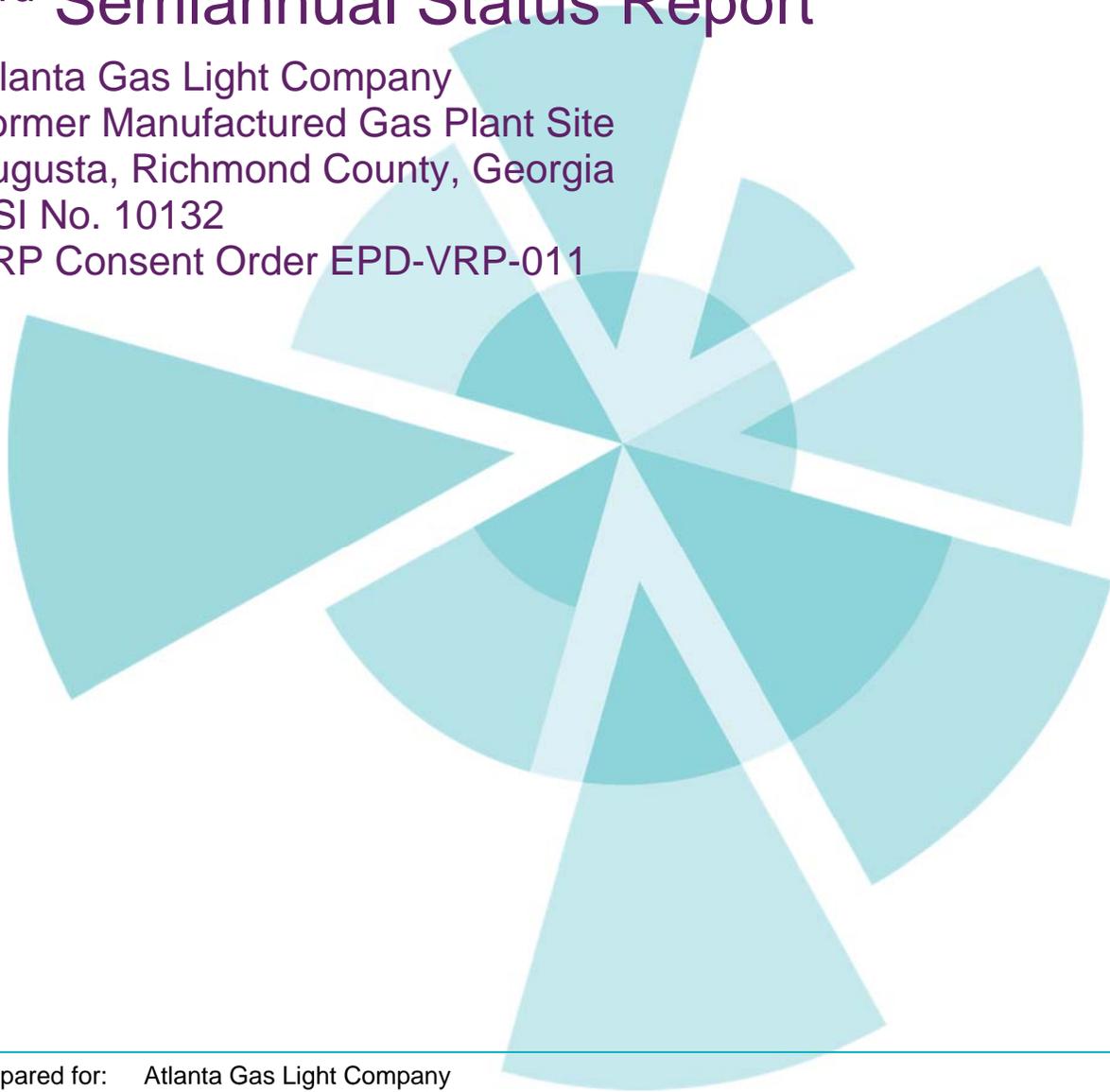




# Voluntary Remediation Program

## 3<sup>rd</sup> Semiannual Status Report

Atlanta Gas Light Company  
Former Manufactured Gas Plant Site  
Augusta, Richmond County, Georgia  
HSI No. 10132  
VRP Consent Order EPD-VRP-011



---

Prepared for: Atlanta Gas Light Company  
Ten Peachtree PI NE, 17<sup>th</sup> Floor, Atlanta, Georgia 30309

Date: June 1, 2016

Prepared by: Amec Foster Wheeler Environment & Infrastructure, Inc.  
1075 Big Shanty Road NW, Suite 100, Kennesaw, Georgia 30144

Project No.: 6122140098

---

June 1, 2016



Mr. Kevin Collins  
Geologist, Response and Remediation Program  
Georgia Department of Natural Resources  
Environmental Protection Division  
2 Martin Luther King, Jr. Dr., SE, Suite 1054  
Atlanta, Georgia 30334-9000

**Subject: AGLC-Augusta MGP Site  
3<sup>rd</sup> Semiannual VRP Status Report  
Amec Foster Wheeler Project No.: 6122140098**

Dear Mr. Collins:

Amec Foster Wheeler Environment & Infrastructure, Inc. is pleased to submit the Third Semiannual Voluntary Remediation Program (VRP) Status Report, on behalf of Atlanta Gas Light Company (AGLC), to the Georgia Environmental Protection Division, as required under the VRP for the Former Manufactured Gas Plant (MGP) located in Augusta, GA (HSI #10132).

Please call us at (770) 421-3400 with any questions concerning this report.

Sincerely,

**Amec Foster Wheeler Environment & Infrastructure, Inc.**

A handwritten signature in blue ink that reads "DDP".

David D. Price, P.G.  
Project Manager

A handwritten signature in blue ink that reads "Gregory J. Wrenn".

Gregory J. Wrenn, P.E.  
Associate Engineer

cc: Mr. Greg Corbett, PE, AGLC  
Mr. Derrick Williams, GAEPD

Attachments: Third Semiannual VRP Status Report

**Correspondence:**  
Amec Foster Wheeler Environment & Infrastructure, Inc.  
1075 Big Shanty Road NW  
Suite 100  
Kennesaw, Georgia 30144  
770-421-3400  
amecfw.com

## TABLE OF CONTENTS

<b>1.0</b>	<b>PROJECT SUMMARY</b> .....	<b>1-1</b>
<b>2.0</b>	<b>SITE ACTIVITIES</b> .....	<b>2-1</b>
2.1	REMEDIAL DESIGN .....	2-1
2.2	808 EIGHTH STREET DEMOLITION .....	2-1
2.3	ADDITIONAL INVESTIGATION .....	2-1
2.4	DELINEATION OF RESIDUAL BPLM IMPACTS.....	2-3
<b>3.0</b>	<b>VAPOR INTRUSION</b> .....	<b>3-1</b>
<b>4.0</b>	<b>ADDITIONAL QUALIFYING PROPERTIES</b> .....	<b>4-1</b>
<b>5.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>5-1</b>
<b>6.0</b>	<b>NEXT SUBMITTAL</b> .....	<b>6-1</b>
<b>7.0</b>	<b>REFERENCES</b> .....	<b>7-1</b>

