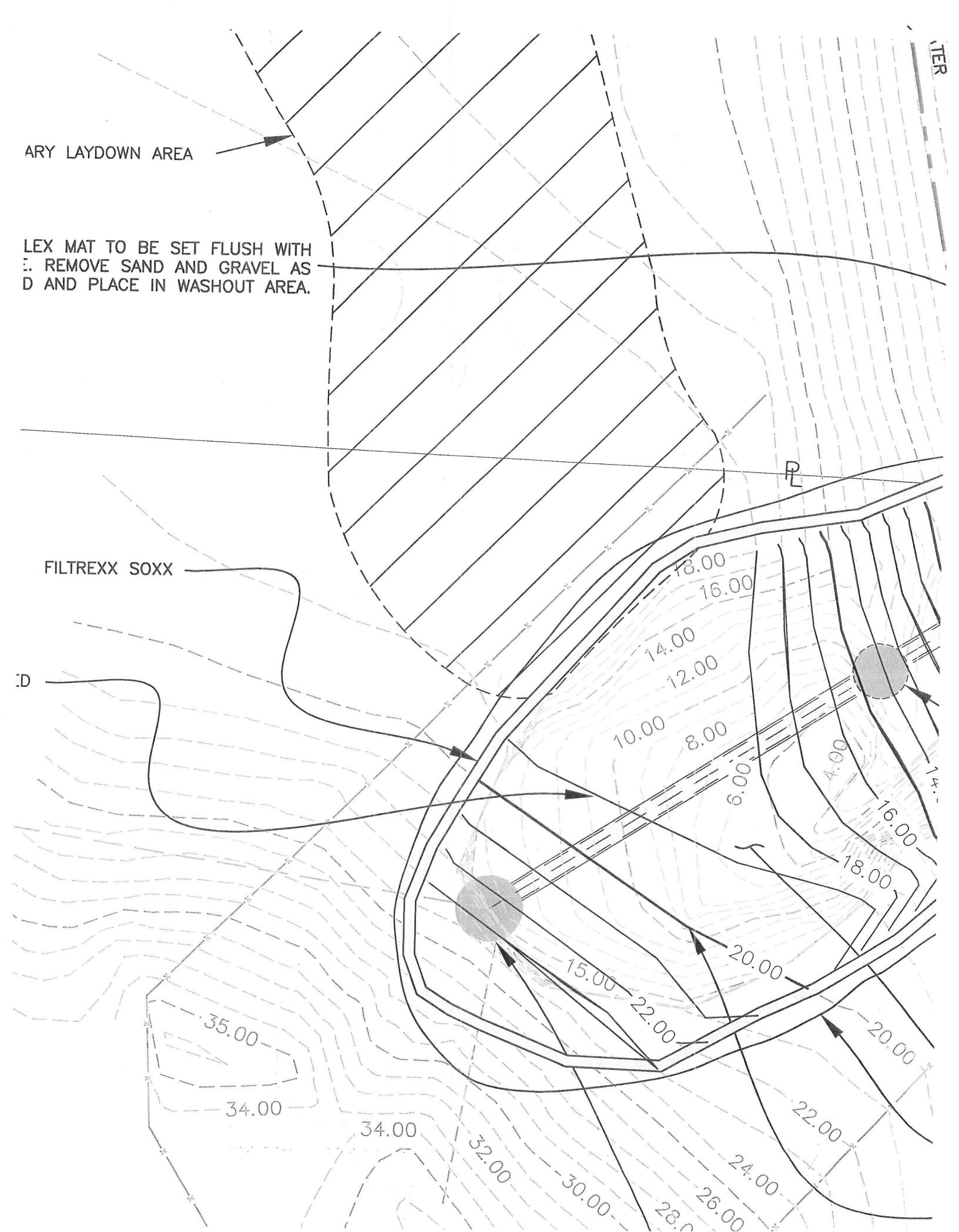
24" RCP
OXIMATE AREA
ASH OUT
EXISTING WASH OUT AREA
ATCH EXISTING GRADES.


ARY LAYDOWN AREA
LEX MAT TO BE SET FLUSH WITH
E. REMOVE SAND AND GRAVEL AS
D AND PLACE IN WASHOUT AREA.
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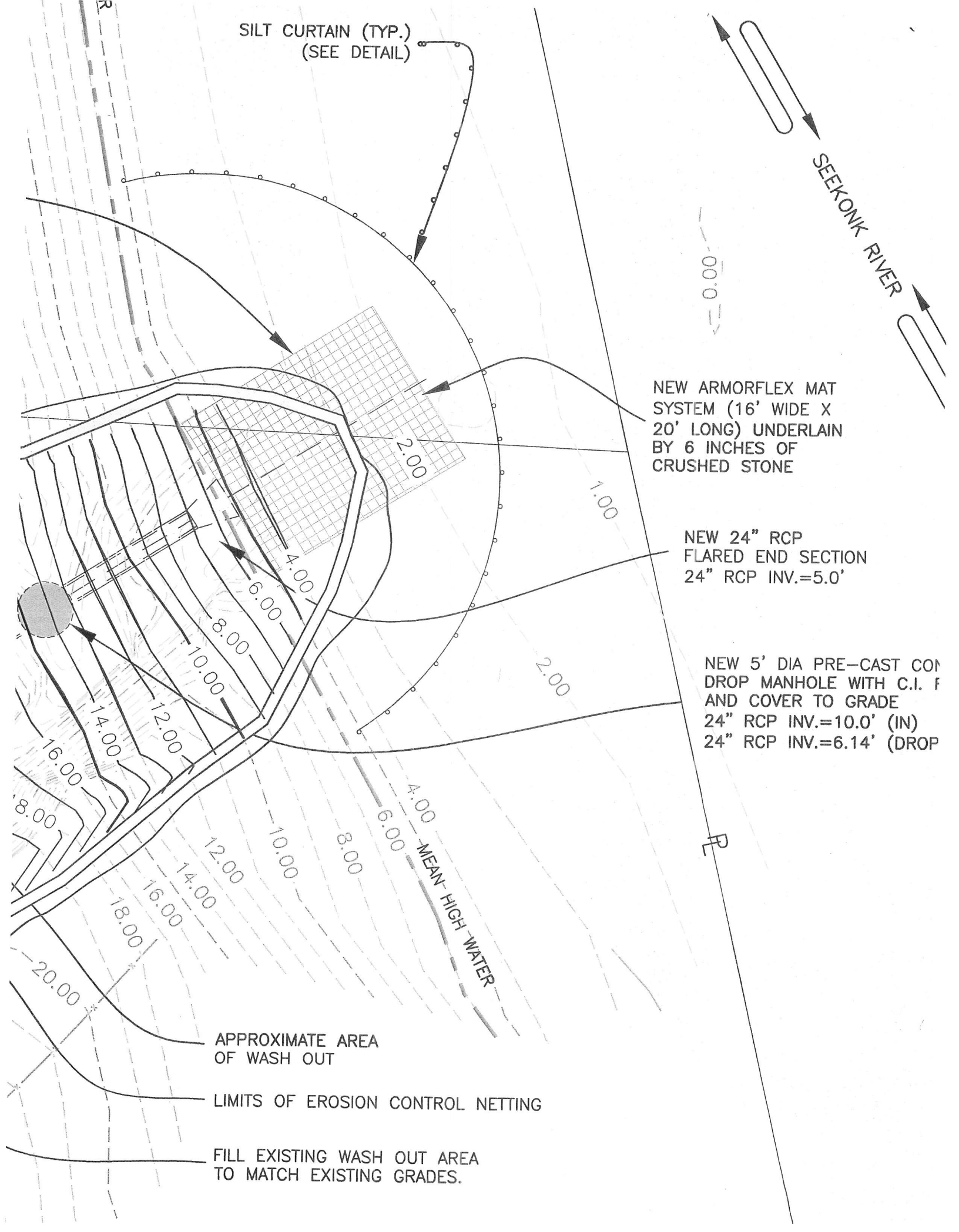
SILT CURTAIN (TYP.)
(SEE DETAIL)
SEEKONK RIVER
NEW ARMORFLEX MAT SYSTEM (16' WIDE X 20' LONG) UNDERLAIN BY 6 INCHES OF CRUSHED STONE
NEW 24" RCP FLARED END SECTION 24" RCP INV.=5.0'
NEW 5' DIA PRE-CAST CON
DROP MANHOLE WITH C.I. F
AND COVER TO GRADE
24" RCP INV.=10.0' (IN)
24" RCP INV.=6.14' (DROP
MEAN HIGH WATER
APPROXIMATE AREA OF WASH OUT
LIMITS OF EROSION CONTROL NETTING
FILL EXISTING WASH OUT AREA TO MATCH EXISTING GRADES.

US Army Corps
of Engineers ®
New England District

GENERAL PERMIT
WORK-START NOTIFICATION FORM
(Minimum Notice: Two weeks before work begins)

****
* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Policy Analysis/Technical Support Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
****

Corps of Engineers Permit No. 2010-2326 was issued to the City of Pawtucket for work located at the former Tidewater facility along the Seekonk River east of Max Read Field in Pawcatuck, Rhode Island. The City is authorized to repair a drainage system and restore a washout area. They will install and maintain a 16' x 20' Armorflex riprap splash pad in the Seekonk River that is associated with a new 24" stormwater pipe.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

_____

_____

_____

Telephone Numbers: (___) _____ (___) _____

Proposed Work Dates: **Start:** _____ **Finish:** _____

Permittee/Agent Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Date Permit Issued: _____ **Date Permit Expires:** _____

****

FOR USE BY THE CORPS OF ENGINEERS

PM: M. Elliott **Submittals Required:** No

Inspection Recommendation: _____

US Army Corps
of Engineers ®
New England District

(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: 2010-2326

Project Manager: M. Elliott

Name of Permittee: City of Pawtucket

Permit Issuance Date: March 23, 2016

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

****
* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch B *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
****

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

_____ _____
Signature of Permittee Date

_____ _____
Printed Name Date of Work Completion

(_____)
Telephone Number

APPENDIX D

PUBLIC INVOLVEMENT PLAN (PIP)

NOTIFICATIONS

This is an important notice. Please have it translated.

Este é um aviso importante. Queira mandá-lo traduzir.
Este es un aviso importante. Sírvase mandarlo traducir.
Avis important. Veuillez traduire immediatement.

ĐÂY LÀ MỘT BẢN THÔNG CÁO QUAN TRỌNG
XIN VUI LÒNG CHO DỊCH LẠI THÔNG CÁO ẤY

Questa è un' informazione importante,
si prega di tradurla.

Это очень важное сообщение.
Пожалуйста, попросите чтобы
вам его перевели.

Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

530 Broadway
Providence, RI 02909
T: 401.421.4140
F: 401.751.8613
www.gza.com

May 5, 2016
File No. 05.0043654.00-C

Re: Notice to Abutters and/or Interested Parties
Storm Water System Repair and South Washout Area Restoration
Former Tidewater Facility
Pawtucket, Rhode Island
RIDEM File No. SR-26-0934

Dear Abutters and/or Interested Parties:

The purpose of this letter is to notify you that The Narragansett Electric Company d/b/a National Grid (National Grid) will be conducting repairs to a storm water system and washout area which will involve limited earthwork activities at the former Tidewater Manufactured Gas Plant (MGP) and the former Pawtucket No. 1 Power Station Site (the Site) located at the ends of Tidewater and Merry Streets in Pawtucket, Rhode Island. This notice is being provided to abutting property owners, tenants and members of the Tidewater Site mailing list in accordance with requirements established in the Rhode Island Department of Environmental Management's (RIDEM) *Rules and Regulation for the Investigation and Remediation of Hazardous Materials* (Remediation Regulations) and the October 2013 Public Involvement Plan (PIP). Should you be an owner of property that is leased, we request that you provide a copy of this letter to your tenants.

As described in the attached fact sheet, National Grid plans to repair a storm water system and washout area. This proposed repair work has been approved by RIDEM. Further information is posted on National Grid's Tidewater website (www.tidewatersite.com) and RIDEM's website for this project (www.dem.ri.gov./programs/benviron/waste/tide.htm).

While this utility repair work is not technically considered remediation work, to keep interested stakeholders informed, National Grid will host a public meeting to present the proposed repair and restoration activities described in the attached fact sheet. This meeting will be held at the Francis J. Varieur Elementary School located at 486 Pleasant Street in Pawtucket at 6:00 pm on Tuesday May 24th, 2016. The comment period will be open until May 31, 2016, during which the public may review RIDEM records pertaining to this property and submit written comments to RIDEM regarding the proposed activities described in the attached.

If you would like more information or have any questions, please contact Michele Leone of National Grid at 401-784-7337.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P.E.
Senior Project Manager

James J. Clark, P.E.
Senior Principal

Attachment: Fact Sheet "Storm Water System Repair and South Washout Area Restoration"

cc: Joe Martella, RIDEM
Michele Leone, National Grid
Jesse Edmands, National Grid

J:\ENV\43654.msk\Corresp\Abutter Ltr - SWO\43654 00 Abutter Notification SWO_final.docx

nationalgrid
HERE WITH YOU. HERE FOR YOU.

Storm Water System Repair and South Washout Area Restoration

Former Tidewater MGP and Power Plant Site

This is an important notice. Please have it translated.

Este é um aviso importante. Queira mandá-lo traduzir.
Este es un aviso importante. Sírvase mandarlo traducir.
Avis important. Veuillez traduire immediatement.

ĐÂY LÀ MỘT BẢN THÔNG CÁO QUAN TRỌNG
XIN VUI LÒNG CHO DỊCH LẠI THÔNG CÁO ẤY

Questa è un' informazione importante,
si prega di tradurla.

Это очень важное сообщение.
Пожалуйста, попросите чтобы
вам его перевели.

Overview

This summer, National Grid plans to repair a washout area located at the Tidewater Site. A washout is similar to a sink hole. The South Washout Area is located near the southern end of the Tidewater Site between the Max Read Field and the Seekonk River on City of Pawtucket property. The washout extends approximately 60 feet inland from the bank of the Seekonk River and is the result of the deterioration of a historic concrete drainage structure and subsequent erosion by storm water. The historic drainage structure carried storm water from the Max Read Field area to the Seekonk River. The City of Pawtucket owns Max Read Field. National Grid worked in collaboration with the City of Pawtucket to plan for this project.

The south washout area is shown in orange on the southern portion of the site.

This project is summarized below and described in further detail in the January 2016 Short Term Response Action Plan (STRAP) that was approved by the Rhode Island Department of Environmental Management (RIDEM) on April 19, 2016. The complete STRAP is posted on National Grid's Tidewater website (www.tidewatersite.com) and RIDEM's website for this project (www.dem.ri.gov./programs/benviron/waste/tide.htm).

Planned Repair & Restoration Process

National Grid's selected contractor will mobilize to the washout area to prepare the work area in late June 2016. Repair and restoration activities are scheduled to begin in early July and continue into early August. The work is anticipated to occur concurrently with the City of Pawtucket's improvements to the Max Read Athletic Field. National Grid's project is expected to take approximately three to four weeks to complete and will involve:

- Delivery of materials to the washout area;
- Limited removal of brush/vegetation and the remnants of the former drainage structure;
- Stabilization and capping of the washout with a liner system and installation of two new concrete manholes, approximately 60 linear feet of new drain line, and an engineered outfall to convey stormwater from the Max Read Field area to the Seekonk River; and
- Backfill of the washout area to match the surrounding ground surface with clean, imported gravel/soil, followed by hydroseeding to establish grass cover over the disturbed area.

Given its limited scope, remote location, and short duration, potential community impacts will be minimal. Truck traffic will be kept to a minimum, and nearby residents will notice only a slight increase in the number

View of the Seekonk River from the washout.

of trucks entering or leaving the area as a result of this project. No excavation or off-site disposal of impacted soil is planned as part of this work. All work will be performed between 7:00 a.m. and 6:00 p.m., Monday through Friday unless otherwise pre-approved by National Grid and the City of Pawtucket. Construction schedule updates will be posted to the National Grid Tidewater website (www.tidewatersite.com) and on the local bulletin boards.

Environmental Monitoring and Permits

National Grid will have a representative on site who will monitor the work and conduct air monitoring consistent with the site-specific, RIDEM-submitted Air Quality Monitoring Plan that includes a two-tiered approach during intrusive activities. Consistent with similar work performed previously at the Tidewater Site, air monitoring data (i.e., volatile organic compound screening data, dust monitoring data and analytical data) will be posted on the National Grid Tidewater website (www.tidewatersite.com) and the local bulletin boards on a weekly basis.

As indicated previously, this work will be performed consistent with the RIDEM-approved January 2016 STRAP. In addition, all work will be performed in accordance with the Rhode Island Coastal Resource Management Council (CRMC) assent, RIDEM Water Quality Certification (WQC), and US Army Corps of Engineers (ACOE) approval for this project.

Next Steps

Consistent with the Public Involvement Plan (PIP) for the Tidewater Site, National Grid will host a public meeting to present the proposed repair and restoration activities described in this fact sheet. This meeting will be held at the Francis J. Varieur Elementary School located at 486 Pleasant Street in Pawtucket at 6 pm on May 24th, 2016. We are committed to keeping the community informed of our progress. Information will be posted on the National Grid Tidewater Website (www.tidewatersite.com) and on RIDEM's website (www.dem.ri.gov./programs/benviron/waste/tide.htm), as well as on bulletin boards near the Tidewater Site.

Picture of historic drainage pipes from 2014.

Questions and Comments

For more information on National Grid's activities at the site, please contact Michele Leone at 401-784-7337 or michele.leone@nationalgrid.com or visit our website at www.tidewatersite.com.

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5 de mayo de 2016
Archivo n.º 05.0043654.00-C

Asunto: Aviso para propietarios colindantes y partes interesadas
Reparación del sistema de aguas pluviales y restauración del área de lavado sur
Exinstalaciones de Tidewater
Pawtucket, Rhode Island
Archivo del RIDEM n.º SR-26-0934

Estimados propietarios colindantes y partes interesadas:

El propósito de esta carta es informarles que The Narragansett Electric Company, de nombre comercial National Grid (National Grid), realizará reparaciones en un sistema de aguas pluviales y un área de lavado, las cuales incluirán actividades limitadas de movimiento de la tierra en la antigua planta Tidewater Manufactured Gas Plant (MGP) y la antigua Pawtucket No. 1 Power Station Site (el Sitio) ubicada al final de las calles Tidewater y Merry en Pawtucket, Rhode Island. Este es un aviso para dueños de propiedades colindantes, inquilinos y miembros de la lista de correo del Sitio Tidewater de conformidad con los requisitos establecidos en las *Normas y Regulaciones para la Investigación y el Saneamiento de Emisiones de Materiales Peligrosos* (las Normas de Saneamiento) del Departamento de Gestión Ambiental de Rhode Island (RIDEM, por sus siglas en inglés) y el Plan de Participación Pública (PIP, por sus siglas en inglés) de octubre de 2013. Si usted es dueño de una propiedad que está alquilada, le solicitamos que facilite una copia de esta carta a sus inquilinos.

Tal como se describe en la hoja de datos adjunta, National Grid tiene planeado reparar un sistema de aguas pluviales y un área de lavado. El RIDEM aprobó estas tareas de reparación propuestas. Se encuentra publicada información adicional en el sitio web de National Grid Tidewater (www.tidewatersite.com) y el sitio web del RIDEM correspondiente a este proyecto (www.dem.ri.gov./programs/benviron/waste/tide.htm).

Si bien estas tareas de reparación de servicios públicos no se consideran, técnicamente, trabajos de saneamiento, con el objeto de mantener informados a los interesados, National Grid organizará una reunión pública para presentar las actividades de reparación y restauración propuestas que se describen en la hoja de datos adjunta. Dicha reunión se realizará en el establecimiento Francis J. Varieur Elementary School, sito en 486 Pleasant Street en Pawtucket, a las 6:00 p. m. el martes 24 de mayo de 2016. El período para realizar comentarios estará abierto hasta el 31 de mayo de 2016, durante el cual el público podrá revisar los registros del RIDEM correspondientes a esta propiedad y enviar comentarios por escrito al RIDEM sobre las actividades propuestas que se describen en el documento adjunto.

Si desea obtener más información o tiene alguna consulta, comuníquese con Michele Leone de National Grid al 401-784-7337.

Cordialmente.

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P.E.
Jefa de proyecto sénior

James J. Clark, P.E.
Director sénior

Documento adjunto: Hoja de datos “Reparación del sistema de aguas pluviales y restauración del área de lavado sur”

cc: Joe Martella, RIDEM
Michele Leone, National Grid
Jesse Edmands, National Grid

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Reparación del sistema de aguas pluviales y restauración de área de lavado sur

El Antiguo Sitio Tidewater MGP y Power Plant

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Descripción general

Este verano, National Grid tiene planeado reparar un área de lavado ubicada en el Sitio Tidewater. Un área de lavado es similar a un sumidero. El área de lavado sur se encuentra cerca del extremo sur del Sitio Tidewater, entre Max Read Field y el río Seekonk, dentro de la ciudad de Pawtucket. El área de lavado se extiende alrededor de 60 pies tierra adentro desde el banco del río Seekonk y es el resultado del deterioro de una antigua estructura de drenaje de concreto y la subsiguiente erosión ocasionada por las aguas pluviales. La antigua estructura de drenaje transportaba las aguas pluviales desde el área de Max Read Field hasta el río Seekonk. La ciudad de Pawtucket es propietaria de Max Read Field. National Grid trabajó en colaboración con la ciudad de Pawtucket para planificar este proyecto.

El área de lavado sur se muestra en color naranja en el sector sur del sitio.

A continuación, se resume dicho proyecto y este se describe en más detalle en el Plan de Acción de Respuestas a Corto Plazo (STRAP, Short Term Response Action Plan) de enero de 2016 aprobado por el Departamento de Gestión Ambiental de Rhode Island (RIDEM, Rhode Island Department of Environmental Management) el 19 de abril de 2016. El STRAP completo se encuentra publicado en el sitio web de National Grid Tidewater (www.tidewatersite.com) y el sitio web del RIDEM correspondiente a este proyecto (www.dem.ri.gov./programs/benviron/waste/tide.htm).

Proceso planificado de reparación y restauración

El contratista seleccionado de National Grid se trasladará al área de lavado a fin de preparar la zona de trabajo a finales de junio de 2016. Está previsto que las actividades de reparación y restauración se inicien a principios de julio y continúen hasta comienzos de agosto. Se espera que el trabajo se realice al mismo tiempo que las mejoras de Max Read Athletic Field que realizará la ciudad de Pawtucket. Se prevé que el proyecto de National Grid tome aproximadamente entre tres y cuatro semanas para completarse, y abarcará lo siguiente:

- la entrega de materiales al área de lavado;
- la eliminación limitada de maleza o vegetación y los restos de la antigua estructura de drenaje;
- la estabilización y el sellado del área de lavado con un sistema cobertor, la colocación de dos nuevas bocas de alcantarilla de concreto, aproximadamente a 60 pies lineales del nuevo tubo de drenaje, y la realización de un desagüe diseñado para transportar las aguas pluviales desde el área de Max Read Field al río Seekonk; y

Vista del río Seekonk desde el área de lavado.

- el relleno del área de lavado (a fin de nivelarlo con la superficie del suelo de los alrededores) con grava o suelo limpios e importados, seguido de la implementación de hidrosiembra para hacer crecer una capa de césped sobre el área afectada.

Debido a su alcance limitado, la ubicación remota y la duración breve, los posibles impactos en la comunidad serán mínimos. El tránsito de camiones será mínimo y los residentes de la zona notarán solo un leve aumento en la cantidad de camiones que entran al área o salen de esta como consecuencia del presente proyecto. No se planifica ninguna excavación ni ningún desecho fuera de las instalaciones de suelo afectado como parte de este trabajo. Todas las tareas se realizarán entre las 7:00 a. m. y las 6:00 p. m., de lunes a viernes, a menos que National Grid y la ciudad de Pawtucket aprueben lo contrario previamente. Se publicarán actualizaciones del cronograma de construcción en el sitio web de National Grid Tidewater (www.tidewatersite.com) y en los tableros de anuncios locales.

Control y permisos ambientales

National Grid contará con un representante en el lugar, quien supervisará el trabajo y realizará el control del aire conforme al Plan de Control de la Calidad del Aire específico para el sitio enviado por el RIDEM, que incluye un método de dos niveles durante las actividades intrusivas. De conformidad con las tareas similares realizadas con anterioridad en el Sitio Tidewater, la información sobre el control de aire (es decir, información de detección de compuesto volátil orgánico, información de control de polvo e información analítica) se publicará en el sitio web de National Grid Tidewater (www.tidewatersite.com) y en los tableros de anuncios locales todas las semanas.

Tal como se describió anteriormente, este trabajo se realizará de conformidad con el STRAP de enero de 2016 aprobado por el RIDEM. Además, todas las tareas se realizarán de acuerdo con la aprobación del Consejo de Gestión de Recursos Costeros (CRMC, Coastal Resource Management Council) de Rhode Island, el Certificado de Calidad del Agua (WQC, Water Quality Certification) del RIDEM y la aprobación del presente proyecto por parte del Cuerpo de Ingenieros del Ejército (ACOE, Army Corps of Engineers) de los Estados Unidos.

Pasos siguientes

De conformidad con el Plan de Participación Pública (PIP, Public Involvement Plan) del Sitio Tidewater, National Grid organizará una reunión pública para presentar las actividades de reparación y restauración propuestas que se describen en la presente hoja de datos. Dicha reunión se realizará en el establecimiento Francis J. Varieur Elementary School, sito en 486 Pleasant Street en Pawtucket, a las 6:00 p. m. el 24 de mayo de 2016. Nos comprometemos a mantener a la comunidad informada sobre nuestro progreso. La información se publicará en el sitio web de National Grid Tidewater (www.tidewatersite.com), en el sitio web del RIDEM (www.dem.ri.gov./programs/benviron/waste/tide.htm) y en los tableros de anuncios cerca del Sitio Tidewater.

Imagen de las antiguas tuberías de drenaje de 2014.

De Haber Preguntas o Comentarios

Para obtener más información sobre las actividades de National Grid en ese lugar, por favor comuníquese con Michele Leone al 401-784-7337 ó michele.leone@nationalgrid.com o visite nuestro sitio en la red www.tidewatersite.com.

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5 de maio de 2016
Arquivo nº 05.0043654.00-C

Ref: Notificação aos donos de propriedades adjacentes e/ou partes interessadas
Reparo do sistema de água de enxurrada e restauração da área de eliminação ao sul
Previamente Tidewater Facility
Pawtucket, Rhode Island
Arquivo nº SR-26-0934 RIDEM

Prezados donos de propriedades adjacentes e/ou partes interessadas,

O objetivo desta carta é notificá-los de que a Companhia Elétrica Narragansett, sob o nome comercial National Grid (National Grid) estará efetuando reparos em um sistema de água de enxurrada e área de eliminação, o que envolverá limitadas atividades de terraplenagem na antiga Fábrica de Gás Manufaturado Tidewater (sigla em inglês, MGP) e no antigo local da Central Elétrica Pawtucket nº 1 (o Local), localizados no final das ruas Tidewater e Merry, em Pawtucket, Rhode Island. Esta notificação está sendo enviada aos donos das propriedades adjacentes, inquilinos e membros da lista de mala direta da Tidewater Site, de acordo com os requisitos estabelecidos nas *Regras e regulamentação para a investigação e remediação de materiais perigosos* (Regulamentações de remediação) do Departamento de Gestão Ambiental de Rhode Island (sigla em inglês, RIDEM) e o Plano de Envolvimento Público (sigla em inglês, PIP) de outubro de 2013. Caso seja dono de uma propriedade que esteja alugada, solicitamos que envie uma cópia desta carta aos seus inquilinos.

