

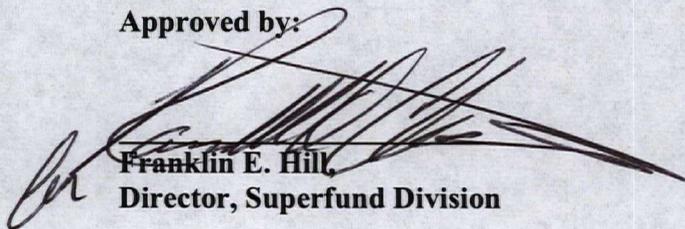
**FOURTH FIVE-YEAR REVIEW REPORT FOR
MONSANTO CORPORATION (AUGUSTA PLANT) SUPERFUND SITE
AUGUSTA, RICHMOND COUNTY, GEORGIA**



Prepared by

**U.S. Environmental Protection Agency
Region 4
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9/20/15
Date



**Fourth Five-Year Review Report
for
Monsanto Corporation (Augusta Plant) Superfund Site
Augusta, Richmond County, Georgia**

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List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
AOC	Administrative Order on Consent
bls	below land surface
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COC	Contaminants of Concern
EP	Extraction procedures
EPA	Environmental Protection Agency
EPD	Georgia Environmental Protection Division
ft msl	feet above mean sea level
FYR	Five-Year Review
GPAL	Groundwater Protection Achievement Levels
GPM	Gallon per minute
HTRW	Hazardous Toxic Radiological Waste
IC	Institutional Control
IRIS	Integrated Risk Information System
lbs	Pounds
MCL	Maximum Contaminant Level
msl	Mean sea level
µg/L	Micrograms per Liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operations and Maintenance
OU	Operable Unit
PPM	Part per million
POTW	Publicly Owned Treatment Works
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
SFO	Slope Factor
USACE	U.S. Army Corps of Engineers

Executive Summary

The U.S. Environmental Protection Agency (EPA), Region 4, conducted the fourth five-year review (FYR) of the remedial action implemented at the Monsanto Corporation (Augusta Plant) Superfund Site (Site) in Richmond County, Georgia. The U.S. Army Corps of Engineers (USACE), Savannah District, provided technical support for the review. The review was conducted from October 2014 through July 2015. The third FYR review was completed in September 2010. This FYR is required as a matter of policy by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) because the remedial action is a post-Superfund Amendments and Reauthorization Act (SARA) action that requires five years or more to complete.

A Record of Decision (ROD) was signed in December 1991 requiring the potentially responsible party (PRP) to monitor the groundwater onsite and install extraction wells in the areas where arsenic levels exceed the Maximum Contaminant Level (MCL). Contaminated groundwater was extracted from the surficial aquifer and transported to a Publicly Owned Treatment Works (POTW) for treatment and disposal. This process is to continue until all onsite monitoring wells indicate that the MCL for arsenic is not exceeded for a period of two years.

Since the Site was adequately being addressed simultaneously by the State of Georgia under the Resource Conservation and Recovery Act (RCRA) and the same groundwater cleanup levels must be met to comply with the RCRA standards, EPA initiated the National Priorities List (NPL) deletion process. In March 1998, the Site was deferred to RCRA, with the State providing oversight of the groundwater treatment system operations and maintenance (O&M) activities and the groundwater monitoring program for the Site.

The groundwater remedial system consisted of active extraction in Area I (region in the vicinity of former Landfill 1) at well MW-5 and in Area II (region in the vicinity of former Landfill 2) in extraction wells MW-24S and EX-3. Under the current Consent Order with the State of Georgia, the PRP has developed a groundwater sampling plan to monitor the groundwater following system deactivation.

The RCRA permit for the Site was issued in February 2002. Permit [HW-074(S) Permit Condition IV.D.] states that the Groundwater Protection Achievement Levels (GPAL) for all groundwater monitoring is the MCL for arsenic. In January 2006, the EPA changed the MCL for arsenic from 50 micrograms per liter ($\mu\text{g/L}$) to 10 $\mu\text{g/L}$. On November 18, 2014, the Georgia Environmental Protection Division (EPD) executed a Consent Order with the potentially responsible parties (PRPs)¹, Solutia, Inc., and Prayon, Inc. that contained the following general conditions:

- 1) The 2002 RCRA permit was allowed to expire and the PRPs were not required to submit a new permit application. Furthermore, the PRPs were no longer required to operate the groundwater extraction system or provide financial assurance.
- 2) The PRPs were required to submit a draft environmental covenant for EPD approval as an institutional control (IC) to minimize potential human exposure to contaminants of concern

¹ Prayon, Inc., currently owns and operates the Site. Solutia, Inc., was spun off from Monsanto Corp., in September 1997, and assumed its environmental liabilities.