## **LIST OF TABLES**

Table 2-1	Monitoring Well Status
Table 2-2	TCE in Groundwater
Table 2-3	MW-502D and MW-603 Sampling Data

## **LIST OF FIGURES**

Figure 1-1	Site Location Map
Figure 1-2	Parcel Block Map – City of Augusta
Figure 2-1	Monitoring Well Locations
Figure 2-2	Galliard Groundwater Approximate Extent of Dissolved Phase Impacts January 2016
Figure 2-3	Bedrock Groundwater Approximate Extent of Dissolved Phase Impacts January 2016
Figure 2-4	Well Locations to be Monitored During ISS Implementation
Figure 3-1	Qualifying Properties

## **LIST OF APPENDICES**

Appendix A	January 2016 CAER (submitted as a separate volume)
Appendix B	Response to EPD's March 28, 2016 Comment Letter
Appendix C	Demolition Documentation
Appendix D	Additional Investigation Documentation
Appendix E	Revised Vapor Intrusion Assessment
Appendix F	Registered Professional Supporting Documentation

## LIST OF ACRONYMS AND ABBREVIATIONS

<b>Acronym</b>	<b>Definition</b>
AGLC	Atlanta Gas Light Company
BPLM	By-Product-Like Material
DNAPL	Dense Non-Aqueous Phase Liquid
DPT	Direct Push Technology
EPD	Georgia Environmental Protection Division
ft	Feet
ISS	In-Situ Solidification
MGP	Manufactured Gas Plant
VIRP	Voluntary Investigation and Remediation Plan
VRP	Georgia Voluntary Remediation Program

## GROUNDWATER SCIENTIST CERTIFICATION

I certify that I am a qualified groundwater scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enables me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by me or by a subordinate working under my direction. Data contained herein gathered and reported by professionals other than Amec Foster Wheeler Environment & Infrastructure, Inc. are accepted as accurate and have been integrated into this report as such.



Greg Wrenn, P.E. (Georgia P.E. No. 25565)  
Associate Engineer  
Amec Foster Wheeler Environment & Infrastructure, Inc.

June 1, 2016  
Date

Registered P.E.'s Mailing Address:  
Amec Foster Wheeler Environment & Infrastructure, Inc.  
1075 Big Shanty Road NW, Suite 100  
Kennesaw, Georgia 30144

Registered P.E.'s Stamp:



## 1.0 PROJECT SUMMARY

The former Augusta Manufactured Gas Plant (MGP) is located at the intersection of Walton Way and 8th Street in the City of Augusta, County of Richmond, Georgia (Figure 1-1). Atlanta Gas Light Company (AGLC) owns three parcels of land on which a MGP and ancillary facilities operated, which collectively occupy approximately 3.5 acres (Figure 1-2). These properties as well as those surrounding properties potentially impacted by the former MGP operations are collectively referred to as the “Augusta MGP Site” or the “Site” in this Status Report.

AGLC has performed a series of investigations and implemented numerous Georgia Environmental Protection Division (EPD) approved corrective actions and has addressed the MGP impacts in the unsaturated and saturated zone materials over large areas of the Site since the mid-1980s. After further evaluation and coordination, AGLC and EPD agreed that the Augusta MGP Site was a candidate for enrollment in the Georgia Voluntary Remediation Program (VRP).

EPD agreed to move the Augusta MGP Site into the VRP upon execution of a new Consent Order and submittal of an acceptable Voluntary Investigation and Remediation Plan (VIRP) by August 28, 2014. The Consent Order was signed by AGLC and then executed by EPD on September 23, 2014. AGLC submitted an initial VIRP Application Form and Checklist with associated VRP application fee on August 6, 2014. The VIRP was subsequently submitted on August 28, 2014. EPD approved the VIRP and accepted AGLC into the VRP and provided comments on the VIRP in two separate letters, both dated December 3, 2014.

The December 3, 2014 EPD acceptance letter established the schedule for submittal of progress reports to EPD on December 1<sup>st</sup> and June 1<sup>st</sup> of each year. EPD issued comments on VRP Status Reports No. 1 and 2 in correspondence dated March 28, 2016. The goals of this Status Report are to comply with the June 1, 2016 progress report submittal schedule, update EPD on the progress of activities at the Site since submittal of the 2<sup>nd</sup> Semiannual Status Report, and respond to comments provided by EPD in the December 3, 2014 and March 28, 2016 comment letters.

## **2.0 SITE ACTIVITIES**

Site activities completed during this reporting period are summarized in the following sections. Progress during this reporting period has been primarily focused on preparation of the 60 percent design for planned remedial activities. Additional activities have been completed during this reporting period to support progression of the Site through the VRP and to address EPD's comments from the December 3, 2014 letter, including delineation and initiation of the additional investigation outlined in the 1<sup>st</sup> Semiannual VRP Status Report. In addition, semiannual groundwater data was collected from existing wells, and the results of this sampling, as well as observations from the Continuing Action Monitoring Plan inspection, have been documented in a corrective action effectiveness report included as Appendix A. In correspondence dated March 28, 2016, EPD provided comments to the 1<sup>st</sup> and 2<sup>nd</sup> Semiannual VRP Status Reports. A response to the March 28, 2016 EPD comment letter is provided as Appendix B.

### **2.1 REMEDIAL DESIGN**

The 60 percent remedial design has been finalized to support implementation of the site-wide in-situ solidification (ISS) remedy for the saturated zone source impacts. As reported in the previous semiannual report submittals, AGLC considered alternative remediation technologies for Block E (Subarea 2) with the former church building remaining in place due to inquiries by stakeholders regarding the structure. Following an evaluation of the various remediation alternatives for Block E, AGLC determined that ISS is the remediation alternative that most closely aligns with the applicable regulatory requirements and AGLC's objectives to address source impacts in Block E. We anticipate that the 60 percent remedial design will be sent out for bid to pre-qualified remediation contractors in the third quarter of 2016 with anticipated initiation of implementation of the ISS remedy in the fourth quarter 2016.

### **2.2 808 EIGHTH STREET DEMOLITION**

AECOM, on behalf of AGLC, prepared the Hazardous Materials Survey for 808 Eighth Street in January 2014. No asbestos was identified, but Atlanta Demolition filed the Asbestos Abatement or Demolition Project Notification Form provided by the EPD. All necessary permits were obtained.

Access agreement issues delayed the demolition services at 808 Eighth Street originally scheduled for July 2014. Demolition of the exterior structure, interior partitions, remaining mechanical and electrical facilities, and concrete footers took place by Atlanta Demolition on December 15 and 16, 2015. After the field activities concluded, the wastes were safely and properly removed and disposed of. Grass seed and straw were then applied to the site to promote vegetative growth.

Permits, waste disposal documentation, pictures, and other demolition documentation can be found in Appendix C.