Conforme descrito no boletim informativo em anexo, a National Grid planeja reparar um sistema de água de enxurrada e área de eliminação. Esta obra de reparo proposta foi aprovada pelo RIDEM. Informações adicionais serão publicadas no site Tidewater da National Grid (www.tidewatersite.com) e no site do RIDEM para este projeto (www.dem.ri.gov./programs/benviron/waste/tide.htm).

Embora esta obra de reparo de serviços públicos não seja tecnicamente considerada obra de remediação, a fim de manter as partes interessadas informadas, a National Grid sediará uma audiência pública para apresentar as atividades de reparo e de restauração propostas descritas no boletim informativo em anexo. Esta audiência será realizada na escola Francis J. Varieur Elementary School, situada em 486 Pleasant Street em Pawtucket, às 18h00, na terça-feira, dia 24 de maio de 2016. O período para comentários estará aberto até 31 de maio de 2016, durante o qual o público pode analisar registros do RIDEM relativos a esta propriedade e enviar comentários por escrito para o RIDEM referentes às atividades propostas descritas no anexo.

Caso queira mais informações ou tenha alguma dúvida, entre em contato com Michele Leone da National Grid pelo telefone 401-784-7337.

Sinceramente,

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P.E.
Gerente Sênior de Projetos

James J. Clark, P.E.
Diretor

Anexo: Boletim informativo "Reparo do sistema de água de enxurrada e restauração da área de eliminação ao sul"

cc: Joe Martella, RIDEM
Michele Leone, National Grid
Jesse Edmands, National Grid

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Reparo do sistema de água de enxurrada e restauração da área de eliminação ao sul

Na Antiga Tidewater MGP e na Central Eléctrica

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Visão geral

Neste verão, a National Grid planeja reparar uma área de eliminação localizada no Tidewater Site. Uma eliminação é similar a uma dolina. A área de eliminação ao sul está localizada perto do extremo sul do Tidewater Site entre o Max Read Field e o Rio Seekonk em propriedade da Cidade de Pawtucket. A eliminação se estende aproximadamente 18 metros para o interior a partir da margem do Rio Seekonk e é o resultado da deterioração de uma estrutura de drenagem do concreto antiga e subsequente erosão pela água de enxurrada. A estrutura de drenagem antiga transportou água de enxurrada da área do Max Read Field para o Rio Seekonk. A Cidade de Pawtucket é proprietária do Max Read Field. A National Grid trabalhou em colaboração com a Cidade de Pawtucket para fazer planos para este projeto.

A área da eliminação ao sul está indicada em laranja na porção ao sul do local.

Este projeto está sumarizado abaixo e descrito em mais detalhes no Plano de Ação de Resposta a Curto Prazo (sigla em inglês, STRAP) de janeiro de 2016, que foi aprovado pelo Departamento de Gestão Ambiental de Rhode Island (sigla em inglês, RIDEM) em 19 de abril de 2016. O STRAP completo está publicado no site Tidewater (www.tidewatersite.com) da National Grid e no site do RIDEM para este projeto (www.dem.ri.gov./programs/benviron/waste/tide.htm).

Reparo planejado e processo de restauração

O empreiteiro selecionado pela National Grid se mobilizará para a área de eliminação para preparar a área de trabalho no final de junho de 2016. As atividades de reparo e restauração estão programadas para começar no início de julho e continuar até o início de agosto. É previsto que a obra ocorra concomitantemente com as melhorias da Cidade de Pawtucket ao Campo Atlético Max Read. É esperado que o projeto da National Grid leve aproximadamente três a quatro semanas para ser concluído e envolverá:

- Entrega de material na área de eliminação;
- Limitada remoção de mato/vegetação e os restos da estrutura de drenagem anterior;
- Estabilização e limitação da eliminação com um sistema de revestimento e instalação de dois novos poços de inspeção de concreto, aproximadamente 18 metros lineares de linha de drenagem nova e um escoamento projetado para transportar água de enxurrada da área do Max Read Field ao Rio Seekonk; e
- Aterro da área da água de enxurrada para igualar a superfície do solo adjacente com cascalho/solo importado, limpo, seguido por hidrossemeadura para estabelecer cobertura de grama sobre a área danificada.

Vista do Rio Seekonk a partir da eliminação.

Dado ao seu escopo limitado, remota localização e curta duração, potenciais impactos à comunidade serão mínimos. O tráfego de caminhões será restrito ao mínimo e residentes próximos notarão apenas um pequeno aumento no número de caminhões entrando ou saindo da área como resultado deste projeto. Nenhuma escavação ou descarte de solo impactado fora do local está planejado como parte desta obra. Todo o trabalho será executado das 7 às 18 horas, de segunda a sexta, a menos que seja de outra maneira pré-aprovado pela National Grid e pela Cidade de Pawtucket. Atualizações programadas da construção serão publicadas no site Tidewater da National Grid (www.tidewatersite.com) e nos painéis informativos locais.

Licenças e monitoramento ambiental

A National Grid terá um representante no site que monitorará a obra e conduzirá o monitoramento do ar de forma consistente com o Plano de Monitoramento da Qualidade do Ar do RIDEM, específico para o local, que inclui uma abordagem em dois níveis durante atividades intrusivas. De forma consistente com obras similares executadas anteriormente no Tidewater Site, os dados do monitoramento do ar (isto é, dados de triagem de compostos orgânicos voláteis, dados do monitoramento da poeira e dados analíticos) serão publicados no site Tidewater da National Grid (www.tidewatersite.com) e nos painéis informativos locais semanalmente.

Conforme indicado anteriormente, esta obra será realizada consistentemente com o STRAP de janeiro de 2016 aprovado pelo RIDEM. Além disto, toda a obra será executada de acordo com a aprovação do Conselho de Gestão de Recursos Costeiros de Rhode Island (sigla em inglês, CRMC), a Certificação da Qualidade da Água pelo RIDEM (sigla em inglês, WQC) e a aprovação do Corpo de Engenheiros do Exército dos EUA (sigla em inglês, ACOE) para este projeto.

Próximas etapas

De forma consistente com o Plano de Envolvimento Público (sigla em inglês, PIP) para o Tidewater Site, a National Grid sediará uma audiência pública para apresentar as atividades de reparo e de restauração propostas descritas nesta folha informativa. Esta audiência será realizada na escola Francis J. Varieur Elementary School situada em 486 Pleasant Street em Pawtucket às 6:00 PM em 24 de maio de 2016. Temos o compromisso de manter a comunidade informada sobre o nosso progresso. As informações serão publicadas no site Tidewater da National Grid (www.tidewatersite.com) e no site do RIDEM (www.dem.ri.gov./programs/benviron/waste/tide.htm), assim como nos painéis informativos perto de Tidewater Site.

Imagem dos canos de drenagem antiga de 2014.

Se você tem dúvidas e comentários

Para obter mais informações sobre as atividades da National Grid no local, por favor, entre em contato com Michele Leone pelo telefone 401-784-7337 ou michele.leone@nationalgrid.com, ou visite nosso website em www.tidewatersite.com.

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June 2, 2016
File No. 05.0043654.00-C

Mr. Joseph Martella
Rhode Island Department of Environmental Management (RIDEM)
Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02908

Re: Public Meeting Summary – May 24, 2016
Short Term Response Action Plan (STRAP):
Stormwater Repair and South Washout Restoration
Former Tidewater MGP and Power Plant Site
Pawtucket, Rhode Island
RIDEM Case No. 95-022 / RIDEM File No. SR-26-0934

Dear Mr. Martella:

On behalf of our client, The Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental Inc. (GZA) is pleased to provide the attached summary of the May 24, 2016 public meeting associated with the Former Tidewater Manufactured Gas Plant (MGP) and Power Plant Site located in Pawtucket, Rhode Island (the Site). The purpose of the public meeting was to present the proposed stormwater repair and south washout restoration project. A STRAP was submitted to RIDEM on January 25, 2016. RIDEM approved the STRAP on April 19, 2016. A meeting notification and fact sheet was sent to the Tidewater mailing list on May 5, 2016.

Should you have any questions or comments regarding the information presented herein, please do not hesitate to contact the undersigned or Michele Leone at 401-784-7337.

Very truly yours,
GZA GEOENVIRONMENTAL, INC.

James. J. Clark, P.E.
Senior Principal
860-858-3134 – james.clark@gza.com

Attachment: Summary of Meeting
Sign-In Sheet

CC: Ms. Michele Leone, National Grid
Mr. Jesse Edmands, National Grid

\\GZAProv1\Jobs\ENV\43654.msk\WORK\South Washout Repair Work\5-24-16 Public Meeting\43654 Cover Letter 5-24-16 Meeting Summary Final 6-2-16.docx

Summary of Public Meeting
Short-Term Response Action Plan (STRAP) For
Stormwater Repair and South Washout Restoration Project
Former Tidewater Facility
Pawtucket, Rhode Island

May 24, 2016 6:00 PM
Francis J. Varieur Elementary School
486 Pleasant Street
Pawtucket, Rhode Island

- **Meeting Introduction – Michele Leone (National Grid)**
- **Stormwater System Repair and South Washout Area Restoration Presentation – James Clark, P.E. (GZA GeoEnvironmental, Inc.)**
- **Question and Answer Period**

This public meeting was held at the Francis J. Varieur Elementary School on May 24, 2016. The meeting began at 6:00 PM and ended at approximately 7:00 PM. The purpose of this public meeting was to present the proposed stormwater system repair and south washout area restoration project that is planned to be completed by National Grid at the Tidewater Site this summer. GZA, on behalf of National Grid, submitted a Short Term Response Action Plan (STRAP) to the Rhode Island Department of Environmental Management (RIDEM) Office of Waste Management (OWM) on January 25, 2016. The STRAP is available online at: http://www.dem.ri.gov/programs/benviron/waste/tide/160125st.pdf. RIDEM approved the STRAP on April 19, 2016: http://www.dem.ri.gov/programs/benviron/waste/tide/160419sa.pdf. These documents are also available on National Grid's Tidewater website (www.tidewatersite.com). The meeting notification and fact sheet was sent to the Tidewater mailing list on May 5, 2016 and are available on the Tidewater website at: http://www.tidewatersite.com/wp-content/uploads/2012/08/43654-00-Final-Abutter-Notification-SWO_ESP.pdf.

Meeting Introduction

Michele Leone (National Grid) opened the meeting at 6:00 PM with a brief introduction. Ms. Leone thanked everyone for taking the time to attend and described that the purpose of the meeting was to present the proposed stormwater repair and south washout restoration project. Ms. Leone mentioned that National Grid collaborated with the City during the planning for this work. Ms. Leone indicated that the project would be presented by James Clark (GZA).

Stormwater System Repair and South Washout Area Restoration Presentation – James Clark, P.E. (GZA GeoEnvironmental, Inc.)

Mr. James Clark (GZA) presented a prepared slide show related to the proposed stormwater system repair and south washout area restoration. Mr. Clark provided pertinent background information followed by a description of the project. Mr. Clark described the Max Read Field upgrade project that will be conducted by the City of Pawtucket concurrently with the stormwater system repair and south washout restoration project. Mr. Clark also noted that this project is consistent with the proposed final remedy for the Site. Mr. Clark described the environmental controls and monitoring that will be conducted during

implementation of the project. He concluded by presenting the proposed schedule and describing ways for interested members of the community to find more information about the Tidewater Site. The public comment period is open through May 31st, 2016.

Questions and Answer Period: *(Responses provided in italics)*

Representatives of National Grid, RIDEM, and GZA were present at the meeting to answer questions from the public. The following is a summary of the questions asked and the responses.

1. Audience member inquired what the south washout area would look like from the Seekonk River.

   Mr. Clark (GZA) and Ms. Leone (National Grid) indicated that the area would look very similar to the surrounding area of this portion of the Site. They also indicated that the washout area would be hydroseeded. Mr. Clark (GZA) noted that tree clearing associated with the project will be kept to a minimum. Mr. Clark (GZA) also noted that the armor flex mat will gradually vegetate after the project is complete. Ms. Leone (National Grid) added that plantings have not been included at this time because of the likely disturbance during final remedy for the Site, however, plantings will be assessed as part of the future remedy.

2. Audience member inquired whether the project would decrease the amount of silt in the Seekonk River. He noted that the Seekonk River currently has a lot of silt present.

   Mr. Clark (GZA) indicated the project would reduce the amount of silt that comes through the existing stormwater system from the school and the Max Read Field.

3. Audience member indicated that he gives tours of the Seekonk River by boat and inquired whether it would be helpful to present information about the project during the tours.

   Ms. Leone (National Grid) indicated that that was a great idea and the National Grid would appreciate his help. Ms. Leone (National Grid) indicated that the fact sheets may be a good hand out for the tour.

4. Audience member inquired whether it would be helpful to plant eelgrass.

   Mr. Clark (GZA) indicated that plantings would be assessed as part of the final remedy.

Mr. Martella (RIDEM, OWM) agreed with Mr. Clark and indicated the plantings would be assessed as part of the final remedy and included as part of other regulatory permitting.

Ms. Leone thanked everyone for coming.

Meeting ended at 7:00 PM.

TIDEWATER Environmental Project
Pawtucket, Rhode Island

PUBLIC MEETING

MAY 24, 2016 6:00 PM

SIGN IN SHEET (OPTIONAL)

Name	Address/Email
Joseph Martella DEM	joseph.martella@dem.ri.gov
Sophia Narkiewicz GZA	Sophia.narkiewicz@gza.com
ROB WILSON	BVRI@AOL.COM
ANDREW SILVIA	ASILVIA@PAWTUCKETRI.COM
John JACKSON	SECURITY N/C JOHN.JACKSON@NATIONALGRID.COM
David MAIKASSA	PAWT PD 121 ROOSEVELT AVE PAWT. 02860
Michele Leone	michele.leone@nationalgrid.com
JESSE EDMANDS	jesse.edmands@nationalgrid.com

THIS SIGN IN SHEET WILL BE PROVIDED TO RIDEM AND IS CONSIDERED PUBLIC RECORD

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530 Broadway
Providence, RI 02909
T: 401.421.4140
F: 401.751.8613
www.gza.com

August 26, 2016
GZA File No. 05.0043654.00-C

Re: Notice to Abutters and/or Interested Parties
Storm Water System Repair and South Washout Area Restoration
Former Tidewater Facility
Pawtucket, Rhode Island
RIDEM File No. SR-26-0934

Dear Abutters and/or Interested Parties:

The purpose of this letter is to notify you that The Narragansett Electric Company d/b/a National Grid (National Grid) recently completed repairs to a storm water system and restoration of a washout area at the former Tidewater Manufactured Gas Plant (MGP) and the former Pawtucket No. 1 Power Station Site (the Site) located at the ends of Tidewater and Merry Streets in Pawtucket, Rhode Island. This notice is being provided to abutting property owners, tenants and members of the Tidewater Site mailing list in accordance with requirements established in the Rhode Island Department of Environmental Management's (RIDEM) *Rules and Regulation for the Investigation and Remediation of Hazardous Materials* (Remediation Regulations) and the October 2013 Public Involvement Plan (PIP) for the Site. Should you be an owner of property that is leased, we request that you provide a copy of this letter to your tenants.

This repair and restoration work was performed consistent with the RIDEM approved Short Term Response Action Plan (STRAP) for the South Washout Area dated January 25th, 2016. These STRAP activities were performed between July 18th, 2016 and August 26th, 2016 and included limited removal of brush/vegetation, grading and preparation of subgrade, stabilization and capping of the washout with a subsurface liner system, installation of two new concrete manholes and approximately 60 linear feet of new stormwater drain line and an engineered outfall to convey stormwater from the Max Read Field area to the Seekonk River, backfill of the washout area to final grade with clean import fill, and hydroseeding and watering to establish grass cover over the former washout area. This STRAP work also included providing assistance to the City of Pawtucket in excavating and managing certain limited impacted materials encountered during their reconstruction of Max Read Field.

Throughout the project, National Grid had a representative on-Site who conducted air monitoring consistent with the Site-specific, RIDEM-submitted Air Quality Monitoring Plan. Consistent with similar work performed previously at the Tidewater Site, air monitoring data was posted on the National Grid Tidewater website and the local bulletin boards on a weekly basis. No exceedances of established site-specific air quality action levels were detected during the work.

The repair activities will be documented in a Short Term Response Action (STRA) Closure Report, which is expected to be submitted to RIDEM by the end of September 2016 and posted on the National Grid Tidewater website. Further information is posted on National Grid's Tidewater website (www.tidewatersite.com) and RIDEM's website for this project (www.dem.ri.gov./programs/benviron/waste/tide.htm). If you would like more information or have any questions, please contact Jesse Edmands of National Grid at 781-907-3682.

Very truly yours,
GZA GEOENVIRONMENTAL, INC.

Sophia Narkiewicz, P.E.
Assistant Project Manager

James J. Clark, P.E.
Senior Principal

cc: Joe Martella, RIDEM
Michele Leone, National Grid
Jesse Edmands, National Grid

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XIN VUI LÒNG CHO DỊCH LẠI THÔNG CÁO ẤY

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F: 401.751.8613
www.gza.com

26 de agosto de 2016
Archivo de GZA n.º 05.0043654.00-C

Asunto: Aviso para propietarios colindantes y partes interesadas
Reparación del sistema de aguas pluviales y restauración del área de lavado sur
Antiguas instalaciones de Tidewater
Pawtucket, Rhode Island
Archivo del RIDEM n.º SR-26-0934

Estimados propietarios colindantes y partes interesadas:

El propósito de esta carta es informarles que The Narragansett Electric Company, de nombre comercial National Grid (National Grid), recientemente llevó a cabo reparaciones en un sistema de aguas pluviales y la restauración de un área de lavado en la antigua planta Tidewater Manufactured Gas Plant (MGP) y la antigua Pawtucket No. 1 Power Station Site (el Sitio) ubicada al final de las calles Tidewater y Merry en Pawtucket, Rhode Island. Este es un aviso para dueños de propiedades colindantes, inquilinos y miembros de la lista de correo del Sitio Tidewater de conformidad con los requisitos establecidos en las *Normas y Regulaciones para la Investigación y el Saneamiento de Emisiones de Materiales Peligrosos* (las Normas de Saneamiento) del Departamento de Gestión Ambiental de Rhode Island (RIDEM, por sus siglas en inglés) y el Plan de Participación Pública (PIP, por sus siglas en inglés) de octubre de 2013 para el Sitio. Si usted es dueño de una propiedad que está alquilada, le solicitamos que facilite una copia de esta carta a sus inquilinos.

Estas tareas de reparación y restauración se realizaron de conformidad con el Plan de Acción de Respuestas a Corto Plazo (STRAP, por sus siglas en inglés) aprobado por el RIDEM para el área de lavado sur con fecha 25 de enero de 2016. Las actividades en el marco del STRAP se llevaron a cabo entre el 18 de julio de 2016 y el 26 de agosto de 2016 e incluyeron la eliminación limitada de maleza o vegetación, la nivelación y la preparación de la explanada, la estabilización y el sellado del área de lavado con un sistema cobertor subsuperficial, la colocación de dos nuevas bocas de alcantarilla de concreto y aproximadamente 60 pies lineales del nuevo tubo de drenaje de aguas pluviales y la realización de un desagüe diseñado para transportar las aguas pluviales desde el área de Max Read Field hasta el río Seekonk, el relleno del área de lavado hasta el nivel final con relleno importado limpio, y la implementación de la hidrosiembra y el riego para hacer crecer una capa de césped sobre la antigua área de lavado. Las tareas realizadas en el marco del STRAP también incluyeron la provisión de asistencia a la ciudad de Pawtucket para la excavación y el tratamiento de ciertos materiales de impacto limitado que se encontraron durante la reconstrucción de Max Read Field.

Durante el proyecto, National Grid contó con un representante en el Sitio, quien realizó el control del aire conforme al Plan de Control de la Calidad del Aire específico para el Sitio enviado por el RIDEM. De conformidad con las tareas similares realizadas con anterioridad en el Sitio Tidewater, la información sobre el control del aire se publicó en el sitio web de National Grid Tidewater y en los tableros de anuncios locales todas las semanas. Durante las tareas, no se detectaron valores que excedieran los niveles de acción de calidad del aire específicos del Sitio establecidos.

Las actividades de reparación se documentarán en un informe de cierre de Acción de Respuestas a Corto Plazo (STRA, por sus siglas en inglés) que, según se prevé, se presentará ante el RIDEM a fines de septiembre de 2016 y se publicará en el sitio web de National Grid Tidewater. Se encuentra publicada información adicional en el sitio web de National Grid Tidewater (www.tidewatersite.com) y el sitio web del RIDEM correspondiente a este proyecto (www.dem.ri.gov./programs/benviron/waste/tide.htm). Si desea obtener más información o tiene alguna consulta, comuníquese con Jesse Edmands de National Grid al 781-907-3682.

Cordialmente.
GZA GEOENVIRONMENTAL, INC.

Sophia Narkiewicz, P.E.
Jefa adjunta de proyecto

James J. Clark, P.E.
Director sénior

cc: Joe Martella, RIDEM
Michele Leone, National Grid
Jesse Edmands, National Grid

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26 de agosto de 2016
Arquivo GZA nº 05.0043654.00-C

Ref: Notificação aos donos de propriedades adjacentes e/ou partes interessadas
Reparo do sistema de água de enxurrada e restauração da área de eliminação ao sul
Previamente Tidewater Facility
Pawtucket, Rhode Island
Arquivo nº SR-26-0934 RIDEM

Prezados donos de propriedades adjacentes e/ou partes interessadas,

O objetivo desta carta é notificá-los de que a Companhia Elétrica Narragansett, sob o nome comercial National Grid (National Grid), concluiu recentemente os reparos em um sistema de água de enxurrada e restauração de uma área de eliminação na antiga Fábrica de Gás Manufaturado Tidewater (sigla em inglês, MGP) e no antigo local da Central Elétrica Pawtucket nº 1 (o Local), localizados no final das ruas Tidewater e Merry, em Pawtucket, Rhode Island. Esta notificação está sendo fornecida aos donos das propriedades adjacentes, inquilinos e membros da lista de mala direta da Tidewater Site, de acordo com os requisitos estabelecidos nas *Regras e regulamentação para a investigação e remediação de materiais perigosos* (Regulamentações de remediação) do Departamento de Gestão Ambiental de Rhode Island (sigla em inglês, RIDEM) e o Plano de Envolvimento Público (sigla em inglês, PIP) para o Local, de outubro de 2013. Caso seja dono de uma propriedade que esteja alugada, solicitamos que forneça uma cópia desta carta aos seus inquilinos.

Esta obra de reparo e restauração foi realizada de forma consistente com o Plano de Ação de Resposta a Curto Prazo (sigla em inglês, STRAP) aprovado pelo RIDEM para a área de eliminação ao sul, com data de 25 de janeiro de 2016. Estas atividades do STRAP foram realizadas entre 18 de julho de 2016 e 26 de agosto de 2016 e incluiu remoção limitada de mato e vegetação, nivelamento e preparação do subleito, estabilização e fechamento da eliminação com um sistema de revestimento da subsuperfície, instalação de dois novos bueiros de concreto e aproximadamente 18,3 metros (60 pés) lineares de linhas de drenagem de águas pluviais e um escoamento projetado para conduzir águas pluviais da área de Max Read Field ao Rio Seekonk, reaterro da área de eliminação para o nivelamento final com preenchimento, e hidrossemeadura e irrigação para implementar cobertura de grama sobre a antiga área de eliminação. Esta obra do STRAP também incluiu a prestação de assistência à Cidade de Pawtucket na escavação e gestão de certos materiais impactados limitados encontrados durante a reconstrução de Max Read Field.

Durante todo o projeto, a National Grid teve um representante no local, que conduziu o monitoramento do ar, de forma consistente com o plano de monitoramento da qualidade do ar enviado pelo RIDEM específico para o local. Consistentemente com obra similar realizada anteriormente em Tidewater Site, os dados do monitoramento do ar foram publicados no site da National Grid Tidewater e nos quadros de boletins informativos semanalmente. Nenhum valor superior ao admissível para os níveis de ação da qualidade de ar estabelecidos específicos para o local foi detectado durante a obra.

As atividades de reparo serão documentadas em um relatório de encerramento da Ação de Resposta a Curto Prazo (sigla em inglês, STRA), que deve ser enviado ao RIDEM até o final de setembro de 2016 e publicado no site da National Grid Tidewater. Outras informações estão publicadas no site da National Grid Tidewater (www.tidewatersite.com) e no site do RIDEM para este projeto (www.dem.ri.gov./programs/benviron/waste/tide.htm). Caso queira mais informações ou tenha alguma dúvida, entre em contato com Jesse Edmands da National Grid pelo telefone 781-907-3682.

Sinceramente,
GZA GEOENVIRONMENTAL, INC.