(COC) and restrict groundwater use in the surficial aquifer within 90 days.

- 3) The PRPs were required to submit a work plan to perform groundwater monitoring at 14 monitoring wells identified in the Consent Order. Upon approval of this work plan, all other monitoring wells at the Site could be abandoned. If the groundwater monitoring results indicate no exceedances of MCLs, or that the exceedances are attributable to an upgradient and offsite source, then the Consent Order can be terminated. If the groundwater data indicate that the exceedances are attributed to the Solutia/Prayon facility, the PRPs will submit a work plan for EPD approval to further investigate the exceedances within 90 days.

The PRPs submitted a draft groundwater monitoring work plan to EPD in January 2015, which was approved in February 2015. The PRPs submitted a draft environmental covenant for review in February 2015.

Based on the data reviewed along with the Site inspection and interviews, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. Groundwater contamination at the Site persists above the cleanup levels. However, it is believed that the residual contamination has resulted from the migration of elevated pH groundwater from an adjacent and upgradient facility (OxyChem).

The issues identified during the FYR are:

- Groundwater restrictions put in place in April 1991, as required in the 1991 ROD, have expired.
- Migration of elevated pH groundwater from adjacent and upgradient facility (OxyChem).

The following recommendations were made to address these issues:

- Renew existing or place new groundwater use restrictions on the surficial aquifer as required in the 1991 ROD and the 2014 Consent Order agreement between EPD and the PRPs.
- Address migration of elevated pH groundwater from adjacent and upgradient facility (OxyChem)

In the short-term, the remedy at the Site is protective of human health and the environment because there are no current exposure pathways to the contaminated aquifer. However, in order for the remedy to remain protective in the long-term, groundwater restrictions to prevent exposure to the contaminated surficial aquifer will need to be put in place. In addition, elevated pH groundwater migrating from the OxyChem facility will need to be addressed.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Monsanto Corporation (Augusta Plant) Superfund Site		
EPA ID: GAD001700699		
Region: 4	State: GA	City/County: Augusta, Richmond County
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA If "Other Federal Agency" was selected above, enter Agency name: N/A		
Author name (Federal or State Project Manager): Kevin Haborak, P.G.		
Author affiliation: USACE (reviewed by EPA)		
Review period: October 2014 – July 2015		
Date of site inspection: 11/20/2014		
Type of review: Policy		
Review number: 4		
Triggering action date: 9/9/2010		
Due date (five years after triggering action date): 9/9/2015		

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None

Issues and Recommendations Identified in the Five-Year Review:

OU(s): 1 and Sitewide	Issue Category: Institutional Controls
	Issue: Groundwater restrictions put in place in April 1991, as required in the 1991 ROD, have expired.
	Recommendation: Renew existing or place new groundwater use restrictions on the surficial aquifer as required in the 1991 ROD and the 2014 Consent Order agreement with EPD.
	Issue Category: Monitoring
	Issue: Elevated pH groundwater migration from adjacent and upgradient facility (OxyChem).
	Recommendation: Address elevated pH groundwater migration from adjacent and upgradient facility (OxyChem).

Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date
No	Yes	Solutia/OxyChem	EPA/State	4/30/2016 9/30/2018

OU1 and Sitewide Protectiveness Statement

Operable Unit: OU1/Sitewide	Protectiveness Determination: Protective	Addendum Due Date (if applicable): N/A
---------------------------------------	--	--

Protectiveness Statement:
 In the short-term, the remedy at the Site is protective of human health and the environment because there are no current exposure pathways to the contaminated aquifer. However, in order for the remedy to remain protective in the long-term, groundwater restrictions to prevent exposure to the contaminated surficial aquifer will need to be put in place. In addition, elevated pH groundwater migrating from the OxyChem facility will need to be addressed.

Five-Year Review Summary Form (continued)

Environmental Indicators

- Current human exposures at the Site are under control.
- Current groundwater migration is under control.