### **2.3 ADDITIONAL INVESTIGATION**

#### **2.3.1 Groundwater Monitoring**

Groundwater monitoring at the Site was performed in January 2016. The January 2016 Semiannual Corrective Action Effectiveness Report is included as Appendix A. Figure 2-1

presents the current monitoring well network at the Site. Approximate extents of dissolved phase impacts in the Galliard and Bedrock formations for January 2016 sampling are presented in Figures 2-2 and 2-3, respectively. Concentrations observed in monitoring wells and the extent of dissolved phase impacts are generally similar to previous sampling events.

Groundwater monitoring will continue semiannually consistent with the current program until ISS is initiated, which is tentatively planned for the fourth quarter of 2016. Wells located within the ISS footprint will be abandoned to accommodate remediation activities. Wells identified for abandonment prior to remediation are identified in Table 2-1 and Figure 2-4. As discussed in a March 24, 2016 meeting between AGLC, their consultants, and EPD, MW-603 has been added to the list of wells to be abandoned for the reasons described in Section 2.3.2, below. A replacement well for MW-603 will be installed and screened in the Galliard formation along with a saprolite monitoring well in the vicinity of MW-603. The wells planned for abandonment may be revised based upon the results of the forthcoming 100 percent design.

A modified program with a subset of existing monitoring wells will be sampled during ISS implementation to continue to evaluate groundwater quality. The wells planned for monitoring during ISS implementation are presented on Table 2-1 and Figure 2-5. After implementation of ISS is completed, localized groundwater flow above the saprolite will be altered by the solidified ISS mass. Additionally, permeability and leaching potential will be greatly reduced within the ISS mass footprint. For these reasons, locations of potential new/replacement wells will be identified after completion of ISS activities and after an evaluation of post ISS groundwater data from the retained wells has been completed.

### **2.3.2 Additional Monitoring Wells**

As discussed in the 2<sup>nd</sup> semiannual status report, Galliard monitoring wells MW-604 through MW-606 were installed upgradient of MW-401D to better understand trichloroethylene (TCE) detections observed in MW-401D on the Western Parcel. They were sampled for TCE on November 5, 2015, and all results were non-detect (Table 2-2). Galliard monitoring well MW-607 was installed north of the Fenwick Street and 9<sup>th</sup> Street intersection for delineation of Site constituents of interest north of MW-603. Well construction diagrams, field notes, and disposal logs for these additional wells can be found in Appendix D.

An additional bedrock well is planned for installation northwest of MW-318 for horizontal delineation purposes. AGLC originally planned to install this monitoring well within the city of Augusta's right-of-way on the north side of Telfair Street east of the Telfair Street and 9<sup>th</sup> Street intersection. The presence of utilities prohibited installation of the monitoring well at this location so an alternate location north of Telfair Street west of the Telfair Street and 9<sup>th</sup> Street intersection was selected. Again, the presence of numerous utilities prohibited installation of the well at the alternate location. Per discussions in the March 24, 2016 EPD meeting, additional groundwater characterization associated with impacts at MW-318 will be deferred until after the ISS corrective action is completed.

MW-502D was installed in 2007 and monitoring well MW-603 was installed in 2010 to monitor impacts downgradient of the Georgia Power electrical vault in Block A. Dense non-aqueous

phase liquid (DNAPL) has been observed at the bottom of each well, and EPD has requested corrective measures to address the DNAPL.

The occurrence of DNAPL in MW-502D has not been continuous since it was first observed during the July 2013 sampling event. An interface probe indicated 0.9 feet (ft) of DNAPL was observed in well MW-502D on October 16, 2015. On December 16, 2015, 0.1 gallon of DNAPL was removed from MW-502D utilizing a vacuum truck, and a sample was collected from the well (see results in Table 2-3). On January 2016, DNAPL was observed on the interface probe in MW-502D, but the thickness was not measurable. The footprint of the planned ISS remediation encompasses MW-502D, thus DNAPL in this area will be addressed via ISS.

A peristaltic pump was utilized in October 2015 to remove DNAPL and collect a groundwater sample from MW-603. Due to the heavy, viscous nature of the DNAPL, removal of the DNAPL using a peristaltic pump was not possible. However, a sample of the DNAPL in MW-603 was collected, and results can be found in Table 2-3. A vacuum truck was subsequently utilized to remove DNAPL from MW-603 on December 14, 2015. Approximately 4 gallons of DNAPL were reportedly recovered. In January 2016, 0.2 ft of DNAPL was measured in well MW-603. Amec Foster Wheeler submitted a scope of work to AGL on February 24, 2016 to abandon MW-603. Additionally, direct push technology (DPT) borings will be performed in the area to further delineate the by-product-like material (BPLM). A replacement well for MW-603 will be installed in the Galliard, and a vertical delineation well will be installed in the saprolite, both in the vicinity of MW-603.

In previous sampling events, MW-205 (January and July 2015) and MW-600 (July 2015) also had observations of DNAPL (as detected by interface probe). An interface probe was deployed on October 16, 2015 and no DNAPL was observed in either well. These wells were sampled during the January 2016 sampling event, but are both planned for abandonment to accommodate remediation as shown on Figure 2-4.

## **2.4 DELINEATION OF RESIDUAL BPLM IMPACTS**

Additional investigation is being conducted to better refine the horizontal limits of ISS remediation on the Western Parcel, parcels north of Walton Way on Block A, and Block E. Additionally, investigation of potential residual BPLM northwest of the former carwash (Block A) in the vicinity of MW-502D and MW-603 is also being conducted.

The investigative activities for delineation of residual BPLM impacts included DPT borings for additional characterization and delineation on the Western Parcel, parcels north of Walton Way on Block A, and Block E. These activities, as outlined in the previous status reports, were initiated on October 5, 2015 and field work was completed on November 5, 2015. DNAPL has been observed in MW-502D and MW-603 in recent sampling events. Additional investigation has been conducted in the vicinity of MW-502D and MW-603 to better understand DNAPL occurrence. Investigative activities included DPT borings for additional visual characterization of BPLM and delineation in this area. Access is currently being coordinated with the City of Augusta to conduct additional investigation in the vicinity of monitoring well MW-603.

The DPT borings were extended through the Alluvial and Gaillard formations to the top of Saprolite. Soil cores were collected by advancing a five-foot polyethylene lined tube and cores continuously collected from ground surface to the top of Saprolite (approximately 30-ft below ground surface). Upon extraction from the sampler, each soil core was examined for the presence of visual staining and scanned with a photoionization detector PID. Soil cores were logged by a qualified professional in accordance with the Site Specific MGP soil logging protocol (RETEC 2003). Logs and field notes and figures showing DPT locations can be found in Appendix D.

### **3.0 VAPOR INTRUSION**

With groundwater use restrictions in place, vapor intrusion from groundwater to indoor air will be the driving exposure pathway for potential residual impacts in the upper aquifer post ISS. To support addressing this exposure pathway, the potential for volatile compounds in groundwater to migrate into the indoor air of future potential overlying residential buildings was evaluated for the 1<sup>st</sup> Semiannual Report. In response to comments 10 and 11 from the March 28, 2016 VRP Status Report 1 & 2 comment letter from the EPD, the vapor intrusion assessment was redone. The Revised Vapor Intrusion Assessment can be found in Appendix E.