Sophia Narkiewicz, P.E.
Assistente de Gerente de Projetos

James J. Clark, P.E.
Diretor

cc: Joe Martella, RIDEM
Michele Leone, National Grid
Jesse Edmands, National Grid

APPENDIX E

IMPORTED MATERIAL LABORATORY REPORTS

CERTIFICATE OF ANALYSIS

Rick LaMothe
NRC
19 National Drive
Franklin, MA 02038

RE: Nat Grid (62310-0010)
ESS Laboratory Work Order Number: 1607260

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:26 pm, Jul 19, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

SAMPLE RECEIPT

The following samples were received on July 13, 2016 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1607260-01	Granular Fill	Soil	6010C, 6020A, 7471B, 8081B, 8082A, 8100M, 8260B, 8270D
1607260-02	Top Soil	Soil	6010C, 6020A, 7471B, 8081B, 8082A, 8100M, 8260B, 8270D

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Methanol

1607260-01	**Present in Method Blank (B).**
	Methylene Chloride
1607260-02	**Present in Method Blank (B).**
	Methylene Chloride
CG61438-BS1	**Blank Spike recovery is above upper control limit (B+).**
	1,1-Dichloroethene (150% @ 70-130%), Methylene Chloride (137% @ 70-130%)
CG61438-BSD1	**Blank Spike recovery is above upper control limit (B+).**
	1,1-Dichloroethene (160% @ 70-130%), Methylene Chloride (141% @ 70-130%)
CG61438-BSD1	**Relative percent difference for duplicate is outside of criteria (D+).**
	Tetrahydrofuran (33% @ 25%)
CZG0200-CCV1	**Continuing Calibration %Diff/Drift is above control limit (CD+).**
	1,1-Dichloroethene (31% @ 20%)

8081B Organochlorine Pesticides

1607260-02	**Lower value is used due to matrix interferences (LC).**
	4,4´-DDT , alpha-Chlordane [2C]
1607260-02	**Percent difference between primary and confirmation results exceeds 40% (P).**
	4,4´-DDT , alpha-Chlordane [2C]
CZG0234-CCV3	**Continuing Calibration %Diff/Drift is below control limit (CD-).**
	4,4´-DDT (36% @ 20%), 4,4´-DDT [2C] (37% @ 20%), Decachlorobiphenyl (29% @ 20%), Decachlorobiphenyl [2C] (23% @ 20%), Methoxychlor (21% @ 20%), Methoxychlor [2C] (23% @ 20%)

8270D Semi-Volatile Organic Compounds

CG61430-BS1	**Blank Spike recovery is below lower control limit (B-).**
	Hexachlorocyclopentadiene (30% @ 40-140%)
CG61430-BSD1	**Blank Spike recovery is below lower control limit (B-).**
	Hexachlorocyclopentadiene (32% @ 40-140%)
CZG0218-CCV1	**Calibration required quadratic regression (Q).**
	2,4-Dinitrophenol (81% @ 80-120%)
CZG0218-CCV1	**Continuing Calibration %Diff/Drift is below control limit (CD-).**
	4-Nitrophenol (29% @ 20%), Benzoic Acid (45% @ 20%), Pentachlorophenol (23% @ 20%)
CZG0218-CCV1	**Initial Calibration Verification recovery is above upper control limit (ICV+).**
	Benzoic Acid
CZG0221-CCV1	**Calibration required quadratic regression (Q).**
	2,4-Dinitrophenol (65% @ 80-120%), Benzoic Acid (81% @ 80-120%)
CZG0221-CCV1	**Continuing Calibration %Diff/Drift is below control limit (CD-).**
	2,4-Dinitrophenol (35% @ 20%), 4,6-Dinitro-2-Methylphenol (27% @ 20%), N-Nitrosodimethylamine (21% @ 20%)
CZG0221-CCV1	**Initial Calibration Verification recovery is above upper control limit (ICV+).**
	Benzoic Acid

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (0.38)		6020A		20	NAR	07/15/16 16:03	2.75	100	CG61323
Arsenic	ND (1.89)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Beryllium	**0.20** (0.08)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Cadmium	ND (0.38)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Chromium	**1.51** (0.76)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Copper	**2.53** (1.89)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Lead	**5.96** (3.78)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Mercury	ND (0.033)		7471B		1	BJV	07/14/16 11:46	0.62	40	CG61325
Nickel	ND (1.89)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Selenium	ND (0.38)		6020A		20	NAR	07/15/16 16:03	2.75	100	CG61323
Silver	ND (0.38)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323
Thallium	ND (0.38)		6020A		20	NAR	07/15/16 16:03	2.75	100	CG61323
Zinc	**42.3** (1.89)		6010C		1	KJK	07/15/16 20:22	2.75	100	CG61323

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 15.4
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,1,1-Trichloroethane	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,1,2,2-Tetrachloroethane	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,1,2-Trichloroethane	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,1-Dichloroethane	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,1-Dichloroethene	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,1-Dichloropropene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2,3-Trichlorobenzene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2,3-Trichloropropane	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2,4-Trichlorobenzene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2,4-Trimethylbenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2-Dibromo-3-Chloropropane	ND (1.05)	0.211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2-Dibromoethane	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2-Dichlorobenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2-Dichloroethane	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,2-Dichloropropane	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,3,5-Trimethylbenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,3-Dichlorobenzene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,3-Dichloropropane	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,4-Dichlorobenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
1,4-Dioxane - Screen	ND (42.2)	40.0	8260B		1	07/14/16 15:39	CZG0200	CG61438
1-Chlorohexane	ND (0.211)	0.0843	8260B		1	07/14/16 15:39	CZG0200	CG61438
2,2-Dichloropropane	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
2-Butanone	ND (1.05)	0.717	8260B		1	07/14/16 15:39	CZG0200	CG61438
2-Chlorotoluene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
2-Hexanone	ND (1.05)	0.316	8260B		1	07/14/16 15:39	CZG0200	CG61438
4-Chlorotoluene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
4-Isopropyltoluene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
4-Methyl-2-Pentanone	ND (1.05)	0.337	8260B		1	07/14/16 15:39	CZG0200	CG61438
Acetone	ND (1.05)	0.569	8260B		1	07/14/16 15:39	CZG0200	CG61438
Benzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Bromobenzene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 15.4
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
Bromodichloromethane	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Bromoform	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Bromomethane	ND (0.211)	0.0843	8260B		1	07/14/16 15:39	CZG0200	CG61438
Carbon Disulfide	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Carbon Tetrachloride	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Chlorobenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Chloroethane	ND (0.211)	0.0843	8260B		1	07/14/16 15:39	CZG0200	CG61438
Chloroform	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Chloromethane	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
cis-1,2-Dichloroethene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
cis-1,3-Dichloropropene	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
Dibromochloromethane	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Dibromomethane	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
Dichlorodifluoromethane	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
Diethyl Ether	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
Di-isopropyl ether	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Ethyl tertiary-butyl ether	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Ethylbenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Hexachlorobutadiene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Isopropylbenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Methyl tert-Butyl Ether	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
Methylene Chloride	**B, J 0.101** (0.422)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Naphthalene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
n-Butylbenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
n-Propylbenzene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
sec-Butylbenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Styrene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
tert-Butylbenzene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Tertiary-amyl methyl ether	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Tetrachloroethene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Tetrahydrofuran	ND (1.05)	0.337	8260B		1	07/14/16 15:39	CZG0200	CG61438

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 15.4
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
trans-1,2-Dichloroethene	ND (0.211)	0.0632	8260B		1	07/14/16 15:39	CZG0200	CG61438
trans-1,3-Dichloropropene	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Trichloroethene	**J 0.0527** (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Trichlorofluoromethane	ND (0.211)	0.0843	8260B		1	07/14/16 15:39	CZG0200	CG61438
Vinyl Acetate	ND (0.211)	0.105	8260B		1	07/14/16 15:39	CZG0200	CG61438
Vinyl Chloride	ND (0.211)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Xylene O	ND (0.211)	0.0211	8260B		1	07/14/16 15:39	CZG0200	CG61438
Xylene P,M	ND (0.422)	0.0422	8260B		1	07/14/16 15:39	CZG0200	CG61438
Xylenes (Total)	ND (0.422)		8260B		1	07/14/16 15:39		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*105 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*98 %*		*70-130*
Surrogate: Dibromofluoromethane	*104 %*		*70-130*
Surrogate: Toluene-d8	*111 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 19.3
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 7/13/16 15:03

8081B Organochlorine Pesticides

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
4,4´-DDD	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
4,4´-DDE	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
4,4´-DDT	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Aldrin	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
alpha-BHC	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
alpha-Chlordane	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
beta-BHC	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Chlordane (Total)	ND (0.0323)		8081B		1	07/15/16 20:43	CZG0234	CG61314
delta-BHC	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Dieldrin	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Endosulfan I	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Endosulfan II	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Endosulfan Sulfate	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Endrin	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Endrin Aldehyde	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Endrin Ketone	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
gamma-BHC (Lindane)	ND (0.0016)		8081B		1	07/15/16 20:43	CZG0234	CG61314
gamma-Chlordane	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Heptachlor	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Heptachlor Epoxide	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Hexachlorobenzene	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Methoxychlor	ND (0.0027)		8081B		1	07/15/16 20:43	CZG0234	CG61314
Toxaphene	ND (0.135)		8081B		1	07/15/16 20:43	CZG0234	CG61314

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*61 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*65 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ML
Prepared: 7/13/16 18:11

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1221	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1232	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1242	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1248	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1254	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1260	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1262	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309
Aroclor 1268	ND (0.0534)		8082A		1	07/15/16 0:32		CG61309

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*54 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*59 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 19.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 7/13/16 18:28

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	ND (39.8)		8100M		1	07/14/16 4:01	CZG0173	CG61312

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 7/14/16 11:08

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
1,2,4-Trichlorobenzene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
1,2-Dichlorobenzene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
1,3-Dichlorobenzene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
1,4-Dichlorobenzene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,3,4,6-Tetrachlorophenol	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,4,5-Trichlorophenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,4,6-Trichlorophenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,4-Dichlorophenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,4-Dimethylphenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,4-Dinitrophenol	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,4-Dinitrotoluene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2,6-Dinitrotoluene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2-Chloronaphthalene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2-Chlorophenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2-Methylnaphthalene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2-Methylphenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2-Nitroaniline	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
2-Nitrophenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
3,3´-Dichlorobenzidine	ND (0.703)		8270D		1	07/15/16 17:10	CZG0221	CG61430
3+4-Methylphenol	ND (0.703)		8270D		1	07/15/16 17:10	CZG0221	CG61430
3-Nitroaniline	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
4,6-Dinitro-2-Methylphenol	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430
4-Bromophenyl-phenylether	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
4-Chloro-3-Methylphenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
4-Chloroaniline	ND (0.703)		8270D		1	07/15/16 17:10	CZG0221	CG61430
4-Chloro-phenyl-phenyl ether	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
4-Nitroaniline	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
4-Nitrophenol	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Acenaphthene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Acenaphthylene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Acetophenone	ND (0.703)		8270D		1	07/15/16 17:10	CZG0221	CG61430

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 7/14/16 11:08

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.703)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Anthracene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Azobenzene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Benzo(a)anthracene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Benzo(a)pyrene	ND (0.176)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Benzo(b)fluoranthene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Benzo(g,h,i)perylene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Benzo(k)fluoranthene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Benzoic Acid	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Benzyl Alcohol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
bis(2-Chloroethoxy)methane	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
bis(2-Chloroethyl)ether	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
bis(2-chloroisopropyl)Ether	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
bis(2-Ethylhexyl)phthalate	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Butylbenzylphthalate	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Carbazole	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Chrysene	ND (0.176)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Dibenzo(a,h)Anthracene	ND (0.176)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Dibenzofuran	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Diethylphthalate	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Dimethylphthalate	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Di-n-butylphthalate	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Di-n-octylphthalate	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Fluoranthene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Fluorene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Hexachlorobenzene	ND (0.176)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Hexachlorobutadiene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Hexachlorocyclopentadiene	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Hexachloroethane	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Indeno(1,2,3-cd)Pyrene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Isophorone	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Naphthalene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/12/16 00:00
Percent Solids: 96
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 7/14/16 11:08

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
N-Nitrosodimethylamine	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
N-Nitroso-Di-n-Propylamine	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
N-nitrosodiphenylamine	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Pentachlorophenol	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Phenanthrene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Phenol	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Pyrene	ND (0.351)		8270D		1	07/15/16 17:10	CZG0221	CG61430
Pyridine	ND (1.76)		8270D		1	07/15/16 17:10	CZG0221	CG61430

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*65 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*78 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*72 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*67 %*		*30-130*
Surrogate: 2-Fluorophenol	*70 %*		*30-130*
Surrogate: Nitrobenzene-d5	*69 %*		*30-130*
Surrogate: Phenol-d6	*75 %*		*30-130*
Surrogate: p-Terphenyl-d14	*93 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (0.45)		6020A		20	NAR	07/15/16 16:09	2.43	100	CG61323
Arsenic	**3.11** (2.26)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Beryllium	**0.38** (0.10)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Cadmium	ND (0.45)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Chromium	**11.3** (0.91)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Copper	**15.1** (2.26)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Lead	**92.5** (4.53)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Mercury	**0.252** (0.036)		7471B		1	BJV	07/14/16 11:48	0.61	40	CG61325
Nickel	**8.56** (2.26)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Selenium	ND (0.45)		6020A		20	NAR	07/15/16 16:09	2.43	100	CG61323
Silver	ND (0.45)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323
Thallium	ND (0.45)		6020A		20	NAR	07/15/16 16:09	2.43	100	CG61323
Zinc	**43.5** (2.26)		6010C		1	KJK	07/15/16 20:26	2.43	100	CG61323

ESS Laboratory
Division of Thielsch Engineering, Inc.

BAL Laboratory
The Microbiology Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 13.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,1,1-Trichloroethane	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,1,2,2-Tetrachloroethane	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,1,2-Trichloroethane	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,1-Dichloroethane	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,1-Dichloroethene	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,1-Dichloropropene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2,3-Trichlorobenzene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2,3-Trichloropropane	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2,4-Trichlorobenzene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2,4-Trimethylbenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2-Dibromo-3-Chloropropane	ND (1.29)	0.258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2-Dibromoethane	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2-Dichlorobenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2-Dichloroethane	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,2-Dichloropropane	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,3,5-Trimethylbenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,3-Dichlorobenzene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,3-Dichloropropane	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,4-Dichlorobenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
1,4-Dioxane - Screen	ND (51.5)	48.9	8260B		1	07/14/16 16:05	CZG0200	CG61438
1-Chlorohexane	ND (0.258)	0.103	8260B		1	07/14/16 16:05	CZG0200	CG61438
2,2-Dichloropropane	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
2-Butanone	ND (1.29)	0.876	8260B		1	07/14/16 16:05	CZG0200	CG61438
2-Chlorotoluene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
2-Hexanone	ND (1.29)	0.386	8260B		1	07/14/16 16:05	CZG0200	CG61438
4-Chlorotoluene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
4-Isopropyltoluene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
4-Methyl-2-Pentanone	ND (1.29)	0.412	8260B		1	07/14/16 16:05	CZG0200	CG61438
Acetone	ND (1.29)	0.696	8260B		1	07/14/16 16:05	CZG0200	CG61438
Benzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Bromobenzene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 13.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
Bromodichloromethane	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Bromoform	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Bromomethane	ND (0.258)	0.103	8260B		1	07/14/16 16:05	CZG0200	CG61438
Carbon Disulfide	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Carbon Tetrachloride	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Chlorobenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Chloroethane	ND (0.258)	0.103	8260B		1	07/14/16 16:05	CZG0200	CG61438
Chloroform	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Chloromethane	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
cis-1,2-Dichloroethene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
cis-1,3-Dichloropropene	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
Dibromochloromethane	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Dibromomethane	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
Dichlorodifluoromethane	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
Diethyl Ether	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
Di-isopropyl ether	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Ethyl tertiary-butyl ether	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Ethylbenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Hexachlorobutadiene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Isopropylbenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Methyl tert-Butyl Ether	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
Methylene Chloride	**B, J 0.0927** (0.515)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Naphthalene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
n-Butylbenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
n-Propylbenzene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
sec-Butylbenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Styrene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
tert-Butylbenzene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Tertiary-amyl methyl ether	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Tetrachloroethene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Tetrahydrofuran	ND (1.29)	0.412	8260B		1	07/14/16 16:05	CZG0200	CG61438

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 13.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
trans-1,2-Dichloroethene	ND (0.258)	0.0773	8260B		1	07/14/16 16:05	CZG0200	CG61438
trans-1,3-Dichloropropene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Trichloroethene	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Trichlorofluoromethane	ND (0.258)	0.103	8260B		1	07/14/16 16:05	CZG0200	CG61438
Vinyl Acetate	ND (0.258)	0.129	8260B		1	07/14/16 16:05	CZG0200	CG61438
Vinyl Chloride	ND (0.258)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Xylene O	ND (0.258)	0.0258	8260B		1	07/14/16 16:05	CZG0200	CG61438
Xylene P,M	ND (0.515)	0.0515	8260B		1	07/14/16 16:05	CZG0200	CG61438
Xylenes (Total)	ND (0.515)		8260B		1	07/14/16 16:05		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*102 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*99 %*		*70-130*
Surrogate: Dibromofluoromethane	*102 %*		*70-130*
Surrogate: Toluene-d8	*113 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 19.6
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 7/13/16 18:28

8081B Organochlorine Pesticides

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
4,4´-DDD	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
4,4´-DDE [2C]	**0.0076** (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
4,4´-DDT	**LC, P 0.0043** (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Aldrin	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
alpha-BHC	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
alpha-Chlordane [2C]	**LC, P 0.0413** (0.0140)		8081B		5	07/18/16 14:26	CZG0234	CG61314
beta-BHC	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Chlordane (Total) [2C]	**0.212** (0.0337)		8081B		1	07/15/16 21:12	CZG0234	CG61314
delta-BHC	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Dieldrin	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Endosulfan I	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Endosulfan II	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Endosulfan Sulfate	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Endrin	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Endrin Aldehyde	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Endrin Ketone	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
gamma-BHC (Lindane)	ND (0.0017)		8081B		1	07/15/16 21:12	CZG0234	CG61314
gamma-Chlordane [2C]	**0.0281** (0.0140)		8081B		5	07/18/16 14:26	CZG0234	CG61314
Heptachlor	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Heptachlor Epoxide [2C]	**0.0047** (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Hexachlorobenzene	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Methoxychlor	ND (0.0028)		8081B		1	07/15/16 21:12	CZG0234	CG61314
Toxaphene	ND (0.140)		8081B		1	07/15/16 21:12	CZG0234	CG61314

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*68 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*72 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ML
Prepared: 7/13/16 18:11

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1221	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1232	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1242	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1248	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1254	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1260	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1262	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309
Aroclor 1268	ND (0.0564)		8082A		1	07/15/16 0:51		CG61309

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*59 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*68 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 7/13/16 18:28

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	ND (43.0)		8100M		1	07/14/16 4:41	CZG0173	CG61312

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*86 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 7/14/16 11:08

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
1,2,4-Trichlorobenzene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
1,2-Dichlorobenzene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
1,3-Dichlorobenzene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
1,4-Dichlorobenzene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,3,4,6-Tetrachlorophenol	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,4,5-Trichlorophenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,4,6-Trichlorophenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,4-Dichlorophenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,4-Dimethylphenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,4-Dinitrophenol	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,4-Dinitrotoluene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2,6-Dinitrotoluene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2-Chloronaphthalene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2-Chlorophenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2-Methylnaphthalene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2-Methylphenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2-Nitroaniline	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
2-Nitrophenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
3,3´-Dichlorobenzidine	ND (0.744)		8270D		1	07/15/16 23:22	CZG0218	CG61430
3+4-Methylphenol	ND (0.744)		8270D		1	07/15/16 23:22	CZG0218	CG61430
3-Nitroaniline	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
4,6-Dinitro-2-Methylphenol	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430
4-Bromophenyl-phenylether	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
4-Chloro-3-Methylphenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
4-Chloroaniline	ND (0.744)		8270D		1	07/15/16 23:22	CZG0218	CG61430
4-Chloro-phenyl-phenyl ether	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
4-Nitroaniline	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
4-Nitrophenol	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Acenaphthene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Acenaphthylene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Acetophenone	ND (0.744)		8270D		1	07/15/16 23:22	CZG0218	CG61430

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 7/14/16 11:08

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.744)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Anthracene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Azobenzene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Benzo(a)anthracene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Benzo(a)pyrene	ND (0.186)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Benzo(b)fluoranthene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Benzo(g,h,i)perylene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Benzo(k)fluoranthene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Benzoic Acid	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Benzyl Alcohol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
bis(2-Chloroethoxy)methane	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
bis(2-Chloroethyl)ether	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
bis(2-chloroisopropyl)Ether	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
bis(2-Ethylhexyl)phthalate	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Butylbenzylphthalate	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Carbazole	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Chrysene	ND (0.186)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Dibenzo(a,h)Anthracene	ND (0.186)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Dibenzofuran	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Diethylphthalate	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Dimethylphthalate	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Di-n-butylphthalate	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Di-n-octylphthalate	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Fluoranthene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Fluorene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Hexachlorobenzene	ND (0.186)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Hexachlorobutadiene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Hexachlorocyclopentadiene	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Hexachloroethane	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Indeno(1,2,3-cd)Pyrene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Isophorone	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Naphthalene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/12/16 00:00
Percent Solids: 91
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1607260
ESS Laboratory Sample ID: 1607260-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 7/14/16 11:08

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
N-Nitrosodimethylamine	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
N-Nitroso-Di-n-Propylamine	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
N-nitrosodiphenylamine	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Pentachlorophenol	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Phenanthrene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Phenol	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Pyrene	ND (0.371)		8270D		1	07/15/16 23:22	CZG0218	CG61430
Pyridine	ND (1.86)		8270D		1	07/15/16 23:22	CZG0218	CG61430

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*65 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*90 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*68 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*74 %*		*30-130*
Surrogate: 2-Fluorophenol	*64 %*		*30-130*
Surrogate: Nitrobenzene-d5	*67 %*		*30-130*
Surrogate: Phenol-d6	*67 %*		*30-130*
Surrogate: p-Terphenyl-d14	*90 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CG61323 - 3050B										
Blank										
Antimony	ND	0.50	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	0.50	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	118	23.6	mg/kg wet	100.0		118	80-120			
Arsenic	142	9.43	mg/kg wet	161.0		88	80-120			
Beryllium	80.1	0.42	mg/kg wet	89.40		90	80-120			
Cadmium	169	1.89	mg/kg wet	190.0		89	80-120			
Chromium	83.9	3.77	mg/kg wet	87.90		95	80-120			
Copper	240	9.43	mg/kg wet	258.0		93	80-120			
Lead	133	18.9	mg/kg wet	138.0		96	80-120			
Nickel	120	9.43	mg/kg wet	127.0		95	80-120			
Selenium	298	23.6	mg/kg wet	305.0		98	80-120			
Silver	54.2	1.89	mg/kg wet	58.00		93	80-120			
Thallium	86.3	23.6	mg/kg wet	89.80		96	80-120			
Zinc	152	9.43	mg/kg wet	173.0		88	80-120			
LCS Dup										
Antimony	130	25.0	mg/kg wet	100.0		130	19-257	10	30	
Arsenic	142	10.0	mg/kg wet	161.0		88	80-120	0.1	20	
Beryllium	80.4	0.44	mg/kg wet	89.40		90	80-120	0.4	20	
Cadmium	169	2.00	mg/kg wet	190.0		89	80-120	0.08	20	
Chromium	84.3	4.00	mg/kg wet	87.90		96	80-120	0.5	20	
Copper	240	10.0	mg/kg wet	258.0		93	80-120	0.1	20	
Lead	131	20.0	mg/kg wet	138.0		95	80-120	1	20	
Nickel	121	10.0	mg/kg wet	127.0		95	80-120	0.7	20	
Selenium	309	25.0	mg/kg wet	305.0		101	80-120	3	30	
Silver	54.3	2.00	mg/kg wet	58.00		94	80-120	0.2	20	
Thallium	90.9	25.0	mg/kg wet	89.80		101	80-120	5	30	
Zinc	151	10.0	mg/kg wet	173.0		87	80-120	1	20	
Batch CG61325 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	16.6	1.83	mg/kg wet	15.90		104	80-120			

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CG61325 - 7471B										
LCS Dup										
Mercury	17.6	1.94	mg/kg wet	15.90		111	80-120	6	20	
5035/8260B Volatile Organic Compounds / Methanol										
Batch CG61438 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
1-Chlorohexane	ND	0.200	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CG61438 - 5035										
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	0.114	0.400	mg/kg wet							J
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Vinyl Acetate	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*5.06*		mg/kg wet	*5.000*		*101*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.52*		mg/kg wet	*5.000*		*90*	*70-130*			
Surrogate: Dibromofluoromethane	*5.03*		mg/kg wet	*5.000*		*101*	*70-130*			
Surrogate: Toluene-d8	*5.28*		mg/kg wet	*5.000*		*106*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	1.91	0.200	mg/kg wet	2.000		96	70-130			
1,1,1-Trichloroethane	1.91	0.200	mg/kg wet	2.000		96	70-130			
1,1,2,2-Tetrachloroethane	2.10	0.200	mg/kg wet	2.000		105	70-130			
1,1,2-Trichloroethane	1.81	0.200	mg/kg wet	2.000		91	70-130			
1,1-Dichloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,1-Dichloroethene	3.00	0.200	mg/kg wet	2.000		150	70-130			B+

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CG61438 - 5035										
1,1-Dichloropropene	1.93	0.200	mg/kg wet	2.000		96	70-130			
1,2,3-Trichlorobenzene	2.32	0.200	mg/kg wet	2.000		116	70-130			
1,2,3-Trichloropropane	1.90	0.200	mg/kg wet	2.000		95	70-130			
1,2,4-Trichlorobenzene	2.17	0.200	mg/kg wet	2.000		109	70-130			
1,2,4-Trimethylbenzene	1.97	0.200	mg/kg wet	2.000		99	70-130			
1,2-Dibromo-3-Chloropropane	2.13	1.00	mg/kg wet	2.000		107	70-130			
1,2-Dibromoethane	2.05	0.200	mg/kg wet	2.000		102	70-130			
1,2-Dichlorobenzene	2.13	0.200	mg/kg wet	2.000		106	70-130			
1,2-Dichloroethane	2.02	0.200	mg/kg wet	2.000		101	70-130			
1,2-Dichloropropane	1.96	0.200	mg/kg wet	2.000		98	70-130			
1,3,5-Trimethylbenzene	1.97	0.200	mg/kg wet	2.000		99	70-130			
1,3-Dichlorobenzene	2.12	0.200	mg/kg wet	2.000		106	70-130			
1,3-Dichloropropane	2.06	0.200	mg/kg wet	2.000		103	70-130			
1,4-Dichlorobenzene	2.20	0.200	mg/kg wet	2.000		110	70-130			
1,4-Dioxane - Screen	41.2	40.0	mg/kg wet	40.00		103	44-241			
1-Chlorohexane	1.84	0.200	mg/kg wet	2.000		92	70-130			
2,2-Dichloropropane	1.92	0.200	mg/kg wet	2.000		96	70-130			
2-Butanone	9.22	1.00	mg/kg wet	10.00		92	70-130			
2-Chlorotoluene	2.04	0.200	mg/kg wet	2.000		102	70-130			
2-Hexanone	9.34	1.00	mg/kg wet	10.00		93	70-130			
4-Chlorotoluene	2.12	0.200	mg/kg wet	2.000		106	70-130			
4-Isopropyltoluene	2.06	0.200	mg/kg wet	2.000		103	70-130			
4-Methyl-2-Pentanone	9.48	1.00	mg/kg wet	10.00		95	70-130			
Acetone	7.96	1.00	mg/kg wet	10.00		80	70-130			
Benzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
Bromobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			
Bromochloromethane	1.96	0.200	mg/kg wet	2.000		98	70-130			
Bromodichloromethane	1.89	0.200	mg/kg wet	2.000		94	70-130			
Bromoform	1.99	0.200	mg/kg wet	2.000		99	70-130			
Bromomethane	2.09	0.200	mg/kg wet	2.000		105	70-130			
Carbon Disulfide	2.08	0.200	mg/kg wet	2.000		104	70-130			
Carbon Tetrachloride	1.89	0.200	mg/kg wet	2.000		95	70-130			
Chlorobenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
Chloroethane	1.54	0.200	mg/kg wet	2.000		77	70-130			
Chloroform	1.83	0.200	mg/kg wet	2.000		91	70-130			
Chloromethane	1.75	0.200	mg/kg wet	2.000		88	70-130			
cis-1,2-Dichloroethene	1.82	0.200	mg/kg wet	2.000		91	70-130			
cis-1,3-Dichloropropene	1.82	0.200	mg/kg wet	2.000		91	70-130			
Dibromochloromethane	2.04	0.200	mg/kg wet	2.000		102	70-130			
Dibromomethane	1.79	0.200	mg/kg wet	2.000		89	70-130			
Dichlorodifluoromethane	1.65	0.200	mg/kg wet	2.000		82	70-130			
Diethyl Ether	1.86	0.200	mg/kg wet	2.000		93	70-130			
Di-isopropyl ether	1.75	0.200	mg/kg wet	2.000		87	70-130			
Ethyl tertiary-butyl ether	1.82	0.200	mg/kg wet	2.000		91	70-130			
Ethylbenzene	2.03	0.200	mg/kg wet	2.000		102	70-130			