Are Necessary Institutional Controls in Place?

All Some None Groundwater restrictions put in place in April 1991 have expired.

Has EPA Designated the Site as Sitewide Ready for Anticipated Use?

Yes No

Has the Site Been Put into Reuse?

Yes No

1.0 Introduction

The purpose of the FYR is to evaluate the implementation and performance of the remedy to determine whether the remedy is or will be protective of human health and the environment. FYR reports document FYR methods, findings and conclusions. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The EPA prepares FYRs pursuant to CERCLA Section 121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA Section 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with Section 9604 (CERCLA §104) or Section 9606 (CERCLA §106) the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The EPA interpreted this requirement further in the NCP, as stated in 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii):

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The USACE, Savannah District, conducted the FYR and prepared this report regarding the remedy implemented at the Site. The USACE conducted this FYR from October 2014 to July 2015. The EPA is the lead agency for the PRP-financed cleanup at the Site. The EPD, as the support agency, representing the State of Georgia, has reviewed all supporting documentation and provided input to the EPA during the FYR process.

This is the fourth FYR for the Site. The trigger for this review is the approval date of the third FYR report (September 9, 2010). This FYR is required as a matter of policy by CERCLA because the remedial action is a post-SARA action that requires five years or more to complete. The Site consists of one operable unit (OU).

2.0 Site Chronology

The Table below presents a chronology of the key events for the Site.

Table 1: Chronology of Site Events

Event	Start Date	Completion Date
Monsanto builds Landfill No. 1		1962
Over 700 lbs. of Arsenic placed in Landfill No.1	1966	1971
Monsanto closes Landfill No. 1 and builds Landfill No.2		1971
Over 800 lbs. of Arsenic placed in Landfill No.2	1971	1974
Monsanto closes Landfill No. 2		1977
Discovery		11/1/1979
Preliminary Assessment		12/1/1979
Proposal to NPL		9/8/1983
Waste Removed under supervision of EPD	1983	1984
Final Listing on NPL		9/21/1984
Admin Order on Consent between EPA Monsanto		4/27/1989
Site Inspection		6/12/1989
Record of Decision		12/7/1991
PRP Remedial Investigation/Feasibility Study	4/27/1989	12/7/1991
Consent Decree	3/29/1991	10/8/1991
PRP Remedial Design	3/28/1991	12/30/1992
Removal Assessment		12/31/1992
Preliminary Close-Out Report		5/5/1993
PRP Remedial Action	12/30/1992	8/2/1993
Deletion from NPL		3/9/1998
First Five-Year Review	6/1/1999	4/5/2000
Second Five-Year Review	4/1/2005	7/1/2005
Operations & Maintenance	8/2/1993	2011
Third Five-Year Review	3/4/2010	6/18/2010
Consent Order between EPD and PRPs		11/18/2014
Fourth Five-Year Review	10/21/2014	8/20/2015

3.0 Background

This section presents a summary of the Site background information including, physical characteristics, land and resource use, history of the contamination, initial response, and the basis for taking action.

3.1 Physical Characteristics

The Site property consists of a 75-acre facility located in Augusta, Richmond County, Georgia (Figure 1). The property is bordered to the north by Marvin Griffin Road. Forested lands and Butler Creek are located south of the property. Norfolk Southern rail tracks are located on the eastern boundary of the property. Directly adjacent to the rail tracks is the Kellogg Company Plant. The properties west of the Site are occupied by ProComp and OxyChem. Phinizy Swamp is located approximately 4,570 feet northeast of the Site.

The Site is located south of the Fall Line in the Upper Coastal Plain Section of the Coastal Plain physiographic province. The Fall Line is the border of the Coastal Plain and Piedmont physiographic provinces. The Coastal Plain province is characterized by low flat regions of well-drained, gently rolling hills and poorly drained flatwoods. Ground elevations at the Site range from 140 to 146 feet above mean sea level (msl).

Sediments underlying the Site consist of recent alluvium and Cretaceous aged sediments (Gaillard Formation). Both deposits are comprised of sands, clays, and sandy clays. The surficial aquifer occurs within the alluvium at a depth of approximately 15 feet below land surface (bls). Groundwater within this aquifer flows in an easterly direction towards Phinizy Swamp (Figure 2).