#### **4.0 ADDITIONAL QUALIFYING PROPERTIES**

The properties previously qualifying for the VRP include parcels 108, 109, 185, 186, 187, 188, 189, 225, 227, 228, 230, 231, 248, 327.2, 327.1, 328, 329, 330, and 374.1 owned by AGLC, and Walton Way and 8<sup>th</sup> Street as shown on Figure 3-1.

All of these properties are either listed on the Georgia Hazardous Site Inventory or otherwise have a release of regulated substances into the environment. None of these properties are listed on the federal National Priorities List, are undergoing response activities required by an United States Environmental Protection Agency order, or are a facility required to have a permit under O.C.G.A 12-8-66. AGLC is the owner of these properties or has express permission of the owner to enroll the qualifying properties in the VRP. There are no new properties qualifying for the VRP in this submittal. However, there are three properties (Parcels 229, 236, and 237) located on Block E in which AGLC is currently working with the property owner to qualify these properties. AGLC is also working with the owners of the gas station to qualify parcel 374.2. Parcel 162 will be addressed after completion of the additional investigation in this area.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the recent Site assessments and activities, we offer the following conclusions and recommendations:

- Groundwater will continue to be sampled semiannually consistent with the current program until construction is initiated, at which time some wells will require abandonment. A modified program with a subset of existing wells will be sampled during ISS implementation to continue to evaluate groundwater quality.
- Locations of potential new/replacement wells will be identified after completion of construction activities and after an evaluation of post ISS groundwater data from the subset of retained wells has been completed.
- Based on the vapor intrusion risk characterization, it is recommended, on a case-specific basis, that vapor mitigation be incorporated into the design for future buildings if located within the impacted groundwater area where groundwater concentrations remain greater than the groundwater remediation goals protective of indoor air exposures.

## 6.0 NEXT SUBMITTAL

As required by EPD, semiannual progress reports must be submitted to EPD every June 1<sup>st</sup> and December 1<sup>st</sup> beginning in 2015 and ending in 2020, unless a compliance status report is submitted and approved prior to 2020. A report for the 4th semiannual period will be submitted by December 1, 2016 and is planned to include the following activities:

- Semiannual groundwater monitoring reporting
- Results from completed additional investigation activities
- Summary of corrective action

## 7.0 REFERENCES

AMEC, 2014. *Voluntary Investigation and Remediation Plan, Atlanta Gas Light Company, Augusta, Georgia*. Prepared by AMEC Environment & Infrastructure, Inc., August 2014.

Amec Foster Wheeler, 2015a. *Voluntary Remediation Program 1<sup>st</sup> Semiannual Status Report, Atlanta Gas Light Company, Former Manufactured Gas Plant Site, Augusta, Georgia*. Prepared by Amec Foster Wheeler Environment & Infrastructure, Inc., May 2015.

Amec Foster Wheeler, 2015b. *Voluntary Remediation Program 2<sup>nd</sup> Semiannual Status Report, Atlanta Gas Light Company, Former Manufactured Gas Plant Site, Augusta, Georgia*. Prepared by Amec Foster Wheeler Environment & Infrastructure, Inc., December 2015.

RETEC, 2003. *Remedial Investigation – Sitewide (Augusta MGP Site, Third Level Canal and Off-Site Properties), Former Manufactured Gas Plant Site, Augusta, Georgia*. Prepared by RETEC Group Inc., April 11, 2003.

## TABLES

**Table 2-1  
Monitoring Well Status  
Atlanta Gas Light Company  
Former Manufactured Gas Plant  
Augusta, Georgia**

Well	Type	Planned for Abandonment	Monitored/Gauged During ISS Implementation
<b>Alluvium Wells</b>			
MW-05	II		Gauge
MW-17	II		Gauge
MW-306S	DDSP		Gauge
MW-401S	II	X	
MW-402S	II		Gauge
MW-408S	II		Gauge
MW-501S	II		Gauge
<b>Galliard Wells</b>			
MW-12	II		Gauge
MW-19	II		Gauge
MW-21	II		Gauge
MW-22	II		Gauge
MW-24	II		Gauge
MW-25	II		Gauge
MW-202DR	II	X	
MW-203	II		Gauge
MW-205	II	X	
MW-206	II		Gauge
MW-207	II		Gauge
MW-211	II	X	
MW-303	II		Gauge
MW-304	II		Gauge
MW-306D	DDSP		Gauge
MW-307D	DDSP		Abandoned
MW-309D	DDSP		Gauge
MW-310D	DDSP		Gauge
MW-401D	II	X	
MW-402D	II		Gauge
MW-404DR	II		Gauge
MW-408DR	II		Gauge
MW-502D	II	X	
MW-505D	II		Gauge
MW-600	II	X	
MW-601	II	X	
MW-602	II		Gauge
MW-603	II	X	
MW-604	II		Gauge
MW-605	II		Gauge
MW-606	II		Gauge
MW-607	II		Gauge

**Table 2-1  
Monitoring Well Status  
Atlanta Gas Light Company  
Former Manufactured Gas Plant  
Augusta, Georgia**

Well	Type	Planned for Abandonment	Monitored/Gauged During ISS Implementation
<b>Saprolite Wells</b>			
MW-214	II		Gauge
MW-306SAP	DDSP		Gauge
<b>MW-307SAP</b>	<b>DDSP</b>		<b>Abandoned</b>
MW-309SAP	DDSP		Gauge
MW-310SAP	DDSP		Gauge
MW-311	II		Gauge
MW-317	II		Gauge
MW-401SAP	II	X	
<b>Bedrock and Transition Zone Wells</b>			
MW-213	III	X	
MW-306BR	III		Sample
MW-306TZ	DDSP		Gauge
<b>MW-307BR</b>	<b>III</b>		<b>Abandoned</b>
<b>MW-307TZ</b>	<b>DDSP</b>		<b>Abandoned</b>
MW-308BR	III	X	
MW-309BR	III		Sample
MW-309TZ	DDSP		Gauge
MW-310BR	III		Sample
MW-310TZ	DDSP		Gauge
MW-313	III		Sample
MW-315	III		Sample
<b>MW-316</b>	<b>III</b>		<b>Abandoned</b>
MW-318	III		Sample
MW-319	III		Sample
MW-320	III		Sample
<b>MW-321</b>	<b>III</b>		<b>Abandoned</b>
<b>MW-322</b>	<b>III</b>		<b>Abandoned</b>
<b>MW-323</b>	<b>III</b>		<b>Abandoned</b>
<b>MW-324</b>	<b>III</b>		<b>Abandoned</b>
MW-325	III		Sample
MW-500BR	III		Sample
MW-503BR	III	X	
MW-504BR	III	X	
<b>MW-506BR</b>	<b>III</b>		<b>Destroyed</b>
MW-507BR	III		Sample
MW-508BR	III		Sample
MW-509BR	III	X	
MW-510BR	III	X	
MW-511BR	III	X	
MW-512BR	III	X	
MW-513BR	III		Sample

Notes:

DDSP - depth discrete sampling point

II - double cased well

III - triple cased well

Prepared by: LSM 10/30/2015

Checked by: ADB 11/2/2015

**Table 2-2**  
**TCE in Groundwater**  
**Atlanta Gas Light Company**  
**Former Manufactured Gas Plant**  
**Augusta, Georgia**

	MW-604	MW-605	MW-606
Constituent	11/5/2015	11/5/2015	11/5/2015
TCE (ug/L)	< 0.80	< 0.80	< 0.80

Notes:

ug/L - micrograms per liter

Prepared by: ADB 11/10/15

Checked by: TBD 11/10/15

**Table 2-3**  
**MW-502D and MW-603 Sampling Data**  
**Atlanta Gas Light Company**  
**Former Manufactured Gas Plant**  
**Augusta, Georgia**

<b>Analyte</b>	<b>MW-502D</b>	<b>MW-603</b>
	12/16/2015	10/27/2015
Barium (mg/L)	< 2.5	7.7
Chromium (mg/L)	< 1.2	10
Copper (mg/L)	1.6	3.1
Lead (mg/L)	< 2.5	< 5.0
Nickel (mg/L)	< 2.5	< 5.0
Vanadium (mg/L)	< 2.5	7.4
Zinc (mg/L)	< 2.5	9.1
Antimony (mg/L)	< 2.5	< 5.0
Arsenic (mg/L)	< 2.5	9.1
Beryllium (mg/L)	< 1.2	< 2.5
Cadmium (mg/L)	< 1.2	< 2.5
Selenium (mg/L)	< 2.5	< 5.0
Thallium (mg/L)	< 2.5	< 5.0
Mercury (ug/L)	< 0.0967	< 0.0870
Acetone (ug/L)	< 250,000	< 400,000
Benzene (ug/L)	66000	< 40,000
Carbon disulfide (ug/L)	< 50,000	< 80,000
Ethylbenzene (ug/L)	9,400,000	230,000
m,p-Xylene (ug/L)	6,900,000	82,000
Methylene chloride (ug/L)	< 99,000	< 160,000
o-Xylene (ug/L)	2,100,000	< 40,000
Toluene (ug/L)	110,000	< 40,000
Trichloroethene (ug/L)	< 25,000	< 40,000
Naphthalene (ug/L)	49,000	41,000
Acenaphthylene (ug/L)	3,400	2,100
Acenaphthene (ug/L)	7,500	22,000
Fluorene (ug/L)	4,900	10,000
Phenanthrene (ug/L)	13,000	31,000
Anthracene (ug/L)	3,400	7,800
Fluoranthene (ug/L)	4,300	12,000
Pyrene (ug/L)	5,500	14,000
Benzo(a)anthracene (ug/L)	2,100	5,200
Chrysene (ug/L)	1,800	4,500
Benzo(b)fluoranthene (ug/L)	1,600	3,300
Benzo(k)fluoranthene (ug/L)	< 1,000	1400
Benzo(a)pyrene (ug/L)	1,600	4,400
Indeno(1,2,3-cd)pyrene (ug/L)	< 1,000	1,400
Dibenz(a,h)anthracene (ug/L)	< 1,000	< 500
Benzo(g,h,i)perylene (ug/L)	< 1,000	1700
Cyanide (mg/L)	< 1.00	< 1.00

Notes:

mg/L - milligrams per liter

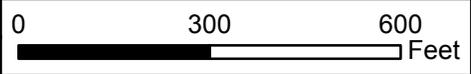
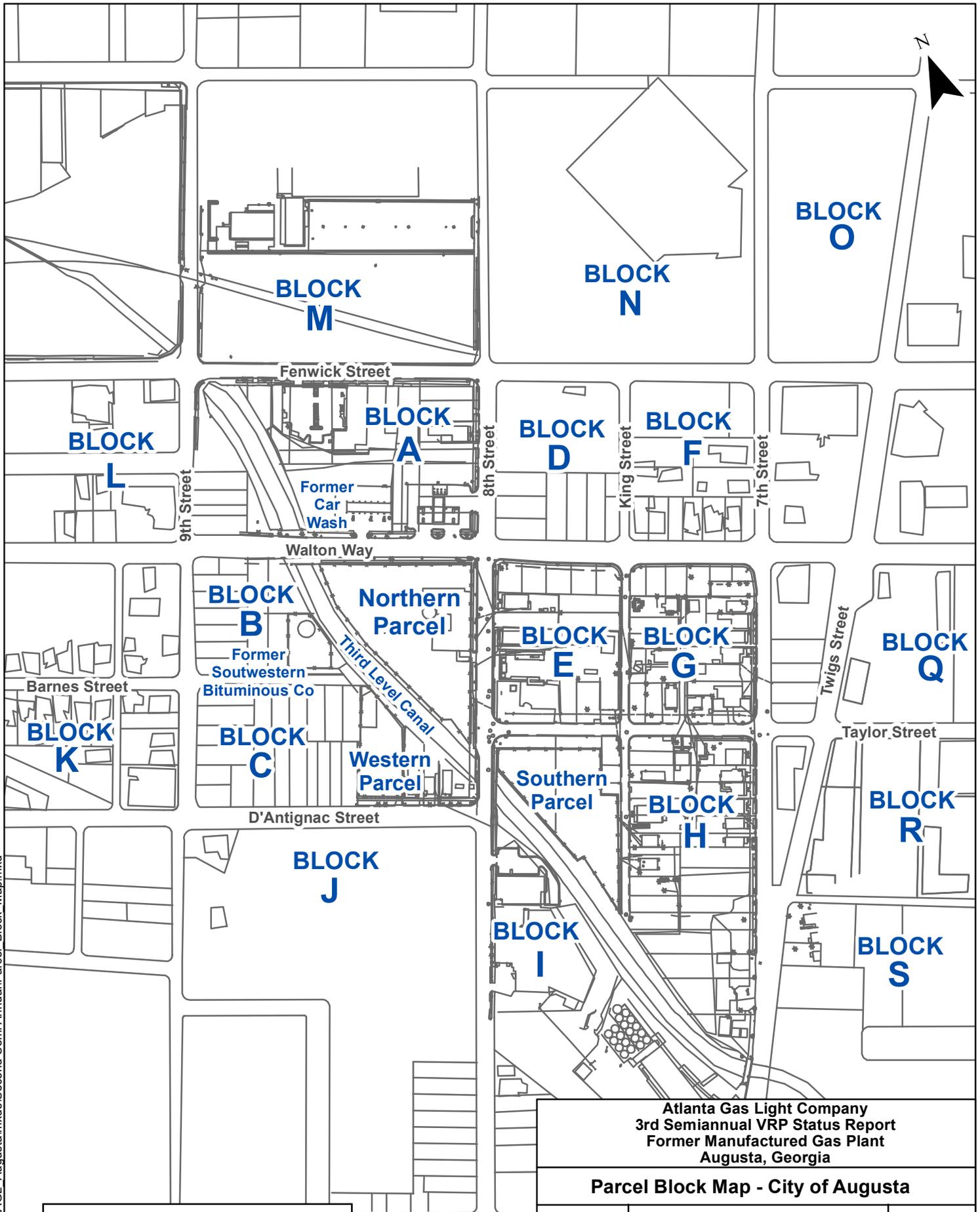
ug/L - micrograms per liter