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CG61438 - 5035										
Hexachlorobutadiene	2.22	0.200	mg/kg wet	2.000		111	70-130			
Isopropylbenzene	2.03	0.200	mg/kg wet	2.000		102	70-130			
Methyl tert-Butyl Ether	1.82	0.200	mg/kg wet	2.000		91	70-130			
Methylene Chloride	2.73	0.400	mg/kg wet	2.000		137	70-130			B+
Naphthalene	2.14	0.200	mg/kg wet	2.000		107	70-130			
n-Butylbenzene	2.12	0.200	mg/kg wet	2.000		106	70-130			
n-Propylbenzene	2.06	0.200	mg/kg wet	2.000		103	70-130			
sec-Butylbenzene	2.17	0.200	mg/kg wet	2.000		109	70-130			
Styrene	1.71	0.200	mg/kg wet	2.000		85	70-130			
tert-Butylbenzene	2.13	0.200	mg/kg wet	2.000		106	70-130			
Tertiary-amyl methyl ether	1.88	0.200	mg/kg wet	2.000		94	70-130			
Tetrachloroethene	1.66	0.200	mg/kg wet	2.000		83	70-130			
Tetrahydrofuran	2.16	1.00	mg/kg wet	2.000		108	70-130			
Toluene	1.93	0.200	mg/kg wet	2.000		96	70-130			
trans-1,2-Dichloroethene	2.06	0.200	mg/kg wet	2.000		103	70-130			
trans-1,3-Dichloropropene	1.72	0.200	mg/kg wet	2.000		86	70-130			
Trichloroethene	1.80	0.200	mg/kg wet	2.000		90	70-130			
Vinyl Acetate	2.00	0.200	mg/kg wet	2.000		100	70-130			
Vinyl Chloride	1.85	0.200	mg/kg wet	2.000		92	70-130			
Xylene O	2.09	0.200	mg/kg wet	2.000		104	70-130			
Xylene P,M	3.63	0.400	mg/kg wet	4.000		91	70-130			
Xylenes (Total)	5.71	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.56*		mg/kg wet	*5.000*		*91*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*5.14*		mg/kg wet	*5.000*		*103*	*70-130*			
Surrogate: Dibromofluoromethane	*4.60*		mg/kg wet	*5.000*		*92*	*70-130*			
Surrogate: Toluene-d8	*5.36*		mg/kg wet	*5.000*		*107*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.79	0.200	mg/kg wet	2.000		89	70-130	7	25	
1,1,1-Trichloroethane	1.98	0.200	mg/kg wet	2.000		99	70-130	3	25	
1,1,2,2-Tetrachloroethane	2.01	0.200	mg/kg wet	2.000		100	70-130	4	25	
1,1,2-Trichloroethane	1.85	0.200	mg/kg wet	2.000		93	70-130	2	25	
1,1-Dichloroethane	1.99	0.200	mg/kg wet	2.000		99	70-130	3	25	
1,1-Dichloroethene	3.20	0.200	mg/kg wet	2.000		160	70-130	6	25	B+
1,1-Dichloropropene	1.90	0.200	mg/kg wet	2.000		95	70-130	1	25	
1,2,3-Trichlorobenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	10	25	
1,2,3-Trichloropropane	1.81	0.200	mg/kg wet	2.000		90	70-130	5	25	
1,2,4-Trichlorobenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	12	25	
1,2,4-Trimethylbenzene	1.89	0.200	mg/kg wet	2.000		95	70-130	4	25	
1,2-Dibromo-3-Chloropropane	1.91	1.00	mg/kg wet	2.000		95	70-130	11	25	
1,2-Dibromoethane	1.94	0.200	mg/kg wet	2.000		97	70-130	5	25	
1,2-Dichlorobenzene	2.03	0.200	mg/kg wet	2.000		102	70-130	5	25	
1,2-Dichloroethane	2.09	0.200	mg/kg wet	2.000		104	70-130	3	25	
1,2-Dichloropropane	2.01	0.200	mg/kg wet	2.000		101	70-130	3	25	
1,3,5-Trimethylbenzene	1.91	0.200	mg/kg wet	2.000		96	70-130	3	25	
1,3-Dichlorobenzene	2.09	0.200	mg/kg wet	2.000		104	70-130	1	25	

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CG61438 - 5035										
1,3-Dichloropropane	2.00	0.200	mg/kg wet	2.000		100	70-130	3	25	
1,4-Dichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130	7	25	
1,4-Dioxane - Screen	38.1	40.0	mg/kg wet	40.00		95	44-241	8	200	J
1-Chlorohexane	1.73	0.200	mg/kg wet	2.000		86	70-130	7	25	
2,2-Dichloropropane	1.95	0.200	mg/kg wet	2.000		97	70-130	1	25	
2-Butanone	9.09	1.00	mg/kg wet	10.00		91	70-130	1	25	
2-Chlorotoluene	1.97	0.200	mg/kg wet	2.000		99	70-130	3	25	
2-Hexanone	8.79	1.00	mg/kg wet	10.00		88	70-130	6	25	
4-Chlorotoluene	2.01	0.200	mg/kg wet	2.000		101	70-130	5	25	
4-Isopropyltoluene	1.91	0.200	mg/kg wet	2.000		96	70-130	7	25	
4-Methyl-2-Pentanone	9.29	1.00	mg/kg wet	10.00		93	70-130	2	25	
Acetone	7.94	1.00	mg/kg wet	10.00		79	70-130	0.3	25	
Benzene	2.00	0.200	mg/kg wet	2.000		100	70-130	4	25	
Bromobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	2	25	
Bromochloromethane	1.96	0.200	mg/kg wet	2.000		98	70-130	0.2	25	
Bromodichloromethane	1.86	0.200	mg/kg wet	2.000		93	70-130	2	25	
Bromoform	1.90	0.200	mg/kg wet	2.000		95	70-130	4	25	
Bromomethane	2.04	0.200	mg/kg wet	2.000		102	70-130	2	25	
Carbon Disulfide	2.11	0.200	mg/kg wet	2.000		106	70-130	2	25	
Carbon Tetrachloride	1.92	0.200	mg/kg wet	2.000		96	70-130	1	25	
Chlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	5	25	
Chloroethane	1.42	0.200	mg/kg wet	2.000		71	70-130	8	25	
Chloroform	1.86	0.200	mg/kg wet	2.000		93	70-130	2	25	
Chloromethane	1.89	0.200	mg/kg wet	2.000		94	70-130	7	25	
cis-1,2-Dichloroethene	1.88	0.200	mg/kg wet	2.000		94	70-130	3	25	
cis-1,3-Dichloropropene	1.88	0.200	mg/kg wet	2.000		94	70-130	3	25	
Dibromochloromethane	1.95	0.200	mg/kg wet	2.000		98	70-130	5	25	
Dibromomethane	1.85	0.200	mg/kg wet	2.000		92	70-130	3	25	
Dichlorodifluoromethane	1.69	0.200	mg/kg wet	2.000		85	70-130	3	25	
Diethyl Ether	1.85	0.200	mg/kg wet	2.000		93	70-130	0.2	25	
Di-isopropyl ether	1.68	0.200	mg/kg wet	2.000		84	70-130	4	25	
Ethyl tertiary-butyl ether	1.83	0.200	mg/kg wet	2.000		91	70-130	0.5	25	
Ethylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	6	25	
Hexachlorobutadiene	2.12	0.200	mg/kg wet	2.000		106	70-130	5	25	
Isopropylbenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	4	25	
Methyl tert-Butyl Ether	1.86	0.200	mg/kg wet	2.000		93	70-130	2	25	
Methylene Chloride	2.82	0.400	mg/kg wet	2.000		141	70-130	3	25	B+
Naphthalene	1.98	0.200	mg/kg wet	2.000		99	70-130	8	25	
n-Butylbenzene	1.96	0.200	mg/kg wet	2.000		98	70-130	8	25	
n-Propylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	4	25	
sec-Butylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	7	25	
Styrene	1.64	0.200	mg/kg wet	2.000		82	70-130	4	25	
tert-Butylbenzene	1.94	0.200	mg/kg wet	2.000		97	70-130	9	25	
Tertiary-amyl methyl ether	1.89	0.200	mg/kg wet	2.000		94	70-130	0.5	25	
Tetrachloroethene	1.56	0.200	mg/kg wet	2.000		78	70-130	6	25	

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CG61438 - 5035										
Tetrahydrofuran	1.55	1.00	mg/kg wet	2.000		77	70-130	33	25	D+
Toluene	2.01	0.200	mg/kg wet	2.000		100	70-130	4	25	
trans-1,2-Dichloroethene	2.18	0.200	mg/kg wet	2.000		109	70-130	6	25	
trans-1,3-Dichloropropene	1.71	0.200	mg/kg wet	2.000		86	70-130	0.5	25	
Trichloroethene	1.90	0.200	mg/kg wet	2.000		95	70-130	6	25	
Vinyl Acetate	1.98	0.200	mg/kg wet	2.000		99	70-130	1	25	
Vinyl Chloride	1.83	0.200	mg/kg wet	2.000		92	70-130	0.9	25	
Xylene O	2.03	0.200	mg/kg wet	2.000		101	70-130	3	25	
Xylene P,M	3.55	0.400	mg/kg wet	4.000		89	70-130	2	25	
Xylenes (Total)	5.58	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.69*		mg/kg wet	*5.000*		*94*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*5.02*		mg/kg wet	*5.000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*4.72*		mg/kg wet	*5.000*		*94*	*70-130*			
Surrogate: Toluene-d8	*5.19*		mg/kg wet	*5.000*		*104*	*70-130*			
8081B Organochlorine Pesticides										
Batch CG61314 - 3546										
Blank										
4,4´-DDD	ND	0.0025	mg/kg wet							
4,4´-DDD [2C]	ND	0.0025	mg/kg wet							
4,4´-DDE	ND	0.0025	mg/kg wet							
4,4´-DDE [2C]	ND	0.0025	mg/kg wet							
4,4´-DDT	ND	0.0025	mg/kg wet							
4,4´-DDT [2C]	ND	0.0025	mg/kg wet							
Aldrin	ND	0.0025	mg/kg wet							
Aldrin [2C]	ND	0.0025	mg/kg wet							
alpha-BHC	ND	0.0025	mg/kg wet							
alpha-BHC [2C]	ND	0.0025	mg/kg wet							
alpha-Chlordane	ND	0.0025	mg/kg wet							
alpha-Chlordane [2C]	ND	0.0025	mg/kg wet							
beta-BHC	ND	0.0025	mg/kg wet							
beta-BHC [2C]	ND	0.0025	mg/kg wet							
Chlordane (Total)	ND	0.0300	mg/kg wet							
Chlordane (Total) [2C]	ND	0.0300	mg/kg wet							
delta-BHC	ND	0.0025	mg/kg wet							
delta-BHC [2C]	ND	0.0025	mg/kg wet							
Dieldrin	ND	0.0025	mg/kg wet							
Dieldrin [2C]	ND	0.0025	mg/kg wet							
Endosulfan I	ND	0.0025	mg/kg wet							
Endosulfan I [2C]	ND	0.0025	mg/kg wet							
Endosulfan II	ND	0.0025	mg/kg wet							
Endosulfan II [2C]	ND	0.0025	mg/kg wet							
Endosulfan Sulfate	ND	0.0025	mg/kg wet							
Endosulfan Sulfate [2C]	ND	0.0025	mg/kg wet							
Endrin	ND	0.0025	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: NRC
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Quality Control Data

8081B Organochlorine Pesticides

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CG61314 - 3546										
Endrin [2C]	ND	0.0025	mg/kg wet							
Endrin Aldehyde	ND	0.0025	mg/kg wet							
Endrin Aldehyde [2C]	ND	0.0025	mg/kg wet							
Endrin Ketone	ND	0.0025	mg/kg wet							
Endrin Ketone [2C]	ND	0.0025	mg/kg wet							
gamma-BHC (Lindane)	ND	0.0015	mg/kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0015	mg/kg wet							
gamma-Chlordane	ND	0.0025	mg/kg wet							
gamma-Chlordane [2C]	ND	0.0025	mg/kg wet							
Heptachlor	ND	0.0025	mg/kg wet							
Heptachlor [2C]	ND	0.0025	mg/kg wet							
Heptachlor Epoxide	ND	0.0025	mg/kg wet							
Heptachlor Epoxide [2C]	ND	0.0025	mg/kg wet							
Hexachlorobenzene	ND	0.0025	mg/kg wet							
Hexachlorobenzene [2C]	ND	0.0025	mg/kg wet							
Methoxychlor	ND	0.0025	mg/kg wet							
Methoxychlor [2C]	ND	0.0025	mg/kg wet							
Toxaphene	ND	0.125	mg/kg wet							
Toxaphene [2C]	ND	0.125	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0117*		mg/kg wet	*0.01250*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0134*		mg/kg wet	*0.01250*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.00985*		mg/kg wet	*0.01250*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0101*		mg/kg wet	*0.01250*		*81*	*30-150*			
LCS										
4,4´-DDD	0.0120	0.0025	mg/kg wet	0.01250		96	40-140			
4,4´-DDD [2C]	0.0130	0.0025	mg/kg wet	0.01250		104	40-140			
4,4´-DDE	0.0119	0.0025	mg/kg wet	0.01250		95	40-140			
4,4´-DDE [2C]	0.0133	0.0025	mg/kg wet	0.01250		106	40-140			
4,4´-DDT	0.0106	0.0025	mg/kg wet	0.01250		85	40-140			
4,4´-DDT [2C]	0.0111	0.0025	mg/kg wet	0.01250		89	40-140			
Aldrin	0.0101	0.0025	mg/kg wet	0.01250		81	40-140			
Aldrin [2C]	0.0118	0.0025	mg/kg wet	0.01250		94	40-140			
alpha-BHC	0.0099	0.0025	mg/kg wet	0.01250		79	40-140			
alpha-BHC [2C]	0.0120	0.0025	mg/kg wet	0.01250		96	40-140			
alpha-Chlordane	0.0107	0.0025	mg/kg wet	0.01250		85	40-140			
alpha-Chlordane [2C]	0.0124	0.0025	mg/kg wet	0.01250		99	40-140			
beta-BHC	0.0111	0.0025	mg/kg wet	0.01250		88	40-140			
beta-BHC [2C]	0.0128	0.0025	mg/kg wet	0.01250		102	40-140			
delta-BHC	0.0096	0.0025	mg/kg wet	0.01250		77	40-140			
delta-BHC [2C]	0.0112	0.0025	mg/kg wet	0.01250		89	40-140			
Dieldrin	0.0118	0.0025	mg/kg wet	0.01250		95	40-140			
Dieldrin [2C]	0.0135	0.0025	mg/kg wet	0.01250		108	40-140			
Endosulfan I	0.0111	0.0025	mg/kg wet	0.01250		89	40-140			
Endosulfan I [2C]	0.0125	0.0025	mg/kg wet	0.01250		100	40-140			

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8081B Organochlorine Pesticides										
Batch CG61314 - 3546										
Endosulfan II	0.0111	0.0025	mg/kg wet	0.01250		89	40-140			
Endosulfan II [2C]	0.0125	0.0025	mg/kg wet	0.01250		100	40-140			
Endosulfan Sulfate	0.0099	0.0025	mg/kg wet	0.01250		79	40-140			
Endosulfan Sulfate [2C]	0.0113	0.0025	mg/kg wet	0.01250		90	40-140			
Endrin	0.0116	0.0025	mg/kg wet	0.01250		93	40-140			
Endrin [2C]	0.0127	0.0025	mg/kg wet	0.01250		102	40-140			
Endrin Aldehyde	0.0108	0.0025	mg/kg wet	0.01250		86	40-140			
Endrin Aldehyde [2C]	0.0117	0.0025	mg/kg wet	0.01250		94	40-140			
Endrin Ketone	0.0117	0.0025	mg/kg wet	0.01250		94	40-140			
Endrin Ketone [2C]	0.0132	0.0025	mg/kg wet	0.01250		106	40-140			
gamma-BHC (Lindane)	0.0102	0.0015	mg/kg wet	0.01250		82	40-140			
gamma-BHC (Lindane) [2C]	0.0126	0.0015	mg/kg wet	0.01250		101	40-140			
gamma-Chlordane	0.0112	0.0025	mg/kg wet	0.01250		89	40-140			
gamma-Chlordane [2C]	0.0129	0.0025	mg/kg wet	0.01250		104	40-140			
Heptachlor	0.0095	0.0025	mg/kg wet	0.01250		76	40-140			
Heptachlor [2C]	0.0111	0.0025	mg/kg wet	0.01250		89	40-140			
Heptachlor Epoxide	0.0112	0.0025	mg/kg wet	0.01250		90	40-140			
Heptachlor Epoxide [2C]	0.0128	0.0025	mg/kg wet	0.01250		102	40-140			
Hexachlorobenzene	0.0108	0.0025	mg/kg wet	0.01250		86	40-140			
Hexachlorobenzene [2C]	0.0138	0.0025	mg/kg wet	0.01250		110	40-140			
Methoxychlor	0.0102	0.0025	mg/kg wet	0.01250		81	40-140			
Methoxychlor [2C]	0.0112	0.0025	mg/kg wet	0.01250		90	40-140			
Surrogate: Decachlorobiphenyl	*0.0116*		mg/kg wet	*0.01250*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0133*		mg/kg wet	*0.01250*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.00884*		mg/kg wet	*0.01250*		*71*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.00978*		mg/kg wet	*0.01250*		*78*	*30-150*			
LCS Dup										
4,4´-DDD	0.0125	0.0025	mg/kg wet	0.01250		100	40-140	4	30	
4,4´-DDD [2C]	0.0135	0.0025	mg/kg wet	0.01250		108	40-140	3	30	
4,4´-DDE	0.0123	0.0025	mg/kg wet	0.01250		98	40-140	3	30	
4,4´-DDE [2C]	0.0138	0.0025	mg/kg wet	0.01250		110	40-140	4	30	
4,4´-DDT	0.0113	0.0025	mg/kg wet	0.01250		90	40-140	7	30	
4,4´-DDT [2C]	0.0113	0.0025	mg/kg wet	0.01250		91	40-140	2	30	
Aldrin	0.0105	0.0025	mg/kg wet	0.01250		84	40-140	4	30	
Aldrin [2C]	0.0122	0.0025	mg/kg wet	0.01250		97	40-140	3	30	
alpha-BHC	0.0105	0.0025	mg/kg wet	0.01250		84	40-140	5	30	
alpha-BHC [2C]	0.0128	0.0025	mg/kg wet	0.01250		102	40-140	6	30	
alpha-Chlordane	0.0113	0.0025	mg/kg wet	0.01250		91	40-140	6	30	
alpha-Chlordane [2C]	0.0131	0.0025	mg/kg wet	0.01250		105	40-140	5	30	
beta-BHC	0.0117	0.0025	mg/kg wet	0.01250		93	40-140	5	30	
beta-BHC [2C]	0.0131	0.0025	mg/kg wet	0.01250		105	40-140	3	30	
delta-BHC	0.0101	0.0025	mg/kg wet	0.01250		81	40-140	5	30	
delta-BHC [2C]	0.0117	0.0025	mg/kg wet	0.01250		94	40-140	5	30	
Dieldrin	0.0123	0.0025	mg/kg wet	0.01250		99	40-140	4	30	

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Client Name: NRC
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8081B Organochlorine Pesticides										
Batch CG61314 - 3546										
Dieldrin [2C]	0.0141	0.0025	mg/kg wet	0.01250		113	40-140	5	30	
Endosulfan I	0.0116	0.0025	mg/kg wet	0.01250		92	40-140	4	30	
Endosulfan I [2C]	0.0131	0.0025	mg/kg wet	0.01250		105	40-140	5	30	
Endosulfan II	0.0115	0.0025	mg/kg wet	0.01250		92	40-140	3	30	
Endosulfan II [2C]	0.0129	0.0025	mg/kg wet	0.01250		103	40-140	3	30	
Endosulfan Sulfate	0.0099	0.0025	mg/kg wet	0.01250		79	40-140	0.06	30	
Endosulfan Sulfate [2C]	0.0111	0.0025	mg/kg wet	0.01250		89	40-140	1	30	
Endrin	0.0121	0.0025	mg/kg wet	0.01250		97	40-140	4	30	
Endrin [2C]	0.0132	0.0025	mg/kg wet	0.01250		106	40-140	4	30	
Endrin Aldehyde	0.0110	0.0025	mg/kg wet	0.01250		88	40-140	2	30	
Endrin Aldehyde [2C]	0.0118	0.0025	mg/kg wet	0.01250		94	40-140	0.6	30	
Endrin Ketone	0.0120	0.0025	mg/kg wet	0.01250		96	40-140	3	30	
Endrin Ketone [2C]	0.0130	0.0025	mg/kg wet	0.01250		104	40-140	2	30	
gamma-BHC (Lindane)	0.0109	0.0015	mg/kg wet	0.01250		87	40-140	7	30	
gamma-BHC (Lindane) [2C]	0.0133	0.0015	mg/kg wet	0.01250		107	40-140	5	30	
gamma-Chlordane	0.0117	0.0025	mg/kg wet	0.01250		94	40-140	5	30	
gamma-Chlordane [2C]	0.0136	0.0025	mg/kg wet	0.01250		109	40-140	5	30	
Heptachlor	0.0098	0.0025	mg/kg wet	0.01250		78	40-140	2	30	
Heptachlor [2C]	0.0113	0.0025	mg/kg wet	0.01250		90	40-140	2	30	
Heptachlor Epoxide	0.0117	0.0025	mg/kg wet	0.01250		94	40-140	5	30	
Heptachlor Epoxide [2C]	0.0135	0.0025	mg/kg wet	0.01250		108	40-140	5	30	
Hexachlorobenzene	0.0113	0.0025	mg/kg wet	0.01250		91	40-140	5	30	
Hexachlorobenzene [2C]	0.0146	0.0025	mg/kg wet	0.01250		117	40-140	6	30	
Methoxychlor	0.0101	0.0025	mg/kg wet	0.01250		81	40-140	0.3	30	
Methoxychlor [2C]	0.0100	0.0025	mg/kg wet	0.01250		80	40-140	11	30	
Surrogate: Decachlorobiphenyl	*0.0118*		mg/kg wet	*0.01250*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0135*		mg/kg wet	*0.01250*		*108*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.00908*		mg/kg wet	*0.01250*		*73*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.00979*		mg/kg wet	*0.01250*		*78*	*30-150*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CG61309 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0170*		mg/kg wet	*0.02500*		*68*	*30-150*			

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CG61309 - 3540C										
Surrogate: Decachlorobiphenyl [2C]	*0.0187*		mg/kg wet	*0.02500*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0150*		mg/kg wet	*0.02500*		*60*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0164*		mg/kg wet	*0.02500*		*66*	*30-150*			
LCS										
Aroclor 1016	0.297	0.0500	mg/kg wet	0.5000		59	40-140			
Aroclor 1260	0.282	0.0500	mg/kg wet	0.5000		56	40-140			
Surrogate: Decachlorobiphenyl	*0.0134*		mg/kg wet	*0.02500*		*54*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0138*		mg/kg wet	*0.02500*		*55*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0118*		mg/kg wet	*0.02500*		*47*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0122*		mg/kg wet	*0.02500*		*49*	*30-150*			
LCS Dup										
Aroclor 1016	0.355	0.0500	mg/kg wet	0.5000		71	40-140	18	30	
Aroclor 1260	0.366	0.0500	mg/kg wet	0.5000		73	40-140	26	30	
Surrogate: Decachlorobiphenyl	*0.0170*		mg/kg wet	*0.02500*		*68*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0183*		mg/kg wet	*0.02500*		*73*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0153*		mg/kg wet	*0.02500*		*61*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0160*		mg/kg wet	*0.02500*		*64*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CG61312 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.79*		mg/kg wet	*5.000*		*96*	*40-140*			
LCS										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		87	40-140			

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CG61312 - 3546										
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Nonadecane (C19)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		69	30-140			
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Total Petroleum Hydrocarbons	29.9	37.5	mg/kg wet	35.00		85	40-140			
Triacontane (C30)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Surrogate: O-Terphenyl	*4.71*		mg/kg wet	*5.000*		*94*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		85	40-140	2	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		91	40-140	5	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		87	40-140	4	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		92	40-140	5	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		91	40-140	5	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		90	40-140	5	25	
Nonadecane (C19)	2.1	0.2	mg/kg wet	2.500		86	40-140	5	25	
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		70	30-140	0.9	25	
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		91	40-140	5	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		88	40-140	5	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140	5	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		88	40-140	5	25	
Total Petroleum Hydrocarbons	31.3	37.5	mg/kg wet	35.00		89	40-140	5	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		90	40-140	5	25	
Surrogate: O-Terphenyl	*4.95*		mg/kg wet	*5.000*		*99*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CG61430 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CG61430 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CG61430 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.37*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.52*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.85*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.50*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: 2-Fluorophenol	*3.55*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.53*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: Phenol-d6	*4.01*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.19*		mg/kg wet	*3.333*		*96*	*30-130*			
LCS										
1,1-Biphenyl	2.23	0.333	mg/kg wet	3.333		67	40-140			
1,2,4-Trichlorobenzene	2.33	0.333	mg/kg wet	3.333		70	40-140			
1,2-Dichlorobenzene	2.28	0.333	mg/kg wet	3.333		69	40-140			
1,3-Dichlorobenzene	2.27	0.333	mg/kg wet	3.333		68	40-140			
1,4-Dichlorobenzene	2.25	0.333	mg/kg wet	3.333		68	40-140			
2,3,4,6-Tetrachlorophenol	2.66	1.67	mg/kg wet	3.333		80	30-130			
2,4,5-Trichlorophenol	2.87	0.333	mg/kg wet	3.333		86	30-130			
2,4,6-Trichlorophenol	2.64	0.333	mg/kg wet	3.333		79	30-130			
2,4-Dichlorophenol	2.48	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dimethylphenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
2,4-Dinitrophenol	1.69	1.67	mg/kg wet	3.333		51	30-130			
2,4-Dinitrotoluene	2.67	0.333	mg/kg wet	3.333		80	40-140			
2,6-Dinitrotoluene	2.53	0.333	mg/kg wet	3.333		76	40-140			
2-Chloronaphthalene	2.15	0.333	mg/kg wet	3.333		64	40-140			
2-Chlorophenol	2.37	0.333	mg/kg wet	3.333		71	30-130			
2-Methylnaphthalene	2.38	0.333	mg/kg wet	3.333		71	40-140			
2-Methylphenol	2.52	0.333	mg/kg wet	3.333		76	30-130			
2-Nitroaniline	2.17	0.333	mg/kg wet	3.333		65	40-140			
2-Nitrophenol	2.48	0.333	mg/kg wet	3.333		74	30-130			
3,3´-Dichlorobenzidine	2.68	0.667	mg/kg wet	3.333		80	40-140			

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CG61430 - 3546										
3+4-Methylphenol	5.47	0.667	mg/kg wet	6.667		82	30-130			
3-Nitroaniline	2.60	0.333	mg/kg wet	3.333		78	40-140			
4,6-Dinitro-2-Methylphenol	2.33	1.67	mg/kg wet	3.333		70	30-130			
4-Bromophenyl-phenylether	2.85	0.333	mg/kg wet	3.333		85	40-140			
4-Chloro-3-Methylphenol	2.85	0.333	mg/kg wet	3.333		85	30-130			
4-Chloroaniline	2.31	0.667	mg/kg wet	3.333		69	40-140			
4-Chloro-phenyl-phenyl ether	2.67	0.333	mg/kg wet	3.333		80	40-140			
4-Nitroaniline	2.62	0.333	mg/kg wet	3.333		79	40-140			
4-Nitrophenol	2.56	1.67	mg/kg wet	3.333		77	30-130			
Acenaphthene	2.43	0.333	mg/kg wet	3.333		73	40-140			
Acenaphthylene	2.42	0.333	mg/kg wet	3.333		72	40-140			
Acetophenone	2.43	0.667	mg/kg wet	3.333		73	40-140			
Aniline	2.12	0.667	mg/kg wet	3.333		64	40-140			
Anthracene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Azobenzene	2.63	0.333	mg/kg wet	3.333		79	40-140			
Benzo(a)anthracene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)pyrene	2.92	0.167	mg/kg wet	3.333		88	40-140			
Benzo(b)fluoranthene	2.93	0.333	mg/kg wet	3.333		88	40-140			
Benzo(g,h,i)perylene	2.81	0.333	mg/kg wet	3.333		84	40-140			
Benzo(k)fluoranthene	2.69	0.333	mg/kg wet	3.333		81	40-140			
Benzoic Acid	2.49	1.67	mg/kg wet	3.333		75	40-140			
Benzyl Alcohol	2.55	0.333	mg/kg wet	3.333		77	40-140			
bis(2-Chloroethoxy)methane	2.34	0.333	mg/kg wet	3.333		70	40-140			
bis(2-Chloroethyl)ether	2.39	0.333	mg/kg wet	3.333		72	40-140			
bis(2-chloroisopropyl)Ether	2.33	0.333	mg/kg wet	3.333		70	40-140			
bis(2-Ethylhexyl)phthalate	2.78	0.333	mg/kg wet	3.333		83	40-140			
Butylbenzylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140			
Carbazole	2.75	0.333	mg/kg wet	3.333		83	40-140			
Chrysene	2.56	0.167	mg/kg wet	3.333		77	40-140			
Dibenzo(a,h)Anthracene	2.90	0.167	mg/kg wet	3.333		87	40-140			
Dibenzofuran	2.40	0.333	mg/kg wet	3.333		72	40-140			
Diethylphthalate	2.93	0.333	mg/kg wet	3.333		88	40-140			
Dimethylphthalate	2.72	0.333	mg/kg wet	3.333		81	40-140			
Di-n-butylphthalate	2.75	0.333	mg/kg wet	3.333		82	40-140			
Di-n-octylphthalate	2.85	0.333	mg/kg wet	3.333		85	40-140			
Fluoranthene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Fluorene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.71	0.167	mg/kg wet	3.333		81	40-140			
Hexachlorobutadiene	2.25	0.333	mg/kg wet	3.333		67	40-140			
Hexachlorocyclopentadiene	1.01	1.67	mg/kg wet	3.333		30	40-140			B-
Hexachloroethane	2.23	0.333	mg/kg wet	3.333		67	40-140			
Indeno(1,2,3-cd)Pyrene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Isophorone	2.40	0.333	mg/kg wet	3.333		72	40-140			
Naphthalene	2.38	0.333	mg/kg wet	3.333		71	40-140			
Nitrobenzene	2.34	0.333	mg/kg wet	3.333		70	40-140			

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CG61430 - 3546										
N-Nitrosodimethylamine	1.79	0.333	mg/kg wet	3.333		54	40-140			
N-Nitroso-Di-n-Propylamine	2.50	0.333	mg/kg wet	3.333		75	40-140			
N-nitrosodiphenylamine	2.78	0.333	mg/kg wet	3.333		83	40-140			
Pentachlorophenol	2.95	1.67	mg/kg wet	3.333		88	30-130			
Phenanthrene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Phenol	2.63	0.333	mg/kg wet	3.333		79	30-130			
Pyrene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Pyridine	1.64	1.67	mg/kg wet	3.333		49	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.31*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.69*		mg/kg wet	*5.000*		*94*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.96*		mg/kg wet	*5.000*		*79*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.44*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: 2-Fluorophenol	*3.83*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.53*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: Phenol-d6	*4.16*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.94*		mg/kg wet	*3.333*		*88*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.60	0.333	mg/kg wet	3.333		78	40-140	15	30	
1,2,4-Trichlorobenzene	2.71	0.333	mg/kg wet	3.333		81	40-140	15	30	
1,2-Dichlorobenzene	2.70	0.333	mg/kg wet	3.333		81	40-140	17	30	
1,3-Dichlorobenzene	2.69	0.333	mg/kg wet	3.333		81	40-140	17	30	
1,4-Dichlorobenzene	2.64	0.333	mg/kg wet	3.333		79	40-140	16	30	
2,3,4,6-Tetrachlorophenol	3.07	1.67	mg/kg wet	3.333		92	30-130	14	30	
2,4,5-Trichlorophenol	3.36	0.333	mg/kg wet	3.333		101	30-130	16	30	
2,4,6-Trichlorophenol	3.11	0.333	mg/kg wet	3.333		93	30-130	16	30	
2,4-Dichlorophenol	2.92	0.333	mg/kg wet	3.333		88	30-130	17	30	
2,4-Dimethylphenol	3.18	0.333	mg/kg wet	3.333		95	30-130	16	30	
2,4-Dinitrophenol	2.20	1.67	mg/kg wet	3.333		66	30-130	26	30	
2,4-Dinitrotoluene	3.12	0.333	mg/kg wet	3.333		94	40-140	16	30	
2,6-Dinitrotoluene	2.93	0.333	mg/kg wet	3.333		88	40-140	15	30	
2-Chloronaphthalene	2.50	0.333	mg/kg wet	3.333		75	40-140	15	30	
2-Chlorophenol	2.76	0.333	mg/kg wet	3.333		83	30-130	15	30	
2-Methylnaphthalene	2.78	0.333	mg/kg wet	3.333		83	40-140	15	30	
2-Methylphenol	2.91	0.333	mg/kg wet	3.333		87	30-130	14	30	
2-Nitroaniline	2.55	0.333	mg/kg wet	3.333		76	40-140	16	30	
2-Nitrophenol	2.90	0.333	mg/kg wet	3.333		87	30-130	15	30	
3,3´-Dichlorobenzidine	2.92	0.667	mg/kg wet	3.333		87	40-140	8	30	
3+4-Methylphenol	6.29	0.667	mg/kg wet	6.667		94	30-130	14	30	
3-Nitroaniline	3.04	0.333	mg/kg wet	3.333		91	40-140	15	30	
4,6-Dinitro-2-Methylphenol	2.73	1.67	mg/kg wet	3.333		82	30-130	16	30	
4-Bromophenyl-phenylether	3.14	0.333	mg/kg wet	3.333		94	40-140	10	30	
4-Chloro-3-Methylphenol	3.36	0.333	mg/kg wet	3.333		101	30-130	17	30	
4-Chloroaniline	2.75	0.667	mg/kg wet	3.333		83	40-140	17	30	
4-Chloro-phenyl-phenyl ether	3.06	0.333	mg/kg wet	3.333		92	40-140	14	30	
4-Nitroaniline	2.95	0.333	mg/kg wet	3.333		88	40-140	12	30	

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CG61430 - 3546										
4-Nitrophenol	2.97	1.67	mg/kg wet	3.333		89	30-130	15	30	
Acenaphthene	2.82	0.333	mg/kg wet	3.333		85	40-140	15	30	
Acenaphthylene	2.79	0.333	mg/kg wet	3.333		84	40-140	14	30	
Acetophenone	2.81	0.667	mg/kg wet	3.333		84	40-140	14	30	
Aniline	2.51	0.667	mg/kg wet	3.333		75	40-140	17	30	
Anthracene	3.02	0.333	mg/kg wet	3.333		91	40-140	9	30	
Azobenzene	2.89	0.333	mg/kg wet	3.333		87	40-140	9	30	
Benzo(a)anthracene	3.02	0.333	mg/kg wet	3.333		91	40-140	9	30	
Benzo(a)pyrene	3.21	0.167	mg/kg wet	3.333		96	40-140	9	30	
Benzo(b)fluoranthene	3.15	0.333	mg/kg wet	3.333		95	40-140	7	30	
Benzo(g,h,i)perylene	3.08	0.333	mg/kg wet	3.333		92	40-140	9	30	
Benzo(k)fluoranthene	2.98	0.333	mg/kg wet	3.333		89	40-140	10	30	
Benzoic Acid	3.28	1.67	mg/kg wet	3.333		98	40-140	27	30	
Benzyl Alcohol	2.99	0.333	mg/kg wet	3.333		90	40-140	16	30	
bis(2-Chloroethoxy)methane	2.73	0.333	mg/kg wet	3.333		82	40-140	15	30	
bis(2-Chloroethyl)ether	2.70	0.333	mg/kg wet	3.333		81	40-140	12	30	
bis(2-chloroisopropyl)Ether	2.70	0.333	mg/kg wet	3.333		81	40-140	15	30	
bis(2-Ethylhexyl)phthalate	2.98	0.333	mg/kg wet	3.333		90	40-140	7	30	
Butylbenzylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140	9	30	
Carbazole	3.05	0.333	mg/kg wet	3.333		91	40-140	10	30	
Chrysene	2.83	0.167	mg/kg wet	3.333		85	40-140	10	30	
Dibenzo(a,h)Anthracene	3.18	0.167	mg/kg wet	3.333		95	40-140	9	30	
Dibenzofuran	2.77	0.333	mg/kg wet	3.333		83	40-140	14	30	
Diethylphthalate	3.33	0.333	mg/kg wet	3.333		100	40-140	13	30	
Dimethylphthalate	3.10	0.333	mg/kg wet	3.333		93	40-140	13	30	
Di-n-butylphthalate	3.02	0.333	mg/kg wet	3.333		91	40-140	9	30	
Di-n-octylphthalate	3.08	0.333	mg/kg wet	3.333		92	40-140	8	30	
Fluoranthene	3.11	0.333	mg/kg wet	3.333		93	40-140	10	30	
Fluorene	3.00	0.333	mg/kg wet	3.333		90	40-140	14	30	
Hexachlorobenzene	2.95	0.167	mg/kg wet	3.333		88	40-140	8	30	
Hexachlorobutadiene	2.64	0.333	mg/kg wet	3.333		79	40-140	16	30	
Hexachlorocyclopentadiene	1.06	1.67	mg/kg wet	3.333		32	40-140	5	30	B-
Hexachloroethane	2.66	0.333	mg/kg wet	3.333		80	40-140	17	30	
Indeno(1,2,3-cd)Pyrene	3.18	0.333	mg/kg wet	3.333		95	40-140	10	30	
Isophorone	2.80	0.333	mg/kg wet	3.333		84	40-140	15	30	
Naphthalene	2.77	0.333	mg/kg wet	3.333		83	40-140	15	30	
Nitrobenzene	2.74	0.333	mg/kg wet	3.333		82	40-140	16	30	
N-Nitrosodimethylamine	2.32	0.333	mg/kg wet	3.333		69	40-140	26	30	
N-Nitroso-Di-n-Propylamine	2.91	0.333	mg/kg wet	3.333		87	40-140	15	30	
N-nitrosodiphenylamine	3.04	0.333	mg/kg wet	3.333		91	40-140	9	30	
Pentachlorophenol	3.27	1.67	mg/kg wet	3.333		98	30-130	11	30	
Phenanthrene	2.88	0.333	mg/kg wet	3.333		86	40-140	10	30	
Phenol	3.07	0.333	mg/kg wet	3.333		92	30-130	16	30	
Pyrene	3.12	0.333	mg/kg wet	3.333		94	40-140	12	30	
Pyridine	1.92	1.67	mg/kg wet	3.333		58	40-140	16	30	

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CG61430 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.62*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.96*		mg/kg wet	*5.000*		*99*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.41*		mg/kg wet	*5.000*		*88*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.70*		mg/kg wet	*3.333*		*81*	*30-130*			
Surrogate: 2-Fluorophenol	*4.33*		mg/kg wet	*5.000*		*87*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.81*		mg/kg wet	*3.333*		*84*	*30-130*			
Surrogate: Phenol-d6	*4.62*		mg/kg wet	*5.000*		*92*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.12*		mg/kg wet	*3.333*		*94*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
P	Percent difference between primary and confirmation results exceeds 40% (P).
LC	Lower value is used due to matrix interferences (LC).
J	Reported between MDL and MRL
ICV+	Initial Calibration Verification recovery is above upper control limit (ICV+).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
B	Present in Method Blank (B).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607260

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EnPro - KPB/HDM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1607260
Date Received: 7/13/2016
Project Due Date: 7/18/2016
Days for Project: 3 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? NA
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 0.9 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? (Yes) / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? (Yes) / No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	51517	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	51518	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	51519	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	51520	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	51522	Yes	No	Yes	VOA Vial - Methanol	MeOH	
01	51523	Yes	No	Yes	VOA Vial - Methanol	MeOH	
01	51524	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	51513	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	51514	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	51515	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	51516	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	51521	Yes	No	Yes	VOA Vial - Methanol	MeOH	
02	51525	Yes	No	Yes	VOA Vial - Methanol	MeOH	
02	51526	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? (Yes) / No

Completed By: [signature] Date & Time: 7/13/16 18:01

Reviewed By: [signature] Date & Time: 7/13/16 1805

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EnPro - KPB/HDM

ESS Project ID: 1607260
Date Received: 7/13/2016

Delivered By: 7/13/16 1803

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time 3 DAY ~~Standard~~ Other RUSH
If faster than 5 days, prior approval by laboratory is required #
State where samples were collected from: MA (RI) CT NH NJ NY ME Other
Is this project for any of the following: MA-MCP* Navy USACE Other

Reporting Limits: RI RESIDENTIAL DEC
ESS LAB PROJECT ID: 1607260
Electronic Deliverable: X Yes ___ No Format ______

Co. Name	ENTRO / NRC
Project #	62310-0010
Project Name (20 Char. or less)	NATGRID
Contact Person	RICK LAMOTHE
Address	19 NATIONAL DRIVE
City	FRANKLIN
State	MA
Zip	02038
PO#	42743
Telephone #	508 966 6023
Fax #	—
Email Address	ON FILE

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	524.2 / (8260B) 624	VPH / 8021 MTBE/BTEX 8015 GRO	No Targets EPH / (8100 TPH) 8015 DRO	608 PCB / 608 Pesticides / 8082 PCB / 8081 Pesticides	PAH only / (8270C) 625	TAL23 PP13 RCRA8 RCRA5	NBC7 MCPw/Hg MCP TCLP8	PP13 METALS	6061 REACTIVES					
1	7/12/16	N/A	X		S	GRANULAR FILL	7	G/V	X		X	X	X			X	X					
2	"	"	X		S	TOPSOIL	7	G/V	X		X	X	X			X	X					

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ✓ Yes ___ No
Seals Intact ___ Yes ___ No NA: ______
Cooler Temp: 0.9 ICE KH

Internal Use Only ✓
[✓] Pickup
[ ] Technicians ______

Comments: CLEAN SAMPLES
PP13 METALS BY 6010B 7470 7471

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	7/12/16 1PM	FRIDGE	7/12/16 1PM	[signature]	7/13/16 252	K. Callahan	7/13/16 0952
K. Callahan	7/13/16 1738	[signature]	7/13/16 1745				

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Rick LaMothe
NRC
19 National Drive
Franklin, MA 02038

RE: Nat Grid (62310-0010)
ESS Laboratory Work Order Number: 1607465

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:56 pm, Jul 20, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607465

SAMPLE RECEIPT

The following samples were received on July 20, 2016 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1607465-01	Granular Fill	Soil	8260B Low
1607465-02	Top Soil	Soil	8260B Low

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607465

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CG62033-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (67% @ 70-130%)

CZG0306-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
1,1-Dichloroethene (23% @ %)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607465

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Granular Fill
Date Sampled: 07/19/16 16:00
Percent Solids: 99
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1607465
ESS Laboratory Sample ID: 1607465-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Dichloroethene	ND (0.0041)		8260B Low		1	07/20/16 14:28	CZG0306	CG62033
1,2-Dibromo-3-Chloropropane	ND (0.0041)		8260B Low		1	07/20/16 14:28	CZG0306	CG62033
1,2-Dibromoethane	ND (0.0041)		8260B Low		1	07/20/16 14:28	CZG0306	CG62033
Vinyl Chloride	ND (0.0083)		8260B Low		1	07/20/16 14:28	CZG0306	CG62033

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*107 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*91 %*		*70-130*
Surrogate: Dibromofluoromethane	*104 %*		*70-130*
Surrogate: Toluene-d8	*93 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid
Client Sample ID: Top Soil
Date Sampled: 07/19/16 16:00
Percent Solids: 92
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1607465
ESS Laboratory Sample ID: 1607465-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Dichloroethene	ND (0.0056)		8260B Low		1	07/20/16 14:56	CZG0306	CG62033
1,2-Dibromo-3-Chloropropane	ND (0.0056)		8260B Low		1	07/20/16 14:56	CZG0306	CG62033
1,2-Dibromoethane	ND (0.0056)		8260B Low		1	07/20/16 14:56	CZG0306	CG62033
Vinyl Chloride	ND (0.0111)		8260B Low		1	07/20/16 14:56	CZG0306	CG62033

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*119 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*90 %*		*70-130*
Surrogate: Dibromofluoromethane	*112 %*		*70-130*
Surrogate: Toluene-d8	*96 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607465

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CG62033 - 5035										
Blank										
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
LCS										
1,1-Dichloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dibromo-3-Chloropropane	0.0333	0.0050	mg/kg wet	0.05000		67	70-130			B-
1,2-Dibromoethane	0.0350	0.0050	mg/kg wet	0.05000		70	70-130			
Vinyl Chloride	0.0417	0.0100	mg/kg wet	0.05000		83	70-130			

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607465

Notes and Definitions

U	Analyte included in the analysis, but not detected
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: Nat Grid

ESS Laboratory Work Order: 1607465

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1607465

Turn Time _____ Standard Other SAME DAY

Regulatory State: MA RI CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
MA-MCP Navy USACE CT DEP Other_____

Reporting Limits - RI RES DEC

Electonic Deliverables Excel Access PDF

Co. Name	Project #	Project Name
NRC / ENPRO	62310-0010	NATGRID

Contact Person	Address
Rich La Marche	

City	State	Zip	PO #

Tel.	Fax.	email:

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	Analysis: 1,1-Dichloroethene	Vinyl Chloride	1,2-Dichloroethene	1,2-Dichloroethene 3-Chloropropene							
1	7/19/16	4:15 PM	C	√	Groundwater Fill	1	2	V	40ml	X	X	X	X							
2	7/19/16	4:15 PM	C	√	Trip Blank	↓	↓	↓	↓	X	X	X	X							

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present ✓ Yes _____ No

Seals Intact ____ Yes _____ No NA: ✓

Cooler Temperature: 5.6°C 5.4 AM 7/21/16 0°C

Internal Use Only

[ ] Pickup

[ ] Technician___

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by :

Comments: 4 EA X 1.1.6 VOA ESS 1607260

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
7/21/16 AM	7/21/16 5:40	7/21/16 17:10	7/20/16 1000
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Rick LaMothe
NRC
19 National Drive
Franklin, MA 02038

RE: National Grid (62320-0010)
ESS Laboratory Work Order Number: 1608223

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 6:13 pm, Aug 11, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid

ESS Laboratory Work Order: 1608223

SAMPLE RECEIPT

The following samples were received on August 09, 2016 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1608223-01	Backfill - MS&G Compactation	Soil	6020A, 7010
1608223-02	Backfill 1	Soil	6020A, 7010

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid

ESS Laboratory Work Order: 1608223

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid

ESS Laboratory Work Order: 1608223

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid
Client Sample ID: Backfill - MS&G Compactation
Date Sampled: 08/05/16 10:00
Percent Solids: 100

ESS Laboratory Work Order: 1608223
ESS Laboratory Sample ID: 1608223-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	ND (1.23)		7010		5	KJK	08/11/16 16:31	2.03	100	CH60905
Lead	**7.56** (0.49)		6020A		20	NAR	08/11/16 13:45	2.03	100	CH60905

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid
Client Sample ID: Backfill 1
Date Sampled: 08/05/16 11:00
Percent Solids: 100

ESS Laboratory Work Order: 1608223
ESS Laboratory Sample ID: 1608223-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	ND (1.20)		7010		5	KJK	08/11/16 16:54	2.09	100	CH60943
Lead	**6.40** (0.50)		6020A		20	NAR	08/11/16 13:51	2	100	CH60905

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid

ESS Laboratory Work Order: 1608223

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CH60905 - 3050B										
Blank										
Arsenic	ND	0.25	mg/kg wet							
Lead	ND	0.50	mg/kg wet							
LCS										
Arsenic	160	23.6	mg/kg wet	161.0		99	80-120			
Lead	120	23.6	mg/kg wet	138.0		87	80-120			
LCS Dup										
Arsenic	164	23.1	mg/kg wet	161.0		102	80-120	3	20	
Lead	138	23.1	mg/kg wet	138.0		100	80-120	14	30	
Batch CH60943 - 3050B										
Blank										
Arsenic	ND	0.08	mg/kg wet							
LCS										
Arsenic	161	24.5	mg/kg wet	161.0		100	80-120			
LCS Dup										
Arsenic	165	23.1	mg/kg wet	161.0		103	80-120	2	20	

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid

ESS Laboratory Work Order: 1608223

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: NRC
Client Project ID: National Grid

ESS Laboratory Work Order: 1608223

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

Revised

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1608223

Turn Time: Rush: 24hr

Regulatory State: Rhode Island

Reporting Limits RI Residential direct Exposure.

Is this project for any of the following?:
☐ MA-MCP ☐ CT-RCP ☐ RGP ☐ Remediation

Electonic Deliverables ☐ Limit Checker ☒ Excel ☐ Other (Please Specify) →

Company Name	Project #	Project Name
NRC	6330-046	

Contact Person	Address
Rick Lamothe	19 National Drive

City	State	Zip Code	PO #
Franklin	MA	02038	

Telephone Number	FAX Number	Email Address
508-966-6023		RLamothe@NRC.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: Total Lead	Analysis: Arsenic
1	8/5/16	1000		Soil	Backfill-ms & compaction	X	X
2	"	"			Backfill 1	X	X
3	"	"		"	Backfill 2	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other — ag ag

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other* — 1 1

Number of Containers: 1 1

Laboratory Use Only

Cooler Present: ✓

Seals Intact: N

Cooler Temperature: Freon 2.7 °C 14:02 8/9/16

Sampled by :

Comments: Please specify "Other" preservative and containers types in this space

Sample split per R.L. mkm 8/10/16

two samples only mkm 8/10/16

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/9/16 10:37	8/9/16 10:37	8/9/16 14:02	8/9/16 1409
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

ESS Laboratory
Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
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CHAIN OF CUSTODY

ESS Lab # 1608223

Turn Time: Rush: 24hr

Regulatory State: Rhode Island

Reporting Limits: RI Residential Direct Exposure

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☐ Remediation

Electonic Deliverables: ☐ Limit Checker ☒ Excel ☐ Other (Please Specifiy) →

Company Name	Project #	Project Name
NRC	6340-046	

Contact Person	Address
Rick Lamothe	19 National Drive

City	State	Zip Code	PO #
Franklin	MA	02038	

Telephone Number	FAX Number	Email Address
508-966-6023		RLamothe@NRC.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: Total Lead	Analysis: Arsenic
1	8/5/16	1000		Soil	Backfill-MS & Composition	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other — ag | ag

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other* — 1 | 1

Number of Containers: 1 | 1

Laboratory Use Only

Cooler Present: ✓

Seals Intact: N

Cooler Temperature: Factor 2.9 °C 14:02 8/9/16

Sampled by :

Comments: Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/9/16 10:37	8/9/16 10:37	8/9/16 14:02	8/9/16 1409
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

APPENDIX F

NATIVE MATERIAL CERTIFICATIONS

CORPORATE OFFICE
3 BELCHER STREET
PLAINVILLE, MA 02762
(508) 695-3252
FAX (508) 699-2387
WWW.LORUSSOCORP.COM

LORUSSO CORP.
PLAINVILLE • NORWOOD • ATTLEBORO

BITUMINOUS CONCRETE
CRUSHED STONE
SAND & GRAVEL
RECYCLED AGGREGATES
SCREENED LOAM
PAVING & CONSTRUCTION

June 24, 2016

NRC
19 National Dr.
Franklin, MA 02038

Re: Material Delivered
Tidewater Site
1 Merry St.
Pawtucket, RI

Dear Mr. Lamothe

The crushed stone and processed gravel being supplied to your job from the Attleboro Quarry, located at 125 Tiffany St., in Attleboro MA, is generated from drilled, blasted and crushed ledge. The source is not subject to environmental restrictions and is not the focus of state mandated or voluntary clean up. To the best of my knowledge the material has not been mixed or come in contact with contaminated or potentially contaminated materials.

If you have any questions please do not hesitate to contact this office.

Very truly yours,
LORUSSO CORPORATION

Jim Botti
Sales

MATERIAL SAND & STONE CORP.

SAND – GRAVEL – STONE
618 GREENVILLE ROAD, NORTH SMITHFIELD, RHODE ISLAND 02896
Tel. (401) 767-3420 : 232-3010
FAX (401) 767-2070

NRC
19 National Drive
Franklin, MA 02038

July 15, 2016

RE: Origin of Materials

Job: Pawtucket, RI Tidewater

Attention: Richard R. Lamothe, LSP
Senior Project Manager

This letter serves as certification that all raw materials quarried and extracted from the Material Sand & Stone quarry located at 1 Pine Hill Rd., North Smithfield, Rhode Island are free of all contaminants and are extracted from virgin earthen materials.

Sincerely,

Robert A. Pezza, President
Material Sand & Stone Corp.

APPENDIX G

STAMPED AS-BUILT CONDITION PLANS

LOCUS MAP
NOT TO SCALE

LEGEND
NOT TO SCALE
- MAJOR CONTOUR
- MINOR CONTOUR
- MONITORING WELL

RI STATE PLANE

SEEKONK RIVER

LINER LIMITS AS LOCATED ON 08-03-16

DMH-1
STRUCTURE IN PLACE
x TOP ELEV. = 22.7'+/-
15" RCP

DMH-2
STRUCTURE IN PLACE
x TOP ELEV. = 10.0'+/-

BENCHMARK
TOP OF ROCK
ELEV. 5.58'

EXISTING FENCE

GENERAL NOTES:

1. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.