Prepared by: ADB 12/29/2015

Checked by: SAG 12/29/2015

## FIGURES





Source: Environmental Cost Management 2012, Feasibility Study

**Atlanta Gas Light Company  
3rd Semiannual VRP Status Report  
Former Manufactured Gas Plant  
Augusta, Georgia**

**Parcel Block Map - City of Augusta**

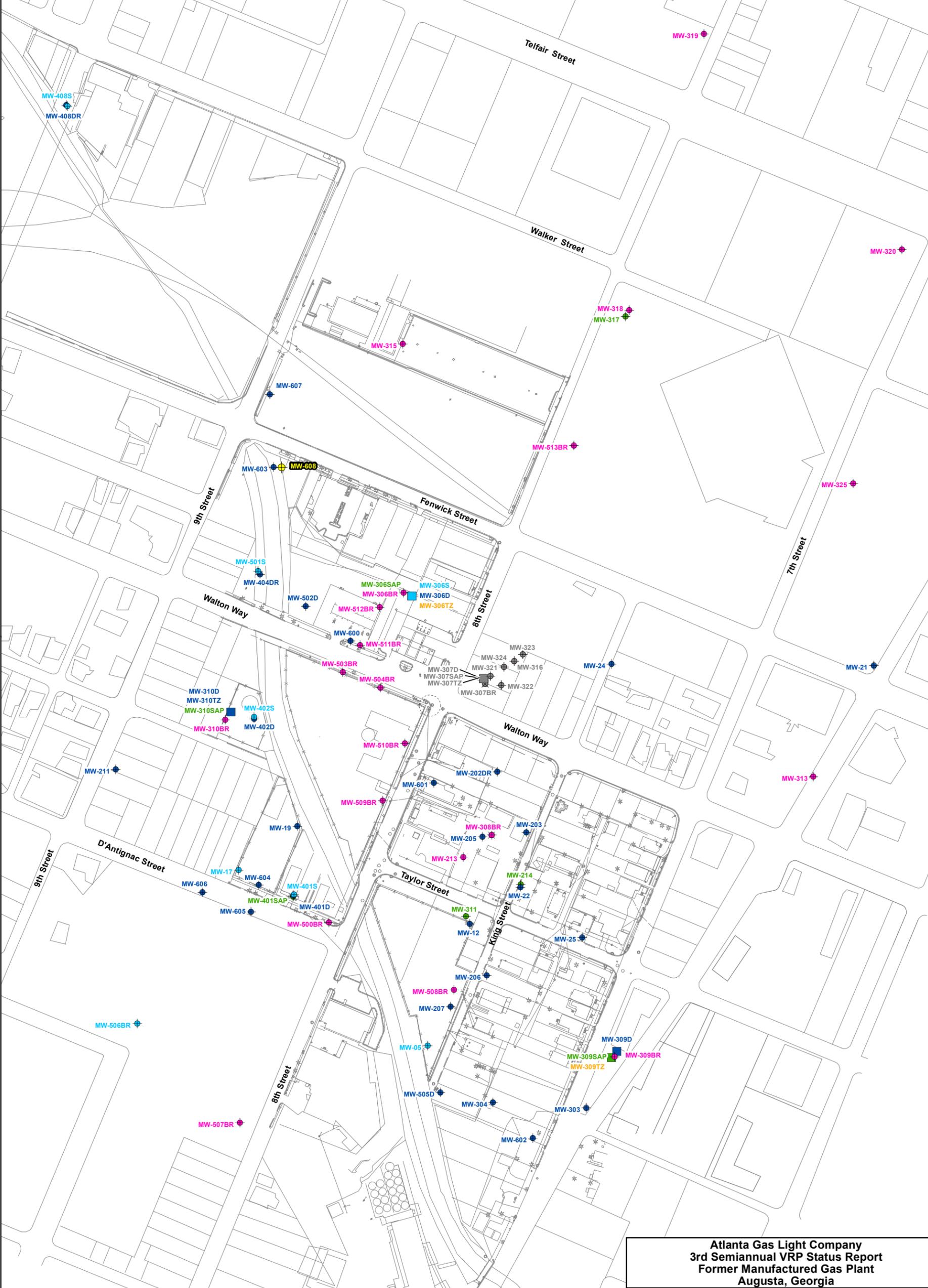
Prepared By-Date: JRM 05/26/16
Checked By-Date: LSM 05/26/16
Project Number: 6122140098



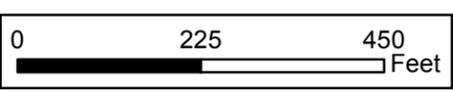
**Figure:**  
1-2

**Legend**

-  Monitoring Well - Alluvium
-  Monitoring Well - Bedrock
-  Monitoring Well - Galliard
-  Monitoring Well - Saprolite
-  Recovery Well - Bedrock
-  Depth-Discrete Sampling Port - Alluvium
-  Depth-Discrete Sampling Port - Galliard
-  Depth-Discrete Sampling Port - Saprolite
-  Depth-Discrete Sampling Port - Transition Zone
-  Abandoned Depth-Discrete Sampling Port
-  Abandoned Monitoring Well
-  Abandoned Recovery Well
-  Proposed Monitoring Well - Saprolite



**Note:**  
 Grayed wells were abandoned in August/September 2015  
 to accommodate the Georgia Power substation expansion.



<b>Atlanta Gas Light Company 3rd Semiannual VRP Status Report Former Manufactured Gas Plant Augusta, Georgia</b>	
<b>Monitoring Well Locations</b>	
Prepared By-Date: JRM 05/26/16  Checked By-Date: LSM 05/26/16  Project Number: 6122140098	
<b>Figure: 2-1</b>	



**Legend**

-  Monitoring Well - Galliard
-  Depth-Discrete Sampling Port - Galliard
-  Approximate Extent of Dissolved Phase Impacts in Galliard Above Type 1 Risk Reduction Standards
-  ISCO (In Situ Chemical Oxidation) Area
-  Existing ISS (In Situ Solidification) Area
-  Exceedance of Vapor Intrusion Remedial Goal Option

MW-600	
Constituent	Result
Benzene	4500 (4300)
Benzo(a)anthracene	0.3 (0.35)
Benzo(a)pyrene	0.22 (0.27)
Naphthalene	77 (120)
Toluene	1400 (1400)

MW-21	
Constituent	Result
Trichloroethylene	7.4

MW-601	
Constituent	Result
Acenaphthylene	60
Benzene	20000
Benzo(a)anthracene	0.31
Ethylbenzene	850
Naphthalene	8200
Phenanthrene	25
Toluene	13000

MW-205	
Constituent	Result
Benzene	1000
Benzo(a)anthracene	0.55
Chrysene	0.29
Naphthalene	66
Phenanthrene	18

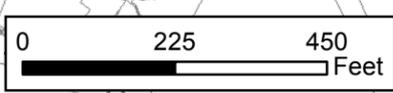
MW-12	
Constituent	Result
Benzene	8200 (8500)
Ethylbenzene	2400 (2500)
Naphthalene	4000 (810)
Phenanthrene	15 (9.6)
Toluene	1500 (1500)

MW-401D	
Constituent	Result
Cadmium	0.0128
Trichloroethylene	12

MW-304	
Constituent	Result
Benzene	45

MW-505D	
Constituent	Result
Naphthalene	51

Notes:  
 1. Organic Constituents are Reported in µg/L  
 2. Inorganic Constituents are Reported in mg/L  
 3. NS - Not Sampled  
 4. NS, DNAPL - Not Sampled, DNAPL Present  
 5. NE - No Exceedance  
 6. Detections Shown Exceed Type 1 Groundwater Risk Reduction Standards  
 7. Duplicate Values Shown in Parentheses After Parent.