2. THE CONTOURS AND ELEVATIONS SHOWN HEREIN ARE BASED ON NGVD-29 VERTICAL DATUM.

REFERENCES;

1.A PLAN ENTITLED "DRAINAGE IMPROVEMENTS FOR THE SOUTH WASHOUT AREA FORMER TIDEWATER FACILITY PAWTUCKET, RHODE ISLAND APRIL 2016" SHEETS 1-10 PREPARED FOR: NATIONAL GRID PREPARED BY: GZA GEOENVIRONMENTAL,INC. ENGINEERS AND SCIENTISTS

1-888-DIG-SAFE
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

NORBERT A. THERIEN
No. 1739
REGISTERED PROFESSIONAL LAND SURVEYOR

NATIONAL Surveyors-Developers Inc.
42 Hamlet Ave., Woonsocket, R.I.
(401) 769-7779

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

* I CERTIFY THAT THE INFORMATION SHOWN HEREON HAS BEEN OBTAINED BY AN ACTUAL SURVEY ON THE GROUND, THAT IT IS CORRECT AND THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

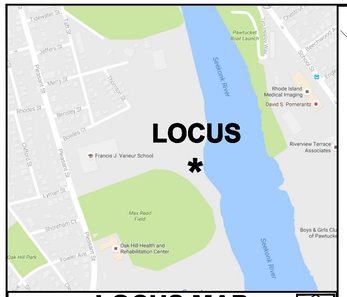
BY: NORBERT A. THERIEN P.L.S. DATE: 9-14-16

NATIONAL GRID
FORMER TIDEWATER FACILITY
SOUTHEAST OF THORNTON STREET
PAWTUCKET, RHODE ISLAND

SUBGRADE AS-BUILT PLAN

DRAWN BY: J.E.S.	CHECKED BY: N.A.T.	FIELD BY: J.N.&R.C.
JULY 2016	JOB No. 2016-161	SHEET 1 OF 1

\\Plot\c\NATIONAL 2016\2016-161\dwg\2016-161-AS-BUILT-MID-WAY.dwg, EXISTING, 1:1



LOCUS MAP
NOT TO SCALE

DESC.	NORTHING	EASTING	ELEV.	DEPTH
A	285062.95	360643.85	14.48	1.67
B	285054.79	360626.52	17.18	2.20
C	285043.41	360607.26	18.35	3.25
D	285018.69	360590.50	27.00	2.75
E	285013.46	360591.78	28.06	2.00
F	285004.47	360598.68	28.19	3.00
G	284997.26	360629.87	23.42	1.00
H	285004.42	360638.30	18.41	3.67
I	285009.79	360645.94	17.13	3.50
J	285015.82	360652.62	15.28	3.25
K	285021.08	360659.27	13.42	2.75
L	285029.39	360669.03	10.14	1.00
M	285035.30	360674.00	6.61	1.00
DMH-1	285020.13	360618.52	25.87	
DMH-2	285043.92	360654.82	17.21	
FLAIR END	285050.58	360671.19	4.16	
1	285067.32	360683.92		
2	285054.28	360662.59		
3	285040.63	360670.94		
4	285053.67	360692.27		

NO.	DATE	DESCRIPTION	BY

LEGEND
NOT TO SCALE

- IRON PIN
- MAJOR CONTOUR
- MINOR CONTOUR
- MONITORING WELL

RI STATE PLANE

SEEKONK RIVER

N-285075.98
E-360636.01
REBAR (SET)

AP 65B LOT 647
N/F NARRAGANSETT
ELECTRIC CO

LIMITS

LINER

FINAL

ARMORFLEX MAT
16.0' WIDE x 25.0' LONG

24" RCP
x INV=4.16

DMH-2
RIM=17.21
INV IN=11.11
INV OUT=6.31

24" RCP
S = 0.19 FT/FT

DMH-1
RIM=25.87
INV=18.67(15")
INV=18.57 (24")

15" RCP

PLASTIC
CORRUGATED
PIPE EXTENSION

REBAR (SET)
N-285018.31
E-360670.37

RHODE ISLAND
STATE PLANE
COORDINATE
(TYP)
N-285015.32
E-360572.07
REBAR (SET)

SEE CHART FOR COORDINATES AND ELEVATIONS

EXISTING FENCE

N-284981.25
E-360620.29
REBAR (SET)

MAX READ FIELD

1-888-DIG-SAFE
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

GENERAL NOTES:

1. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.

2. THE CONTOURS AND ELEVATIONS SHOWN HEREIN ARE BASED ON NGVD-29 VERTICAL DATUM.

REFERENCES;

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NORBERT A. THERIEN
No. 17391
PROFESSIONAL LAND SURVEYOR

NATIONAL
Surveyors-Developers
Inc.
42 Hamlet Ave., Woonsocket, R.I.
(401) 769-7779

"I CERTIFY THAT THE INFORMATION SHOWN HEREON HAS BEEN OBTAINED BY AN ACTUAL SURVEY ON THE GROUND, THAT IT IS CORRECT AND THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

BY: NORBERT A. THERIEN P.L.S. DATE: 9-14-16

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

NATIONAL GRID
FORMER TIDEWATER FACILITY
SOUTHEAST OF THORNTON STREET
PAWTUCKET, RHODE ISLAND

DRAINAGE AS-BUILT PLAN
FINAL GRADES

DRAWN BY: J.E.S.	CHECKED BY: N.A.T.	FIELD BY: J.N.
AUGUST 2016	JOB No. 2016-161	SHEET 1 OF 1

\\Plot\c\NATIONAL 2016\2016-161\dwg\2016-161-AS-BUILT-FINAL.dwg, EXISTING, 1:1

APPENDIX H

GEOMEMBRANE LINER INSTALLATION

QA/QC DATA

Shipping Release

OA #	33222	Date	7/29/2016

Driver's Name/Truck Company	Customer	Destination			Pictures Taken
JOSHUA/ LTL	MERICAN ENVIRONMENTA	City: ROCHESTER	State: NY		YES ● NO

Time In	5:00	Time Out	5:30	Inspector:	COREY	Loader:	CAMERON

	Roll #										External Visual OK		Straps OK		Core OK		Weld Rod OK		CONTAINER/MISC
	G	YEAR		M	WK of YR		DOW	ROLL #			Yes ● No		Yes ● No		Yes ● No		Yes ● No		
1	G	1	5	C	1	8	2	0	1	3	X	No	X	No	X	No	X	No	CONTAINER#
2	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	3000
3	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
4	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	TIES
5	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
6	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
7	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
8	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	WELD ROD
9	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	1 LL {CGC811010}
10	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
11	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
12	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
13	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	BENTONITE BAGS
14	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
15	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
16	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
17	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	STRAPS
18	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
19	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
20	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
21	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
22	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	PALLETS
23	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	1 AGRUTEX
24	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	{1111212301}
25	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
26	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	
27	G	1	6								Yes	No	Yes	No	Yes	No	Yes	No	

External Visual Check:	Clean Roll; Damage (Holes, Tears); Telescoping; Liner Defects (Voids, Bug Marks, Etc.) Legible Markings on Roll
Strap Check:	6' Foot Spacing; Check for Wear, Cuts
Core Check:	Check for Craks, Defects
Weld Rod Check:	(If Necessary): Secure Load; Lot # on BOL; Check Type
Comments:	

Revised 11/11/14

Shipping Report for Sales Order 004774

PO #	Stock Code	Roll Number	Qty Shipped (SQY)	Qty Shipped (LYD)	# of Rolls
010587/ 33222 NATIONAL GRID		AGR001 - AGRU AMERICA, INC.			
AGRUTEX 081 NW HB	AGT150080BKPP18000U				
		1111212301	1,000.000	200.00	
			1,000.000	**200.00**	**1**
			1,000.000	**200.00**	**1**

Shipping Report for Sales Order 004774

			Qty Shipped (LYD)	Net Weight	Gross Weight	# of Rolls
\GR001 - AGRU AMERICA, INC.	PO # 010587/ 33222 NAT					
\GRUTEX 081 NW HB	AGT150080BKPP18000U	8 OZ. PP, BLACK, 180"				
	1111212301		200.00	548.00	564.00	
			200.00	**548.00**	**564.00**	**1**
			200.00	**548.00**	**564.00**	**1**

STRAIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

B/L NO. 050940

NAME OF CARRIER: BEST WAY FRT | LTL | CARRIER'S NO. 3000 | DATE 7/29/2016

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier bei
understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver
another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any
said property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the da
hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditio
are hereby agreed to by the shipper and accepted for himself and his assigns.

FROM: SHIPPER (ORIGIN)

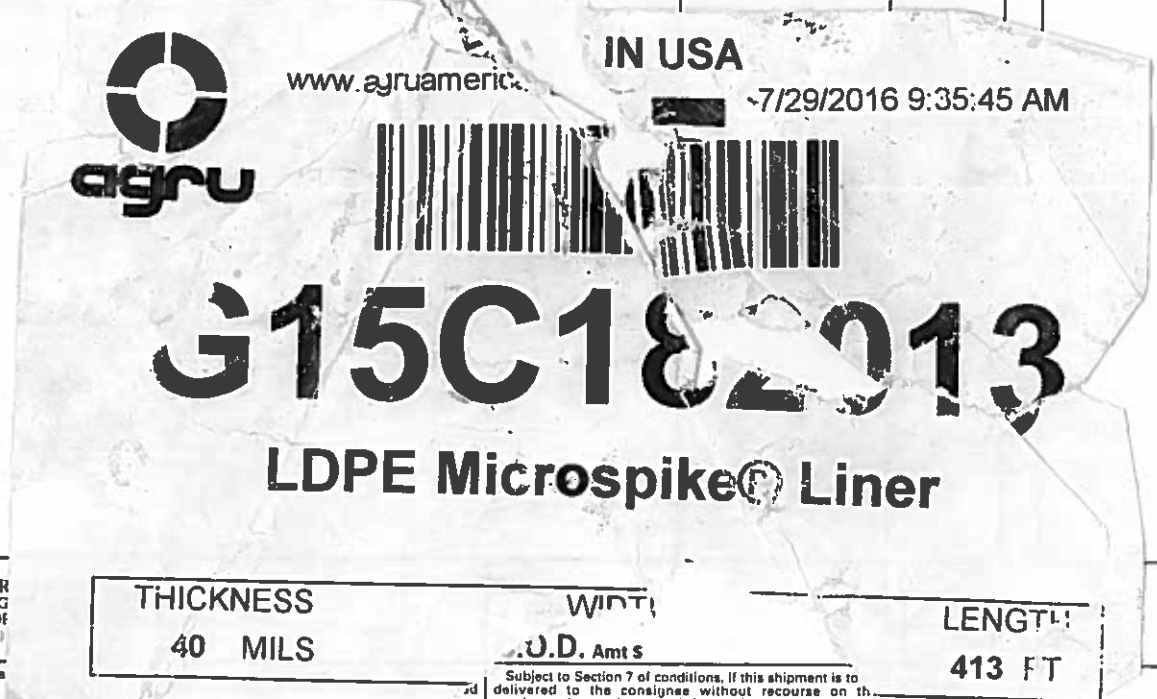
AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: CONSIGNEE: NATIONAL GRID PAWTUCKET
AMERICAN ENVIRONMENTAL GROUP, LTD
STREET: 38 MERRY STREET
PAWTUCKET, RI 02860 USA
RICK 508-966-6023
DESTINATION ZIP

DELIVERING CARRIER | ROUTE | VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ONLY
9,500		LL DBL MICRO 40MIL 23FT				
9,000		AGRUTEX 081 NW HB				
22		WELD ROD MFG BLACK LDPE 5MM				
		Item Key: L-LL-MSDS-40-23 / Lot Number: G15C182013 / Quantity: 9,499				
		Total Weight: 2,255 LB				
		Total Packages: ~~18,522~~ 2 Rolls				
		Order No.: 33222 Order Date: 07/01/16 Request Date: 07/20/16				
		Location: GTOWN P.O. No.: G280-16KS				
		1 Spool - Weld Rod				



SUBMIT C.O.D. TO: AGR 500 G GEOR (843)

the shipment moves between two ports by a
er, the law requires that the bill of lading
ither it is "carrier's or shipper's weight".

Shipper's imprint in lieu of stamp; not a part of bill of lading
roved by the Interstate Commerce Commission.

$ per

C.O.D. Amt $

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

are marked collect. Check box if charges are Collect

is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.

Shipper, Per

Agent, Per

Page 1 of 1

manent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

en transporting hazardous materials include the technical or chemical name for n.o.s. (not otherwise specified) or generic description of material with appropriate UN or NA number as defined in US DOT Emergency Response
nmunication Standard (HM-126C). Provide emergency response phone number in case of incident or accident.

1

American Environmental Group Ltd.

CERTIFICATE OF SOIL SURFACE ACCEPTANCE

GEOSYNTHETIC INSTALLER		PROJECT	
COMPANY:	American Environmental Group, Ltd.	OWNER:	National Grid
ADDRESS:	3600 Brecksville Rd, Suite 100	PROJECT:	Former Tidewater Facility
	Richfield, OH 44286	LOCATION:	[illegible] Street, Pawtucket, RI
		PROJECT #:	NRC 62310-0010

I the Undersigned, a duly authorized representative of American Environmental Group, Ltd., do hereby accept the area of soil surface bounded by the secondary geomembrane liner as an acceptable surface to install geosynthetic materials. P-1 P-5

Eddie Keodouangsy	(signature)	Supervisor	8-1-16
NAME	SIGNATURE	TITLE	DATE

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA RESIDENT MANAGER

Richard Lamothe	(signature)	Sr. Project Mgr	8/1/16
NAME	SIGNATURE	TITLE	DATE

CERTIFICATE OF ACCEPTANCE RECEIVED BY THE OWNER

NAME	SIGNATURE	TITLE	DATE

American Environmental Group Ltd.

Page: ______ of: ______

Panel Placement Log

Project Name: National Grid

Location: Pawtucket RI

Project Number: 30316318

Material Type: 40 Mil

Site Supervisor: Eddie Keodouangsy

QA Technician: Lee Lovan

Panel Number	Roll Number	Date Deployed	Width (Feet)	Length (Feet)	Square Feet	SF Total	Comments
P1	2013	8-1-16	22	82	1804		
P2	2013	-//-	22	82	1804		
P3	2013	-//-	11	25	275		
P4	2013	-//-	11	25	275	4,158	

American Environmental Group Ltd.

PANEL SEAMING LOG

Page: ____ of: ____

Site Supervisor: Eddie Keodouangsy Q.A. Technician: Lee Lovan

Project Name: National Grid Project Location: Pawtucket Material: 40 mil Project #: 30314318

Date	Time	Seam Number	Seam Length	Seamer Initials	Machine Number	Temp / Speed	Ambient Temp.	Comments
8.1.16	11:45	P1 - P2	82	KS	WH4	800.5		
11	11:50	P2 - P4	25	KS	WH4	11		
11	12:00	P2 P3	25	KS	WH4	11		
11	1:30	P3 P4	11	KS	WH4	11		

American Environmental Group Ltd.

Page: _____ of: _____

Non-Destructive Test Log

Project Name: National Grid
Location: Pawtucket RI
Project Number: 30316318

Supervisor: Eddie Keodouangsy
Material Type: 40 mil
Q.A. Technician: Lee Lovan

Seam Number	Test Date	Technician ID	Air Pressure Test		Start Time	End Time	Test P/F	Location/Comment
			psi start	psi finish				
P.1. P2	8.1.16	YS	30	30	2:00	2:05	P	
P.2. P3	"	YS	30	30	2:05	2:10	"	
P2. P4	"	YS	30	30	2:10	2:15	"	
P3 P3	"	YS	30	30	2:15	2:20	"	

American Environmental Group Ltd.

American Environmental Group, Ltd.
Trial Weld Sample Information

Page: _____ **of:** _____

Project Name: National Grid
Site Supervisor: Eddie Keodouangsy
Q.A. Technician: Lee Lovan

Fusion: Min. Peel _____ Min. Shear _____
Extrusion: Min. Peel _____ Min. Shear _____

Project Number: 30316318
Material Type: 40 Mil

						Extrusion Welds		Fusion Welds												
Date	Time	Ambient Temp.	Operator Initials	Machine I.D.	Material Type	Barrel Temp.	Preheat Temp.	Wedge Temp.	Speed Setting	Peel Values (lbs/in)					Shear Values (lbs/in)					Results
8-1-16	11:00		KS	404				8:00	500	88	72	75	84	86						(P) F
										85	82	75	83	85	90	78	86			
8-1-16	2:00		KS	G 1				500	500	78	82	75	86	76	82	80	86			(P) F
																				P F
																				P F
																				P F
																				P F
																				P F
																				P F
																				P F
																				P F
																				P F

Notes: _____

American Environmental Group, Ltd.

Project Completion Report

Former [illegible] Daily

Client: ______

Project Name: [illegible], RI

Project Number: NRC 62310-0000

Date Complete: 8-1-16

QA Technician: ______

Site Supervisor: Eddie Keodouangsy

FINAL QUANTITIES

ITEM	DESCRIPTION	QUANTITY	NOTES
1	Underdrain Fabric	4,191	complete
2	40 mil Textured Liner	4,191	complete
3	Fabric	4,191	complete
4	15" Boots	2	complete

AEGL MATERIALS LEFT ON SITE

DESCRIPTION	QUANTITY	NOTES

LIST ALL ROLL NUMBERS ON THE MATERIAL REPORT AND ATTACH TO THIS REPORT

DID YOU HAVE FIELD CHANGE ORDERS: ______ HOW MANY: ______

THIS JOB IS 100% DONE ☑ IF NOT, EXPECTED RETURN DATE: ______

Notes: n/a

The project has been left in a clean, orderly fashion acceptable to the customer .

(Inititials) [signature] (Date) 8/1/16

THE WORK IS COMPLETE, SATISFACTORY, QUANTITIES AGREED TO AND ACCEPTED BY:

Eddie Keodouangsy
AEGL SUPERINTENDENT SIGNATURE

8-1-16
DATE

[signature]
AUTHORIZED SIGNATURE

Sr. Project Manager
TITLE

NRC
COMPANY

8/1/16
DATE

Limited Material Warranty

OWNER:	NRC
REQUESTED BY:	American Environmental Group, Ltd.
PROJECT:	National Grid Pawtucket RI
TYPE MATERIAL:	40 mil LLDPE Double-sided Microspike® Liner
LOCATION:	Pawtucket, RI
EFFECTIVE DATE:	7/29/16

AGRU AMERICA, Inc. (AGRU) warrants its material for a period of ONE(1) YEAR, prorated, from the final project ship date when subsequently properly installed, covered and used for a STORMWATER DRAINAGE(BURIED). AGRU warrants that the liner will be free from material defects and is manufactured in all material respects to AGRU's product specifications as indicated in the applicable AGRU technical records, catalogs, guidelines, and test certificates in effect at the time when the liner is sold. Note: AGRU's products may vary in details of design and construction from descriptions in any literature or from any sample, display, or other model inspected by Customer.

AGRU disclaims all other representations and warranties of any kind, express or implied, in fact or in law, including, without limitation, the implied warranty of merchantability and the implied warranty of fitness for a particular purpose. Every claim under this limited warranty shall be deemed waived unless in writing and received by SELLER within 10 days of delivery if visibly damaged or defective, and, otherwise, within 30 days after the defect to which each claim relates is discovered, or should have been discovered, but in no event longer than ONE(1) YEAR after product shipment.

AGRU's liability under this limited warranty is not applicable when damage is caused by: Natural phenomena such as, but not limited to: thunderstorms, floods, earthquakes, or other acts of God; and acts of war, machinery, foreign objects or animals; and Chemicals which are not suitable for LLDPE liner materials.

AGRU's Limited Material Warranty will be void if any of the material is shipped prior to completion and approval of all testing required by the project specifications.

Further, the AGRU limited warranty is voided by, and AGRU in no event shall be liable for damages due to improper site preparation, as well as the misapplication, incorrect installation (including incorrect welding of seams in the installation), and/or damages resulting from any kind of improper handling.

Further, AGRU's warranty will be void in the event that the Customer performs repairs or makes alterations without the express approval of AGRU in writing. Customer shall not repair, replace, remove, alter, or disturb any liner prior to AGRU'S inspection except that the Customer may take emergency action necessary to prevent damage to persons, property or the environment. Failure to comply with this paragraph shall void the warranty.

This warranty is only valid on condition that the generally approved technical standards, and in particular the guidelines for the installation of the liner, are followed in all respects.

AGRU shall be given an opportunity to ascertain the cause of damages. AGRU reserves the right to decide how damages will be settled. Customer agrees that it shall provide AGRU with clean, dry and unobstructed access to the liner in order for AGRU to perform the inspections and repairs which may be required pursuant to the warranty. AGRU shall not be obligated to perform any inspection or be obligated to perform any repair or replacement under this warranty until the area is made available free from all obstructions, water, dirt, sludge, residuals and liquids of any kind. AGRU shall not be liable for any costs relating to providing such access to the liner. If after inspection it is determined that there is no claim under this warranty, Customer shall reimburse AGRU for its costs associated with the site inspection.

Customer's exclusive remedy and the limit of AGRU's liability for breach of this limited warranty, whether based on negligence, breach of warranty, strict liability, or any other theory, at law or in equity, shall be, at AGRU's option: repair, replacement with a like quantity of non-defective product, or refund of the purchase price, plus reasonable handling and transportation charges incurred for approved refunds.

AGRU will not be held responsible for any delays in performing approved material repairs or replacements that are caused by machinery or mechanical failure beyond AGRU's control.

AGRU's maximum liability under this warranty will not exceed the purchase price of liner and will only be in force when payment has been made in full, and further claims, regardless of the legal suppositions, are not applicable.

All AGRU products (including liners) are sold under AGRU's General Terms and Conditions, including this Limited Material Warranty, and bar on recovery of consequential and other damages.

AGRU AMERICA SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR SPECIAL DAMAGES BASED ON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY, OR ANY OTHER THEORY, FOR FAILURE TO PERFORM ITS OBLIGATIONS UNDER THIS AGREEMENT. ADDITIONALLY, CONSEQUENTIAL AND SPECIAL DAMAGES SHALL NOT BE RECOVERABLE EVEN IF THE REPAIR, REPLACEMENT, OR REFUND REMEDY FOR AGRU AMERICA'S BREACH OF ITS LIMITED WARRANTY FAILS ITS ESSENTIAL PURPOSE OR FOR ANY OTHER REASON.

No warranty made by any representative of AGRU, or any other person, regarding the AGRU material shall be binding upon AGRU except the warranty set forth herein.

APPENDIX I

MAX READ FIELD BILLS OF LADING (BOLS)

62310-0010

STRAIGHT BILL OF LADING
ORIGINAL — NOT NEGOTIABLE

Shipper No. —

Carrier No.

Page 1 of 1

ENPRO SERVICES, INC
(Name of carrier) (SCAC)

Date VARIES

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1

TO: NATIONAL GRID
Consignee FORMER TIDEWATER FACILITY
Street 200 TAFT STREET
City PAWTUCKET State RI Zip Code 02860

FROM:
Shipper AP65B LOT 648
Street PLEASANT STREET
City PAWTUCKET State RI Zip Code 02860
24 hr. Emergency Contact Tel. No. 800.966.1102

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 X DT	~~O~~	NON-RCRA, NON-DOT	~20T	—	—	—
		REGULATED MATERIAL				
		(EXCAVATION SPOILS				
		FOR RELOCATION)				
		LOAD COUNT:				
		7/25 IIII ~80T				
		7/26 IIII ~100T				
		7/27 ~~O~~				
		7/28 IIII I ~120T				
		7/29 IIII I ~120T				
		8/1 IIII I ~120T				
		8/3 II ~40T				
		~520T				

PLACARDS TENDERED: YES ☐ NO ☒

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper, and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except where box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of the Bill of Lading, the property described above in apparent good order except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

PER

CARRIER ENPRO SERVICES, INC

PER STEVEN INSTASI

DATE VARIES

1

Permanent post-office address of shipper.

62310-0010(KL)

STRAIGHT BILL OF LADING
ORIGINAL — NOT NEGOTIABLE

Shipper No. _____

Carrier No. _____

Page 1 of 1

EnPro Service Inc
(Name of carrier) (SCAC)

Date 7-27-16

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee National Grid / Former tidewater Facility
Street 200 Taft ST
City Pawtucket State RI Zip Code 02860

FROM:
Shipper APC SBLot C48
Street Pleasant Street
City Pawtucket State RI Zip Code 02860
24 hr. Emergency Contact Tel. No. 1800-966-1102

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1XDT	Ø	non-RCRA-non DOT Regulated material (Excavation-spoils for relocation)	~20T			
		LOAD COUNT:				
		1 ± 20T				
		2 "				
		3 "				
		4 "				
		5 "				
		±100T				

PLACARDS TENDERED: YES ☐ NO ☒

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable International and national governmental regulations.

_____ Signature

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐
Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER	CARRIER enPro Service Inc
PER	PER Rick Tusoni
	DATE 7-27-16

1

Permanent post-office address of shipper.

62310-0010

STRAIGHT BILL OF LADING
ORIGINAL — NOT NEGOTIABLE

Shipper No. /

Carrier No. /

Page 1 of 1 — Empire Services Inc. (Name of carrier) (SCAC) — Date 7/27/16

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO:
Consignee NATIONAL GRID / EMR TIDEWATER
Street 200 THAMES ST.
City PAWTUCKET State RI Zip Code 02860

FROM:
Shipper AP65B LOT 648
Street PLEASANT ST
City PAWTUCKET State RI Zip Code 02860
24 hr. Emergency Contact Tel. No. 800-966-1602

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 x DT	Ø	NON RCRA, NON-DOT	~20T	—	—	—
		REGULATED MATERIAL				
		(EXCAVATION SPOILS FOR RELOCATION)				
		LOAD COUNT:				
		1 ±20T				
		2 "				
		3 "				
		4 "				
		5 "				
		6 "				
		±120T				

PLACARDS TENDERED: YES ☐ NO ☒

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

PER /

CARRIER Empire Services Inc.

PER Glen Dame

DATE 7/27/16

1

Permanent post-office address of shipper.

APPENDIX J

AIR MONITORING SUMMARY FIGURE

LEGEND:

- APPROXIMATE PROPERTY LINES
- APPROXIMATE STRA WORK AREA
- TIDEWATER SITE BOUNDARY
- W1 PERIMETER AIR QUALITY MONITORING LOCATION
- SUMMA CANISTER SAMPLE LOCATION

REFERENCE NOTES:

1. THIS MAP CONTAINS THE ESRI ARCGIS ONLINE BING MAPS AERIAL LAYER PACKAGE. IMAGE COURTESY OF USGS EARTHSTAR GEOGRAPHICS SIO © MICROSOFT CORPORATION 2016.
2. PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM THE CITY OF PAWTUCKET ZONING MAP ADOPTED ON OCTOBER 21, 1966 AND AMENDED DECEMBER 19, 2003 AND INFORMATION PROVIDED ON AN AUTOCAD DRAWING TITLED "MAX READ FIELD TRACK EXPANSION 2007" PROVIDED BY THE CITY OF PAWTUCKET.

DRAFT COPY
NOT FOR CONSTRUCTION

0 25 50 100 150
SCALE IN FEET

N E S W

FORMER TIDEWATER FACILITY

PAWTUCKET, RHODE ISLAND

AIR MONITORING SUMMARY FIGURE

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
530 BROADWAY
PROVIDENCE, RHODE ISLAND 02909
(401) 421-4140

PREPARED FOR: nationalgrid

PROJ MGR: MSK	REVIEWED BY:	CHECKED BY:	APPENDIX J
DESIGNED BY: TRG	DRAWN BY: LDT	SCALE: AS NOTED	
DATE: SEPTEMBER 2016	PROJECT NO.: 43654.00	REVISION NO.: 0	

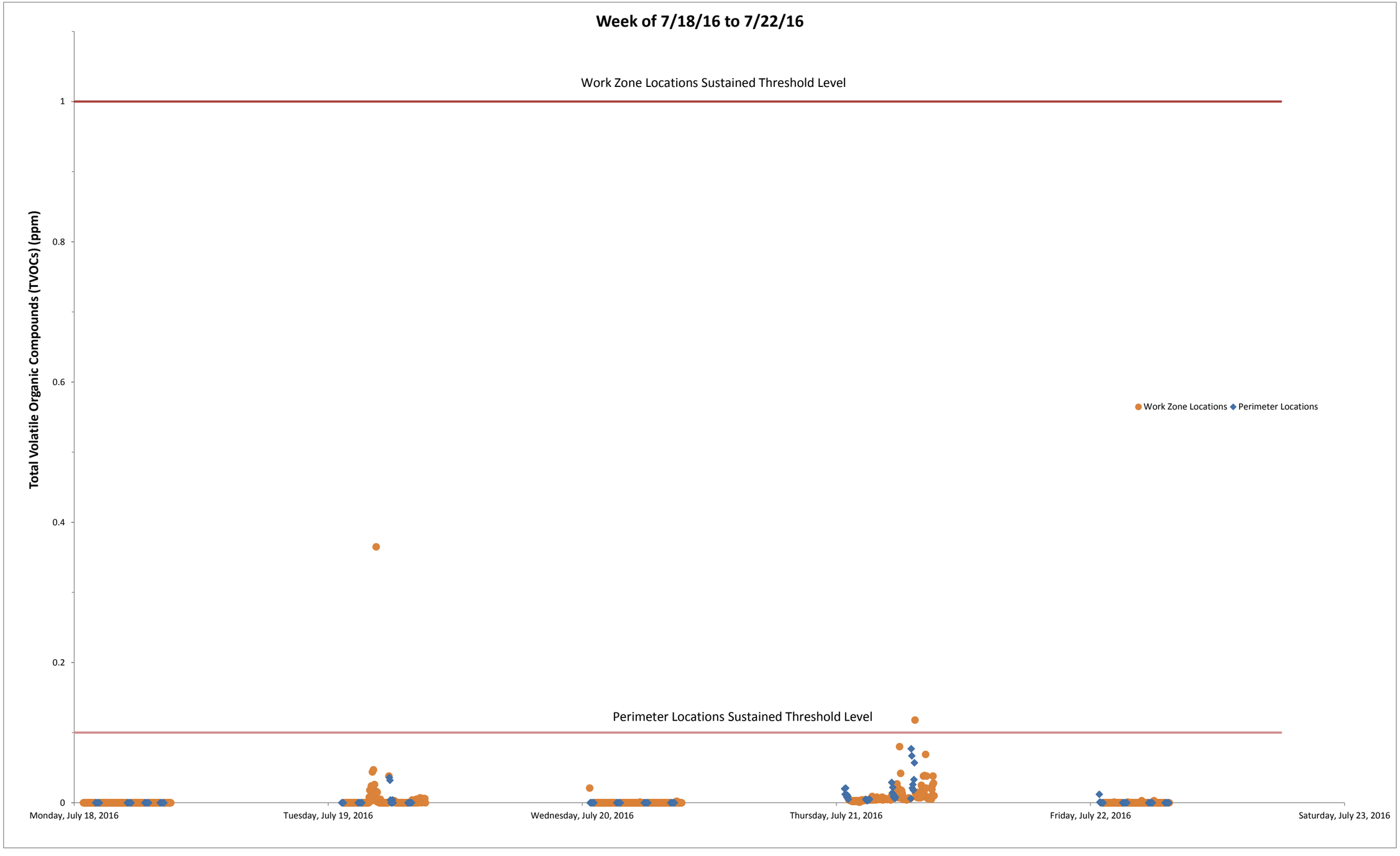
APPENDIX K

FIELD INSTRUMENTATION MONITORING GRAPHS

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - TVOCs

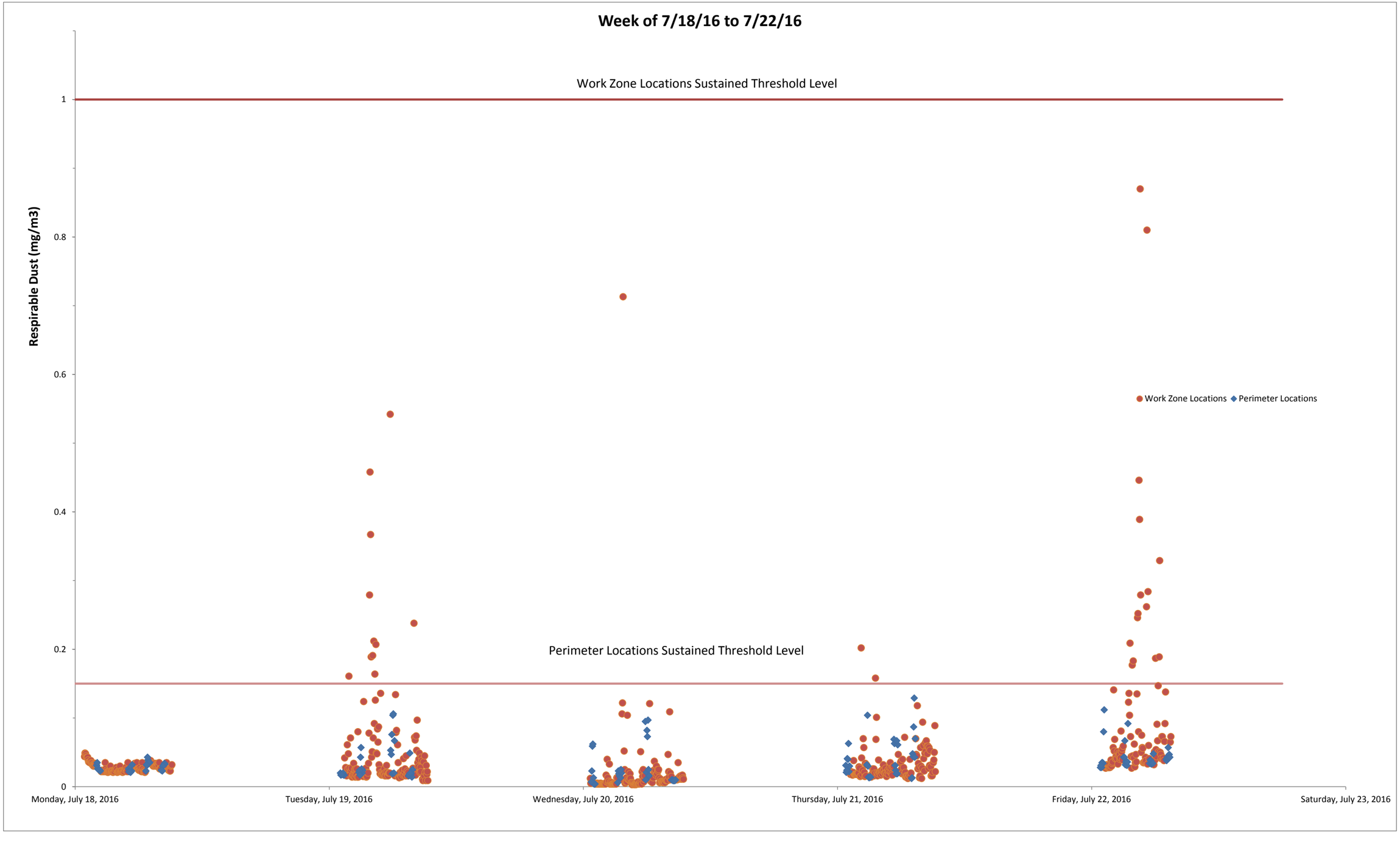
GZA File No. 05.0043654.00



Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Respirable Dust

GZA File No. 05.0043654.00



Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Benzene

GZA File No. 05.0043654.00

GZA File No. 05.00043654.00

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Transient Observations

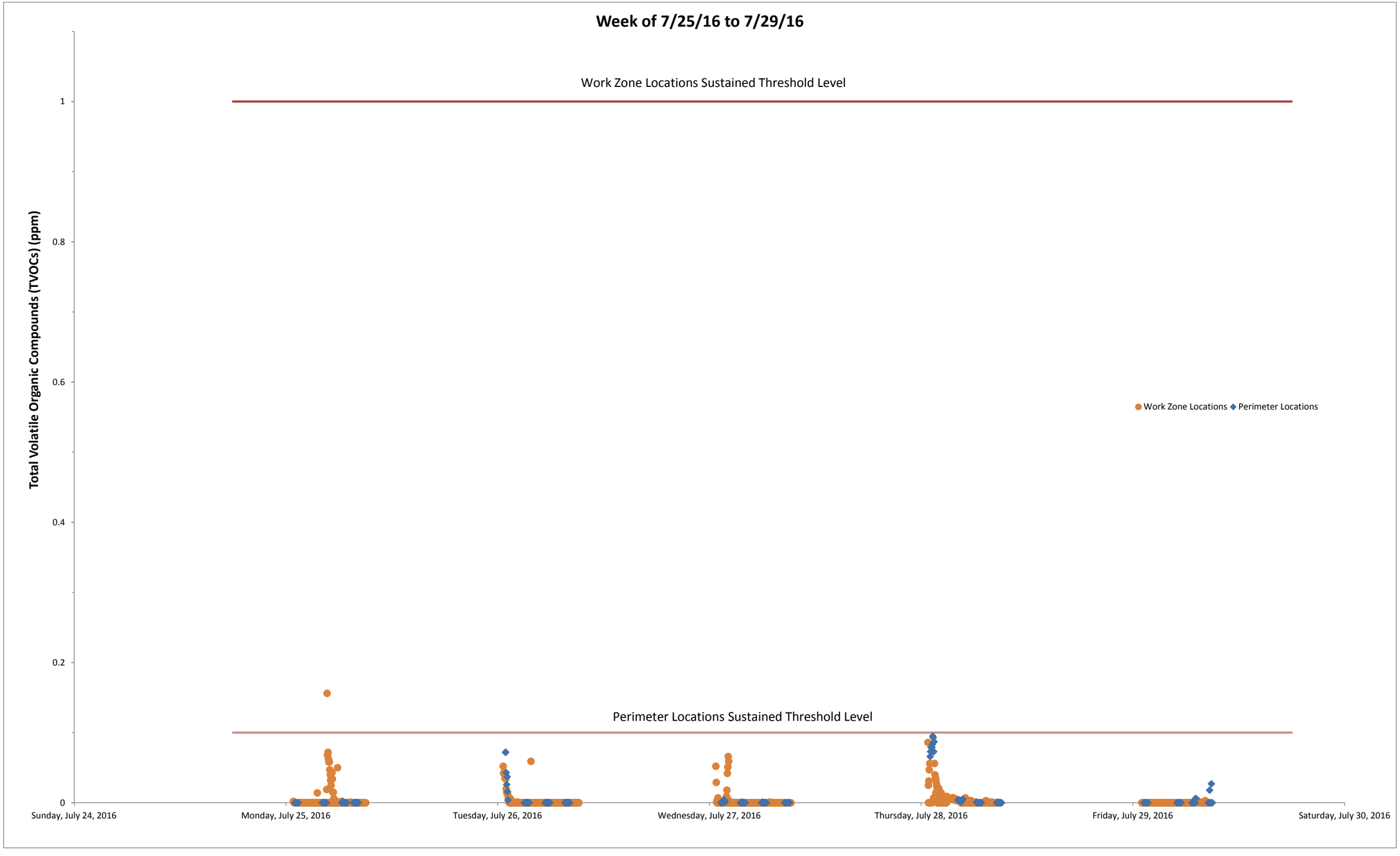
Date	Time	Location	Constituent	Observed Range of Elevated Transient Readings	Observed Conditions that may be leading to elevated transient readings
There were no transient elevated readings observed.					

Transient readings were conducted over a three minute time period. A reading is sustained if it is held for over a five minute time period.

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - TVOCs

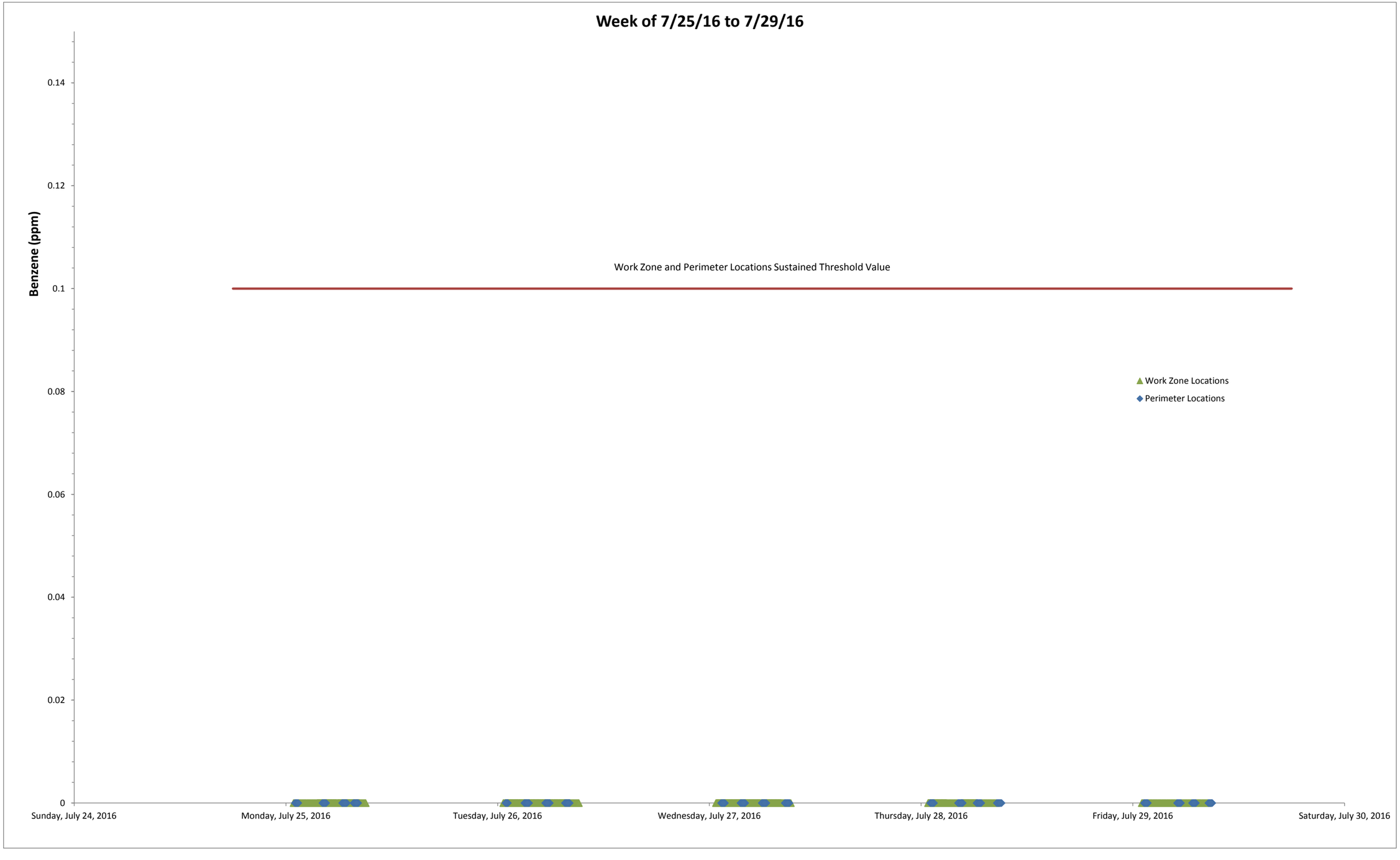
GZA File No. 05.0043654.00



Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Benzene

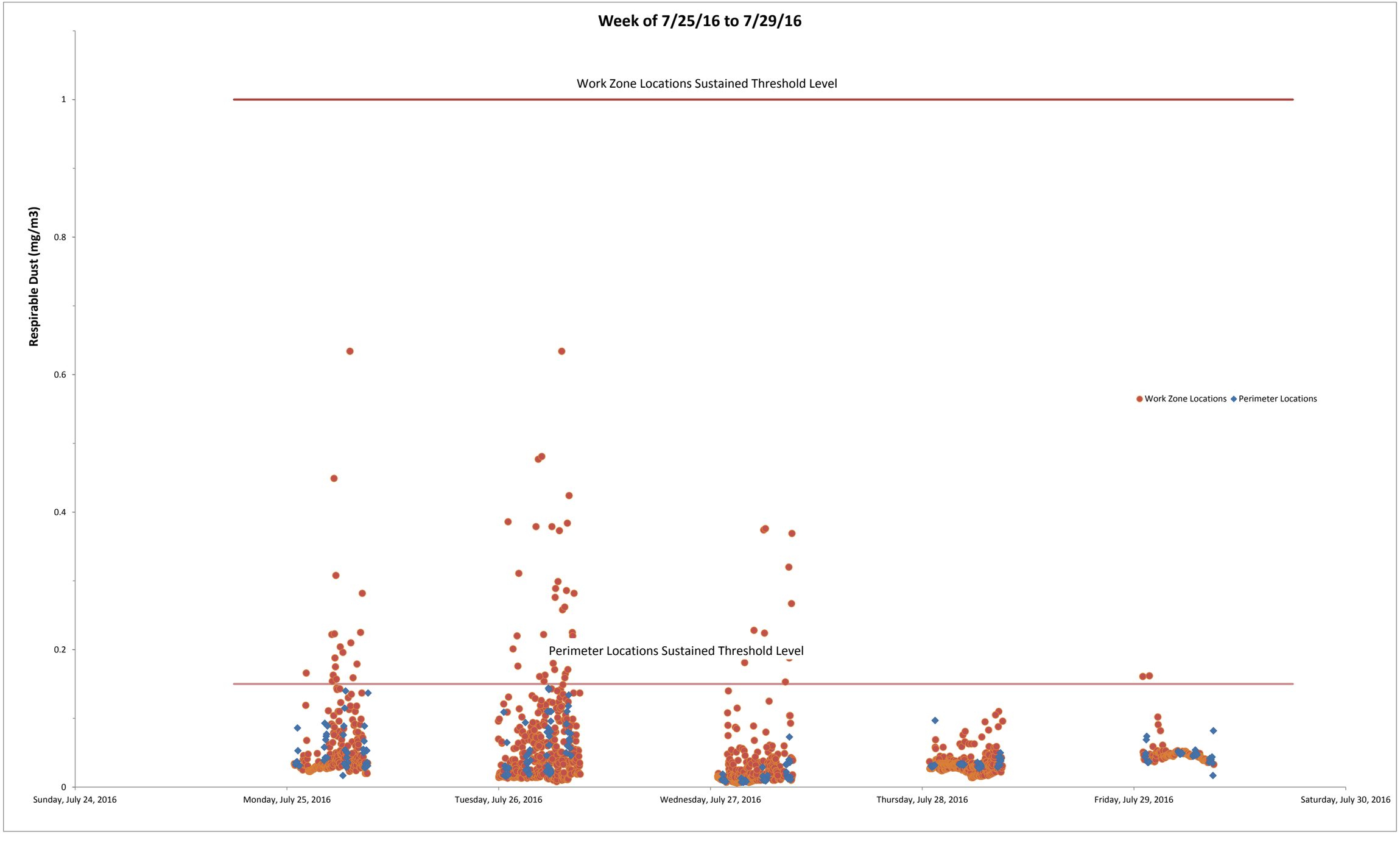
GZA File No. 05.0043654.00



Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Respirable Dust

GZA File No. 05.0043654.00



GZA File No. 05.00043654.00

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Transient Observations

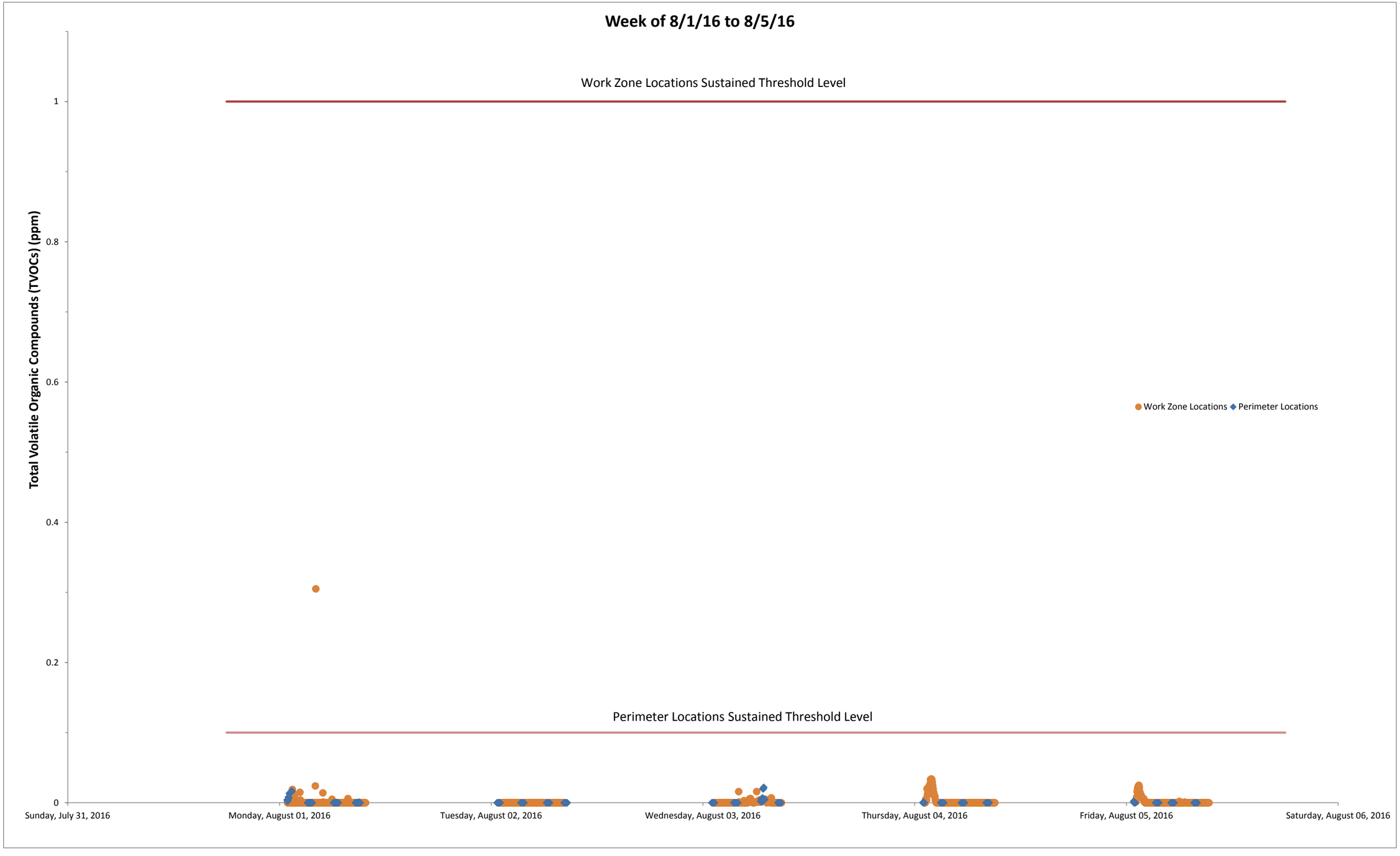
Date	Time	Location	Constituent	Observed Range of Elevated Transient Readings	Observed Conditions that may be leading to elevated transient readings
There were no transient elevated readings observed.					

Transient readings were conducted over a three minute time period. A reading is sustained if it is held for over a five minute time period.

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - TVOCs

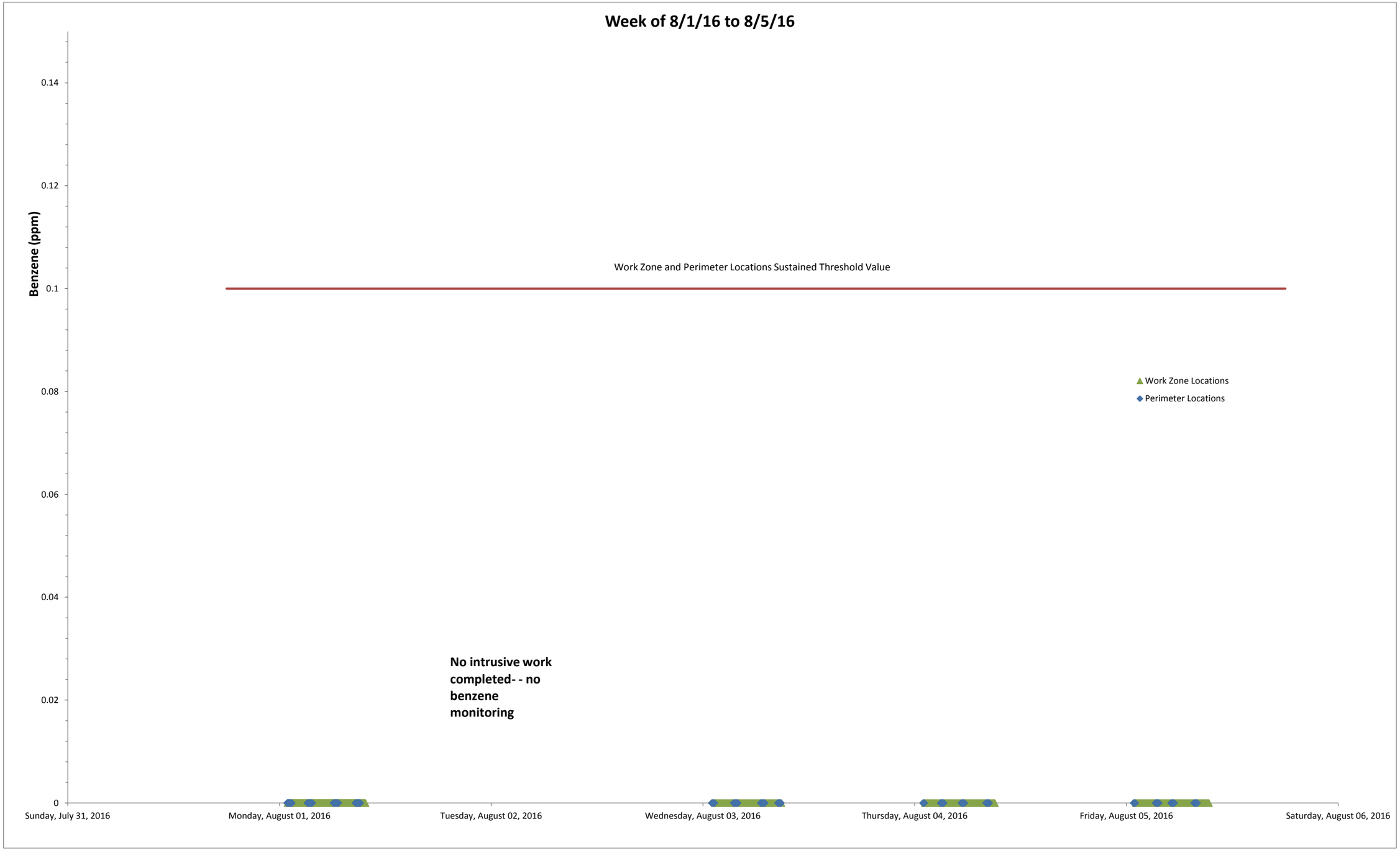
GZA File No. 05.0043654.00



Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Benzene

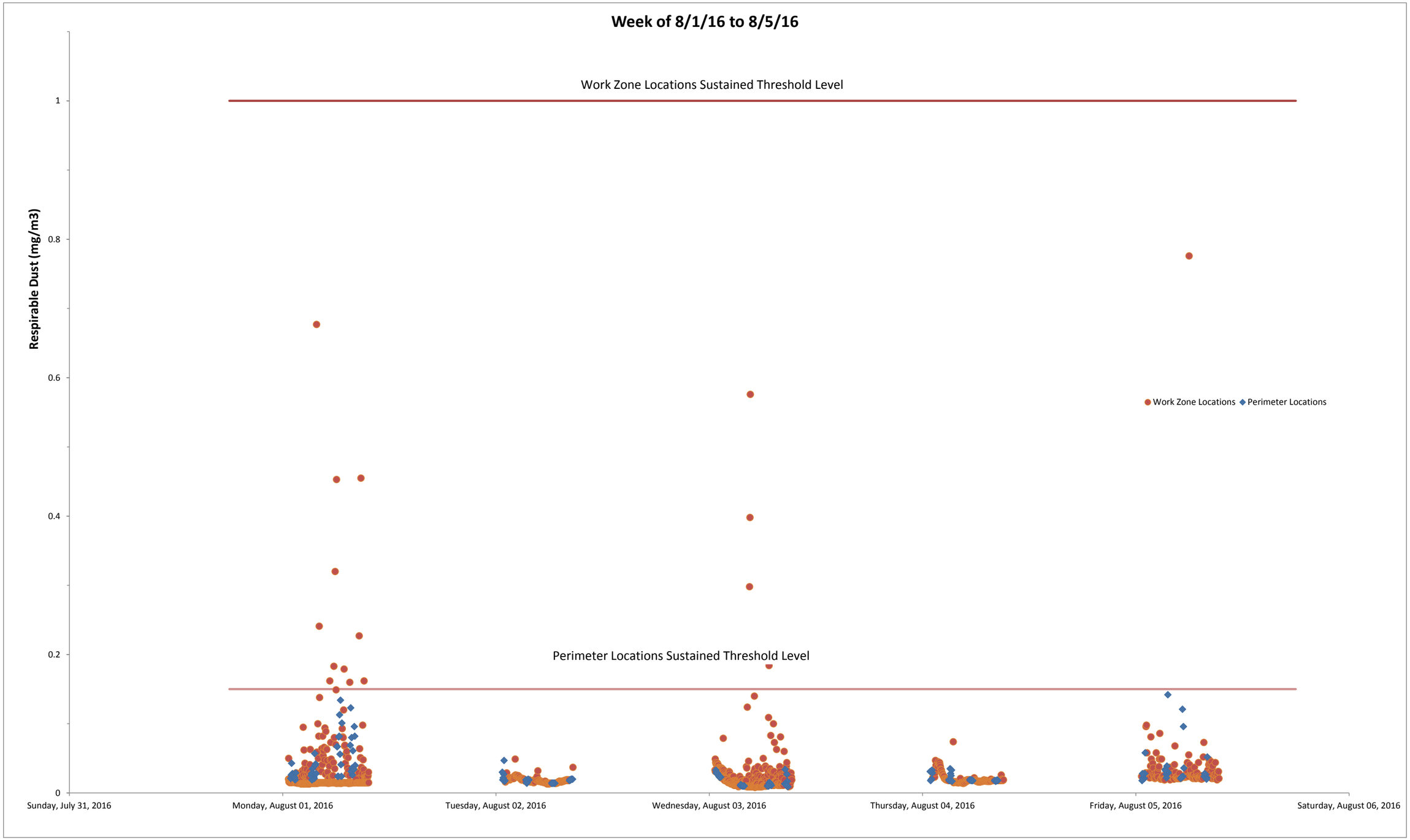
GZA File No. 05.0043654.00



Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Respirable Dust

GZA File No. 05.0043654.00



GZA File No. 05.00043654.00

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Transient Observations

Date	Time	Location	Constituent	Observed Range of Elevated Transient Readings	Observed Conditions that may be leading to elevated transient readings
There were no transient elevated readings observed.					