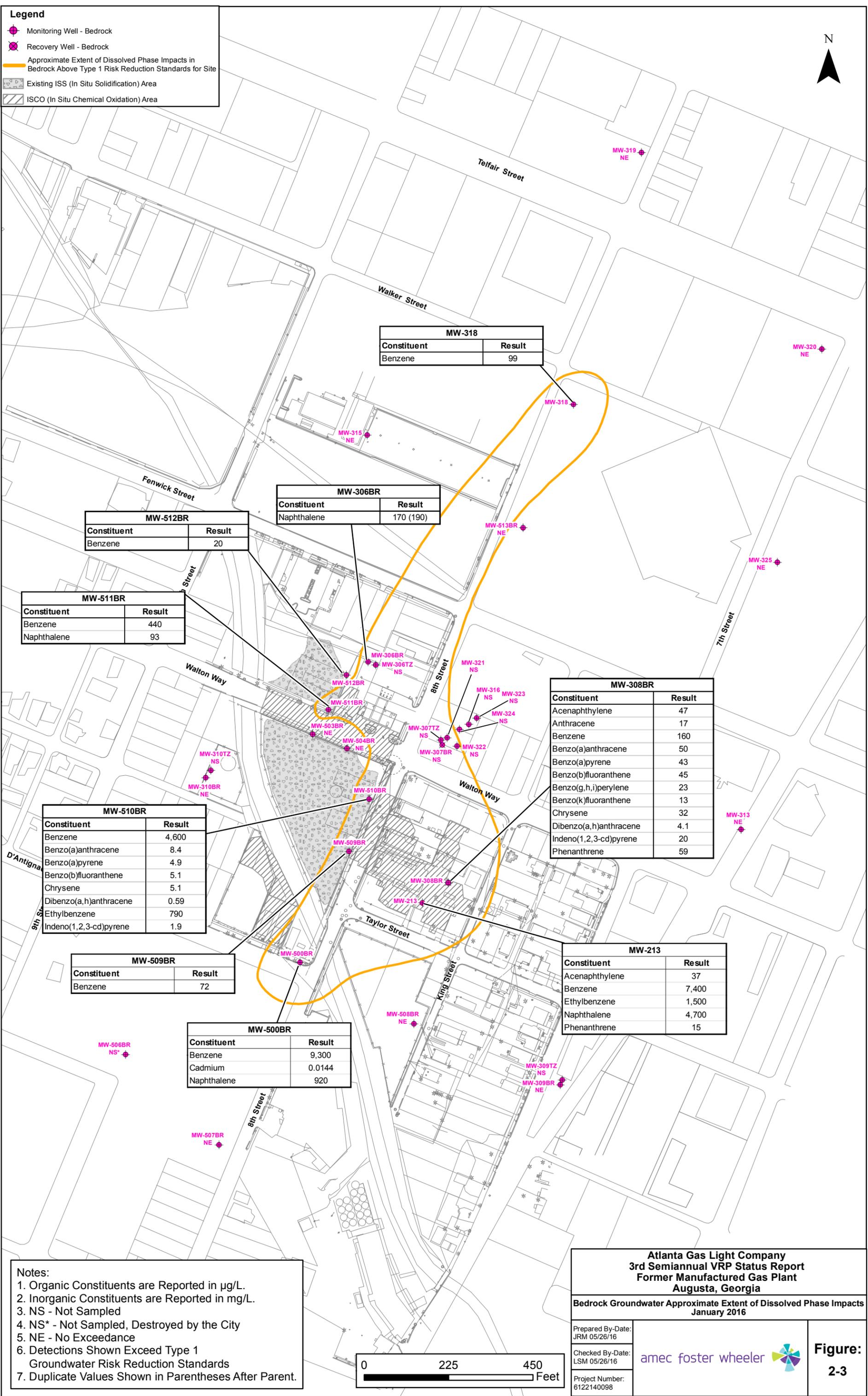
**Atlanta Gas Light Company  
3rd Semiannual VRP Status Report  
Former Manufactured Gas Plant  
Augusta, Georgia**

**Galliard Groundwater Approximate Extent of Dissolved Phase Impacts  
January 2016**

Prepared By-Date: JRM 05/26/16		<b>Figure: 2-2</b>
Checked By-Date: LSM 05/26/16		
Project Number: 6122140098		

**Legend**

- Monitoring Well - Bedrock
- Recovery Well - Bedrock
- Approximate Extent of Dissolved Phase Impacts in Bedrock Above Type 1 Risk Reduction Standards for Site
- Existing ISS (In Situ Solidification) Area
- ISCO (In Situ Chemical Oxidation) Area



MW-318	
Constituent	Result
Benzene	99

MW-306BR	
Constituent	Result
Naphthalene	170 (190)

MW-512BR	
Constituent	Result
Benzene	20

MW-511BR	
Constituent	Result
Benzene	440
Naphthalene	93

MW-308BR	
Constituent	Result
Acenaphthylene	47
Anthracene	17
Benzene	160
Benzo(a)anthracene	50
Benzo(a)pyrene	43
Benzo(b)fluoranthene	45
Benzo(g,h,i)perylene	23
Benzo(k)fluoranthene	13
Chrysene	32
Dibenzo(a,h)anthracene	4.1
Indeno(1,2,3-cd)pyrene	20
Phenanthrene	59

MW-510BR	
Constituent	Result
Benzene	4,600
Benzo(a)anthracene	8.4
Benzo(a)pyrene	4.9
Benzo(b)fluoranthene	5.1
Chrysene	5.1
Dibenzo(a,h)anthracene	0.59
Ethylbenzene	790
Indeno(1,2,3-cd)pyrene	1.9

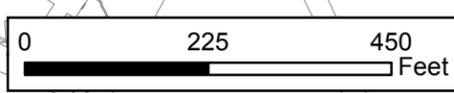
MW-509BR	
Constituent	Result
Benzene	72

MW-500BR	
Constituent	Result
Benzene	9,300
Cadmium	0.0144
Naphthalene	920

MW-213	
Constituent	Result
Acenaphthylene	37
Benzene	7,400
Ethylbenzene	1,500
Naphthalene	4,700
Phenanthrene	15