Transient readings were conducted over a three minute time period. A reading is sustained if it is held for over a five minute time period.

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

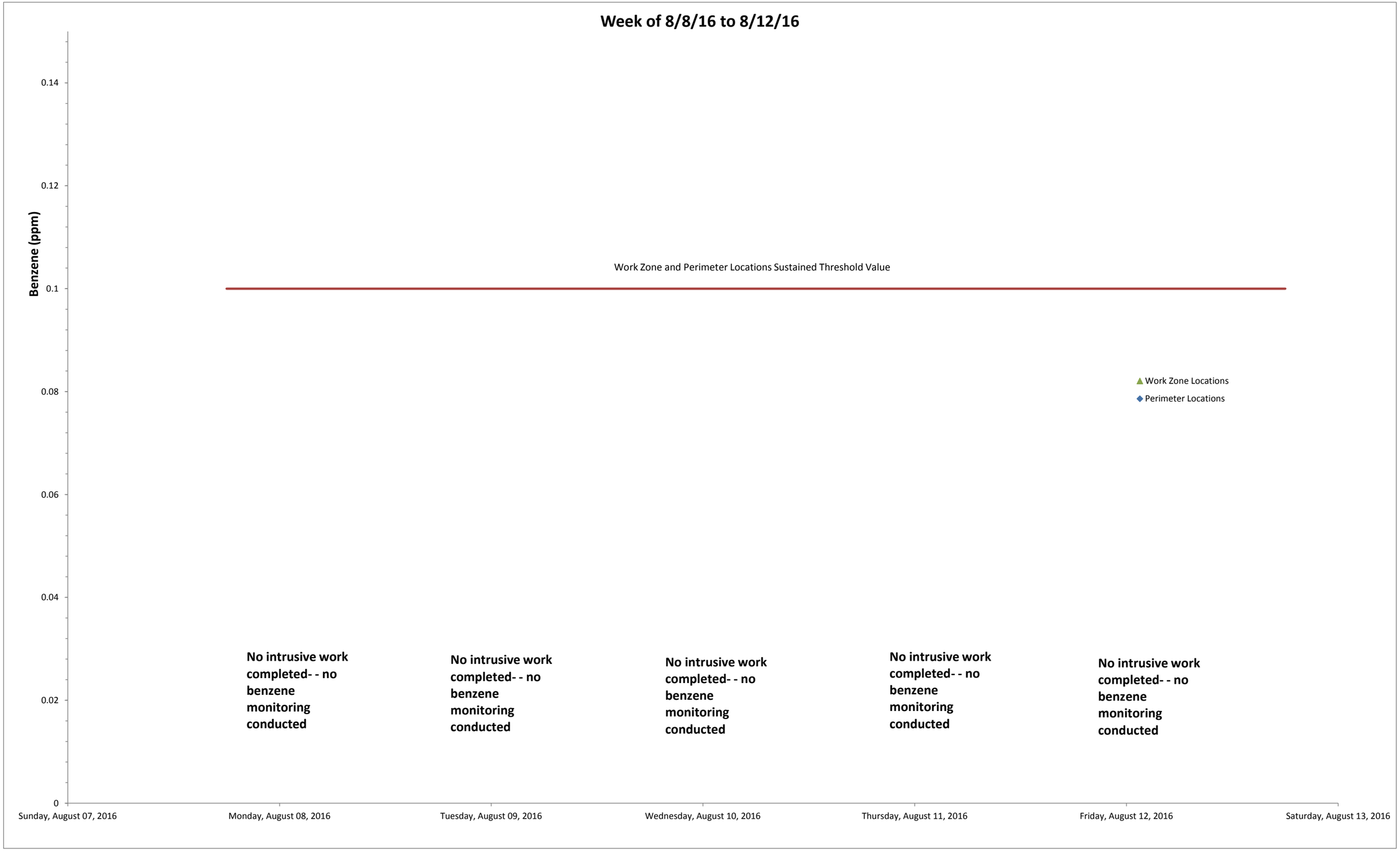
Air Quality Monitoring - TVOCs

GZA File No. 05.0043654.00

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Benzene

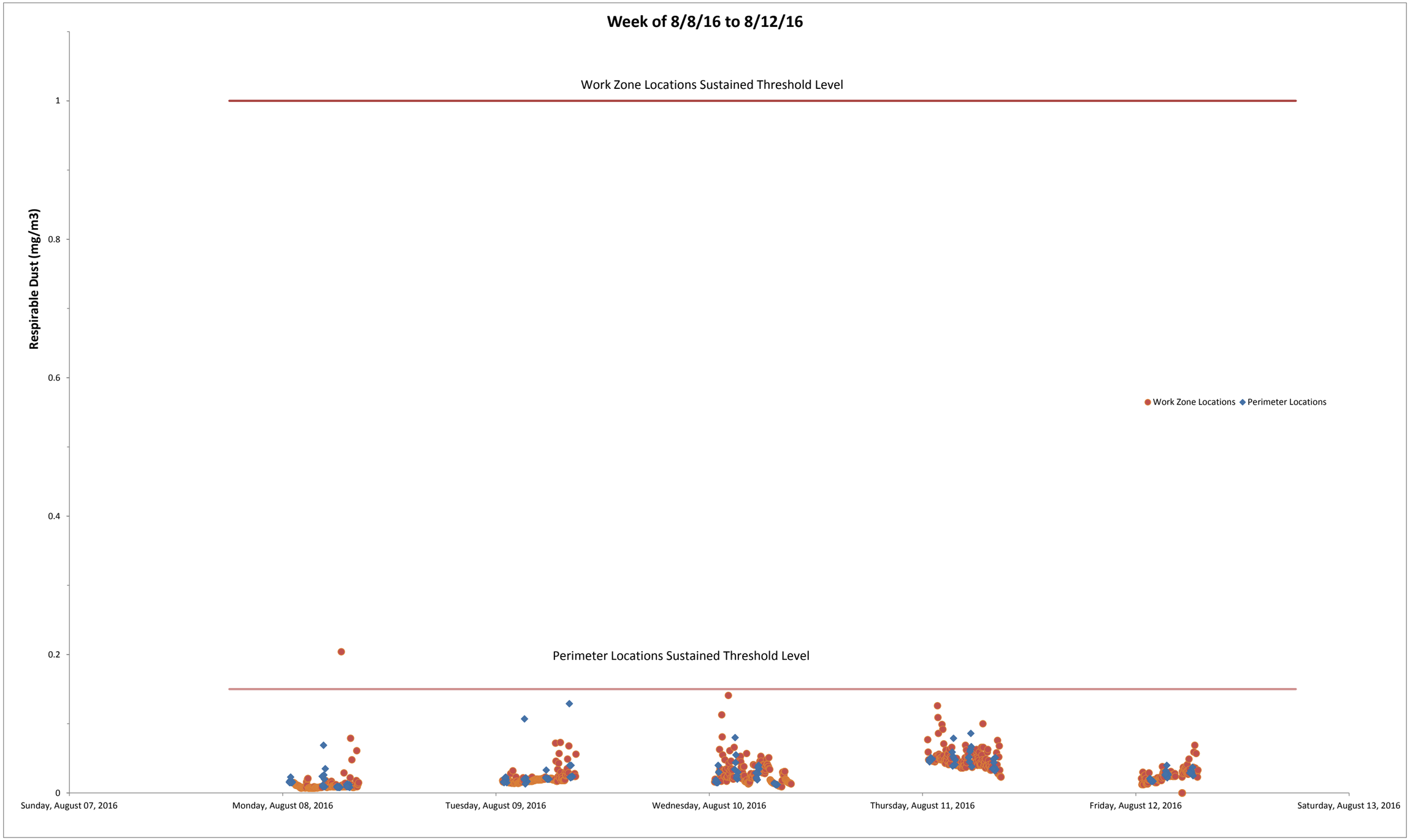
GZA File No. 05.0043654.00



Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Respirable Dust

GZA File No. 05.0043654.00



GZA File No. 05.00043654.00

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Transient Observations

Date	Time	Location	Constituent	Observed Range of Elevated Transient Readings	Observed Conditions that may be leading to elevated transient readings
There were no transient elevated readings observed.					

Transient readings were conducted over a three minute time period. A reading is sustained if it is held for over a five minute time period.

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

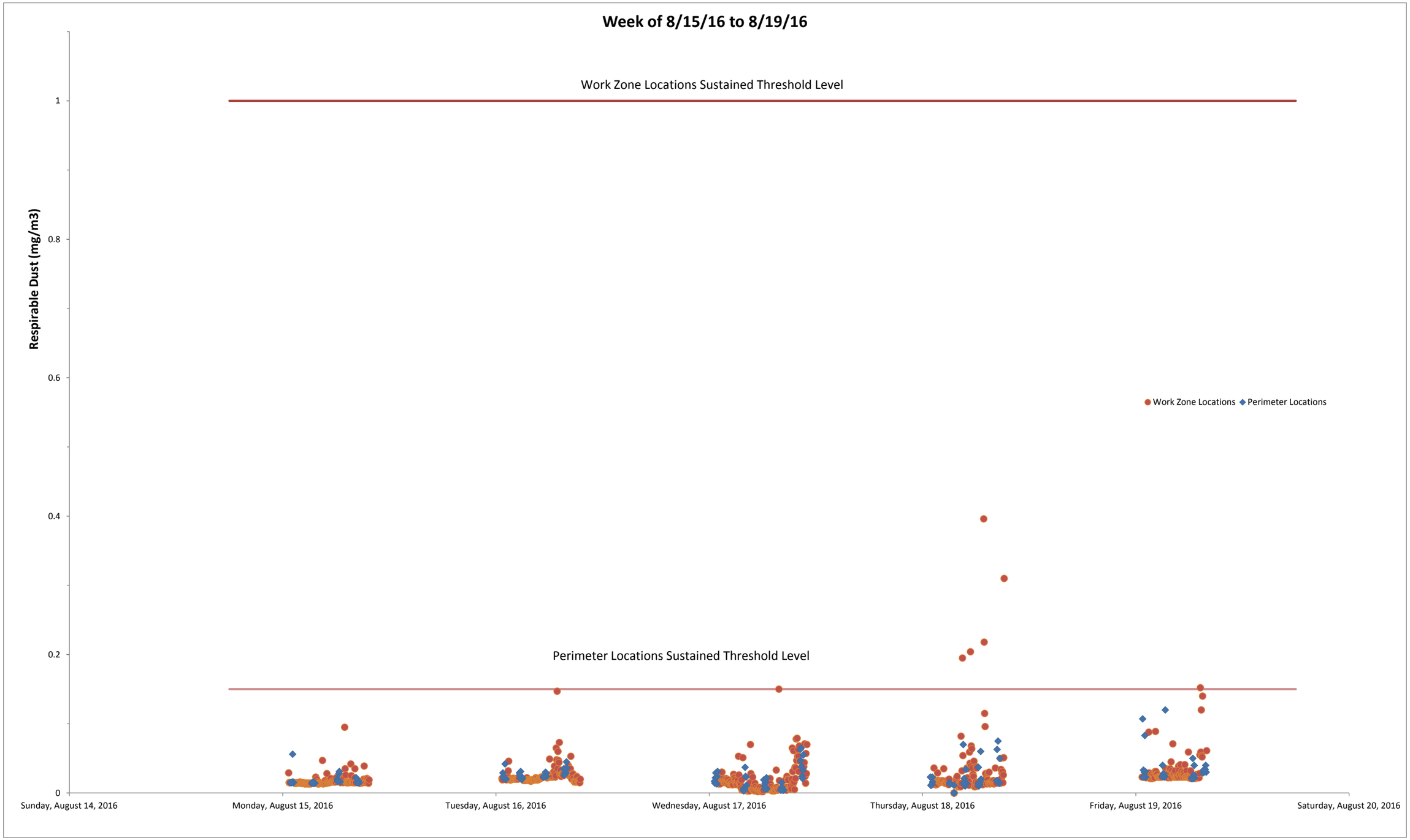
Air Quality Monitoring - TVOCs

GZA File No. 05.0043654.00

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Respirable Dust

GZA File No. 05.0043654.00



GZA File No. 05.00043654.00

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Transient Observations

Date	Time	Location	Constituent	Observed Range of Elevated Transient Readings	Observed Conditions that may be leading to elevated transient readings
There were no transient elevated readings observed.					

Transient readings were conducted over a three minute time period. A reading is sustained if it is held for over a five minute time period.

APPENDIX L

TIME INTEGRATED SAMPLING LABORATORY REPORT

AND SUMMARY TABLE

Prepared by National Grid for the Businesses and Residents Located Near the Former Tidewater Facility in Pawtucket, RI

Air Quality Monitoring - Time-Integrated Samples

		Site Specific Action Levels (24 hour average)	July 26, 2016	
			Upgradient 16G1294-06 Ambient Air	Downgradient 16G1294-05 Ambient Air
TO-15 Modified List : Volatile Organic Compounds				
Benzene	ppbv	6.2	0.15	0.29
Ethylbenzene	ppbv	230	0.09	0.16
Naphthalene	ppbv	20	0.39	0.29
Toluene	ppbv	80	0.48	0.83
m&p-Xylene	ppbv	23	0.28	0.57
o-Xylene	ppbv	23	0.11	0.21

Notes

A cell shaded in blue indicate that the detection limit exceed the Site-Specific Action Level.

A cell shaded in gray with **bold text** indicate that the concentration exceeds the Site-Specific Action Level.

The Site-Specific Action Levels (24 hour average) and their derivation are presented in the RIDEM-approved April 2011 Air Quality Monitoring Plan.

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

August 1, 2016

Margaret Kilpatrick
GZA GeoEnvironmental-RI
530 Broadway Street
Providence, RI 02909

Project Location: Tidewater - Pawtucket, RI
Client Job Number:
Project Number: 2013074_Pawtucket
Laboratory Work Order Number: 16G1294

Enclosed are results of analyses for samples received by the laboratory on July 28, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Aaron L. Benoit
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

GZA GeoEnvironmental-RI
530 Broadway Street
Providence, RI 02909
ATTN: Margaret Kilpatrick

REPORT DATE: 8/1/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 2013074_Pawtucket

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 16G1294

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Tidewater - Pawtucket, RI

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Down Gradient 72616	16G1294-05	Air		EPA TO-15	
Up Gradient 72616	16G1294-06	Air		EPA TO-15	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA TO-15

Qualifications:

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

o-Xylene

16G1294-05[Down Gradient 72616], 16G1294-06[Up Gradient 72616], B154977-BS1

Toluene

16G1294-05[Down Gradient 72616], 16G1294-06[Up Gradient 72616], B154977-BS1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY

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ANALYTICAL RESULTS

Project Location: Tidewater - Pawtucket, RI
Date Received: 7/28/2016
Field Sample #: Down Gradient 72616
Sample ID: 16G1294-05
Sample Matrix: Air
Sampled: 7/25/2016 14:15

Sample Description/Location:
Sub Description/Location:
Canister ID: 1352
Canister Size: 3 liter
Flow Controller ID: 3466
Sample Type: 8 hr

Work Order: 16G1294
Initial Vacuum(in Hg): -30
Final Vacuum(in Hg): -9
Receipt Vacuum(in Hg): -10
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Benzene	0.15	0.035		0.49	0.11	0.702	7/30/16 21:00	CMR
Ethylbenzene	0.090	0.035		0.39	0.15	0.702	7/30/16 21:00	CMR
Naphthalene	0.39	0.035		2.0	0.18	0.702	7/30/16 21:00	CMR
Toluene	0.48	0.035	V-06	1.8	0.13	0.702	7/30/16 21:00	CMR
m&p-Xylene	0.28	0.070		1.2	0.30	0.702	7/30/16 21:00	CMR
o-Xylene	0.11	0.035	V-06	0.48	0.15	0.702	7/30/16 21:00	CMR

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	109	70-130	7/30/16 21:00

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ANALYTICAL RESULTS

Project Location: Tidewater - Pawtucket, RI
Date Received: 7/28/2016
Field Sample #: Up Gradient 72616
Sample ID: 16G1294-06
Sample Matrix: Air
Sampled: 7/26/2016 15:30

Sample Description/Location:
Sub Description/Location:
Canister ID: 1374
Canister Size: 3 liter
Flow Controller ID: 3465
Sample Type: 8 hr

Work Order: 16G1294
Initial Vacuum(in Hg): -30
Final Vacuum(in Hg): -5
Receipt Vacuum(in Hg): -6.9
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

	ppbv			ug/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Benzene	0.29	0.035		0.94	0.11	0.702	7/30/16 21:55	CMR
Ethylbenzene	0.16	0.035		0.71	0.15	0.702	7/30/16 21:55	CMR
Naphthalene	0.29	0.035		1.5	0.18	0.702	7/30/16 21:55	CMR
Toluene	0.83	0.035	V-06	3.1	0.13	0.702	7/30/16 21:55	CMR
m&p-Xylene	0.57	0.070		2.5	0.30	0.702	7/30/16 21:55	CMR
o-Xylene	0.21	0.035	V-06	0.91	0.15	0.702	7/30/16 21:55	CMR

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	108	70-130	7/30/16 21:55

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Sample Extraction Data

Prep Method: TO-15 Prep-EPA TO-15

Lab Number [Field ID]	Batch	Pressure Dilution	Pre Dilution	Pre-Dil Initial mL	Pre-Dil Final mL	Default Injection mL	Actual Injection mL	Date
16G1294-05 [Down Gradient 72616]	B154977	1.5	1	N/A	1000	400	855	07/30/16
16G1294-06 [Up Gradient 72616]	B154977	1.5	1	N/A	1000	400	855	07/30/16

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B154977 - TO-15 Prep											
Blank (B154977-BLK1)					Prepared & Analyzed: 07/30/16						
Benzene	ND	0.034									
Ethylbenzene	ND	0.034									
Naphthalene	ND	0.034									
Toluene	ND	0.034									
m&p-Xylene	ND	0.068									
o-Xylene	ND	0.034									
Surrogate: 4-Bromofluorobenzene (1)	*8.36*				*8.00*		*104*	*70-130*			
LCS (B154977-BS1)					Prepared & Analyzed: 07/30/16						
Benzene	5.23				5.00		105	70-130			
Ethylbenzene	5.86				5.00		117	70-130			
Naphthalene	5.24				5.00		105	70-130			
Toluene	6.10				5.00		122	70-130			V-06
m&p-Xylene	12.4				10.0		124	70-130			
o-Xylene	6.17				5.00		123	70-130			V-06
Surrogate: 4-Bromofluorobenzene (1)	*8.49*				*8.00*		*106*	*70-130*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA TO-15 in Air	
Benzene	AIHA,FL,NJ,NY,VA,ME
Ethylbenzene	AIHA,FL,NJ,NY,VA,ME
Naphthalene	NY,ME
Toluene	AIHA,FL,NJ,NY,VA,ME
m&p-Xylene	AIHA,FL,NJ,NY,VA,ME
o-Xylene	AIHA,FL,NJ,NY,VA,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2016

con-test ANALYTICAL LABORATORY

1661294

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

Doc #378 Rev 0 5/8/15

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	GZA
Address:	530 BROADWAY, PROVIDENCE, RI
Phone:	401-421-4140
Project Name:	TIDEWATER
Project Location:	PAWTUCKET, RHODE ISLAND
Project Number:	43654
Project Manager:	SOPHIA NARKIEWICZ - GZA
Con-Test Bid:	— AARON BENOIT - CONTEST
Invoice Recipient:	SOPHIA NARKIEWICZ
Sampled By:	SOPHIA NARKIEWICZ

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Other:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☒ 4-Day ☐

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
Enhanced Data Package Required: ☐
Email To: SophiaNarkiewicz@gza.com
Fax To #:

ANALYSIS REQUESTED

Lab Use	Client Use	Collection Data		Duration	Flow Rate	Matrix	Volume	TO-15 Modified List	NO ANALYSIS - Archive ONLY			" Hg			Please fill out completely, sign, date and retain the yellow copy for your records	
Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Total Minutes Sampled	☐ m³/min ☐ L/min	Code	☒ Liters ☐ m³					Initial Pressure	Final Pressure	Lab Receipt Pressure	Summa Can ID	Flow Controller ID
01	7-22-16 UPGRADIENT	7/22/16 7:35	7/22/16 13:23		—	AMB	6 3		X			-29	-15	-14.4	2046	3541
02	7-22-16 DOWNGRADIENT	7/22/16 7:55	7/22/16 13:23		—				X			-30	-14	-13.8	1364	3540
03	SUMMA UPGRADIENT 72516	7/25/16 0815	7/25/16 1512		—				X			-30	-15	-11.1	2051	3677
04	DOWNGRADIENT 72516	7/25/16 745	7/25/16 1512		—				X			-30	-8	-9.5	2087	3696
05	DOWNGRADIENT 72616	7/26/16 7:40	7/25/16 14:15		—			X	X			-30	-9	-10	1352	3466
06	UPGRADIENT 72616	7/26/16 7:50	7/26/16 15:30		—			X				-30	-5	-6.9	1374	3465
07	DOWNGRADIENT	7/27/16 8:25	7/27/16 15:00		—				X			-30	-2	-4.6	2047	3530
08	UPGRADIENT-72716	7/27/16 7:30	7/27/16 15:60		—				X			-30	-15	-14.2	2082	3531

Comments:
Modified, Site-Specific TO-15 LIST

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Codes:
SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other_____

Relinquished by: (signature)	Date/Time: 7/28/16 11:30
Received by: (signature)	Date/Time: 7/28/16 11:45
Relinquished by: (signature)	Date/Time: 7/28/16 16:30
Received by: (signature)	Date/Time: 7.28.16 16:30
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☐ MA MCP Required
☐ CT RCP Required
☐ Enhanced Data Package Required

NELAC and AIHA-LAP, LLC Accredited

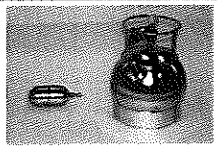
TURNAROUND TIME (BUSINESS DAYS) STARTS AT 9:00 AM THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON THIS CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME CANNOT START UNTIL ALL QUESTIONS HAVE BEEN ANSWERED.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

Please fill out completely, sign, date and retain the yellow copy for your records

Summa canisters and flow controllers must be returned within 15 days of receipt or rental fees will apply

For summa canister and flow controller information please refer to Con-Test's Air Media Agreement



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con-test® ANALYTICAL LABORATORY

AIR Only Receipt Checklist

39 Spruce St.
East Longmeadow, MA.
01028
P: 413-525-2332
F: 413-525-6405

CLIENT NAME GZA RECEIVED BY: PB DATE: 7·28·16

1) Was the chain(s) of custody relinquished and signed? Yes ✓ No ____

2) Does the chain agree with the samples? Yes ✓ No ____
If not, explain:

3) Are all the samples in good condition? Yes ✓ No ____
If not, explain:

4) Are there any samples "On Hold"? Yes ____ No ✓ Stored where: ____

5) Are there any RUSH or SHORT HOLDING TIME samples? Yes ✓ No ____
Who was notified Tom Date 7·28·16 Time 6 PM
TEXT

6) Location where samples are stored: Air Lab

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: ____

7) Number of cans Individually Certified or Batch Certified? ____

Containers received at Con-Test

		# of Containers	Types (Size, Duration)
Summa Cans (TO-14/TO-15/APH)		8	3 Lit
Tedlar Bags			
TO-17 Tubes		8	8 hr
Regulators			
Restrictors			
Hg/Hopcalite Tube (NIOSH 6009)			
(TO-4A/ TO-10A/TO-13) PUFs			
PCB Florisil Tubes (NIOSH 5503)			
Air cassette			
PM 2.5/PM 10			
TO-11A Cartridges			
Other			

Unused Summas/PUF Media:

Unused Regulators:

1) Was all media (used & unused) checked into the WASP?

2) Were all returned summa cans, Restrictors & Regulators and PUF's documented as returned in the Air Lab Inbound/Outbound Excel Spreadsheet?

Laboratory Comments:																			
						2047	2057		3530	3676									
						1374	2051		3531	3677									
						2082	2046		3465	3540									
						1352	1364		3466	3541									

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False) T/F/NA	Comment
1) The coolers'/boxes' custody seal, if present, is intact.	NA	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	NA	
4) Cooler Temperature is acceptable.	NA	
5) Cooler Temperature is recorded.	NA	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) Samples are received within Holding Time.	T	
10) Sample containers have legible labels.	T	
11) Containers/media are not broken or leaking and valves and caps are closed tightly.	T	
12) Sample collection date/times are provided.	T	
13) Appropriate sample/media containers are used.	T	
14) There is sufficient volume for all requsted analyses, including any requested MS/MSDs.	T	
15) Trip blanks provided if applicable.	NA	

Who notified of False statements? **Date/Time:**

Log-In Technician Initials: PB **Date/Time:** 7.28.16 16:35

GZA GeoEnvironmental, Inc.