**Notes:**

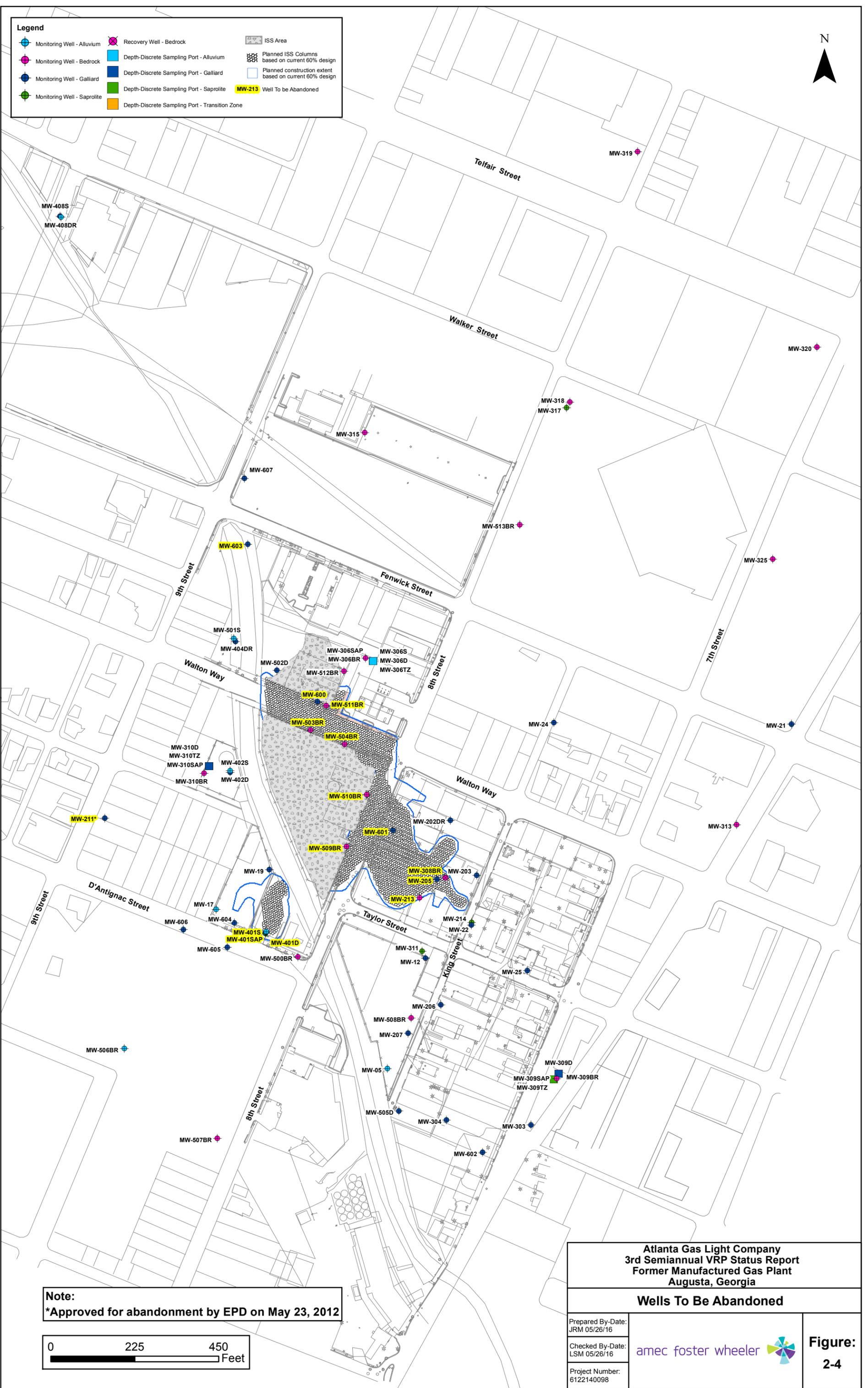
1. Organic Constituents are Reported in µg/L.
2. Inorganic Constituents are Reported in mg/L.
3. NS - Not Sampled
4. NS\* - Not Sampled, Destroyed by the City
5. NE - No Exceedance
6. Detections Shown Exceed Type 1 Groundwater Risk Reduction Standards
7. Duplicate Values Shown in Parentheses After Parent.



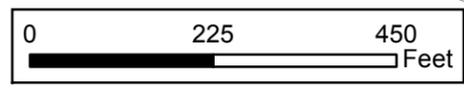
<b>Atlanta Gas Light Company 3rd Semiannual VRP Status Report Former Manufactured Gas Plant Augusta, Georgia</b>	
<b>Bedrock Groundwater Approximate Extent of Dissolved Phase Impacts January 2016</b>	
Prepared By-Date: JRM 05/26/16	
Checked By-Date: LSM 05/26/16	
Project Number: 6122140098	
<b>Figure: 2-3</b>	



**Legend**

**Note:**  
 \*Approved for abandonment by EPD on May 23, 2012



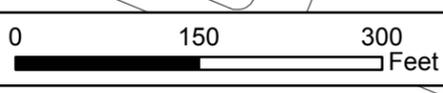
<b>Atlanta Gas Light Company          3rd Semiannual VRP Status Report          Former Manufactured Gas Plant          Augusta, Georgia</b>	
<b>Wells To Be Abandoned</b>	
Prepared By-Date: JRM 05/26/16	
Checked By-Date: LSM 05/26/16	
Project Number: 6122140098	
<b>Figure:          2-4</b>	



**LEGEND**

-  VRP QUALIFYING AGL PROPERTIES
-  OTHER QUALIFYING PROPERTIES
-  PARCEL PROPERTY LINE
-  PARCEL NUMBER
-  EXISTING ISS (IN SITU SOLIDIFICATION)

EXISTING CONDITIONS MAP BASED ON ORIGINAL SURVEY PREPARED BY DONALDSON, GARRETT AND ASSOCIATES, INC. (DGA) AND JAMES W. NEWBERRY, JR. R.L.S. (DATED AUG. 24, 2001) WITH THE EXCEPTION OF PROPERTY TRANSFERS THAT OCCURRED ALONG THE CANAL AT THE END OF REMEDIATION. DGA PERFORMED THE PROPERTY TRANSFER SURVEY FOR THESE PROPERTIES IN 2003.



**Atlanta Gas Light Company  
3rd Semiannual VRP Status Report  
Former Manufactured Gas Plant  
Augusta, Georgia**

**Qualifying Properties**

Prepared By-Date: HVP 05/26/16		<b>Figure: 3-1</b>
Checked By-Date: LSM 05/26/16		
Project Number: 6122140098		

**APPENDIX A**  
**JANUARY 2016 CAER**  
**(SUBMITTED AS A SEPARATE VOLUME)**

**APPENDIX B**

**RESPONSE TO EPD'S MARCH 28, 2016 COMMENT LETTER**

**APPENDIX C**  
**DEMOLITION DOCUMENTATION**

**APPENDIX D**  
**ADDITIONAL INVESTIGATION**

**APPENDIX E**  
**REVISED VAPOR INTRUSION ASSESSMENT**

**APPENDIX F**

**REGISTERED PROFESSIONAL SUPPORTING DOCUMENTATION**