3.2 Land and Resource Use

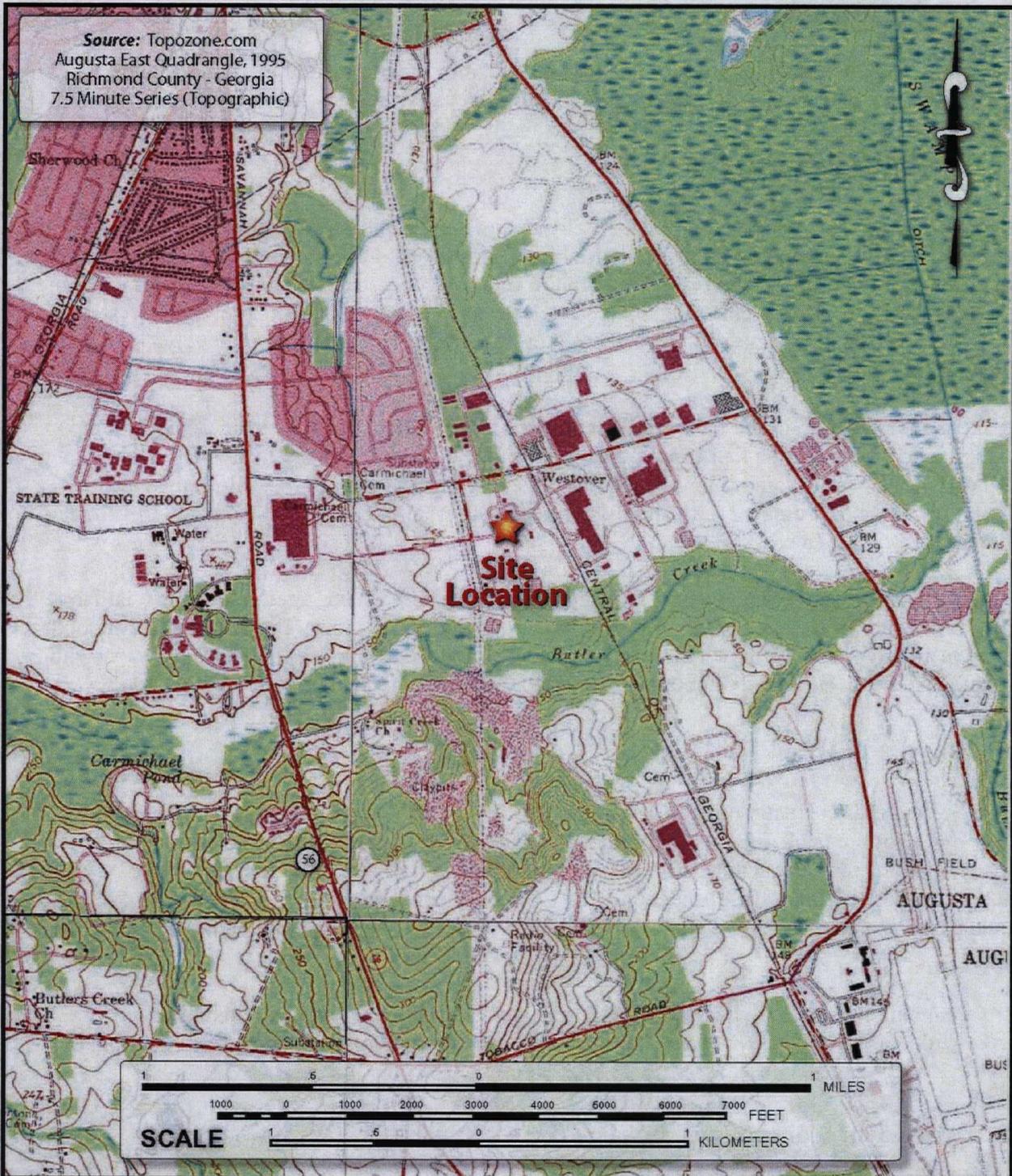
The Site property is currently utilized as a phosphoric acid manufacturing facility. Prayon Inc., the current owner of the facility, plans to continue the phosphoric acid manufacturing operations. Properties in the area surrounding the Site have been and are currently predominantly used for industrial purposes. The nearest residential area is approximately one-half mile northwest of the Site. It is anticipated that land use in the vicinity of the Site will remain predominantly industrial in the near future.

There are no known downgradient wells in the surficial aquifer being used as drinking water sources within a one-mile radius from the Site. The onsite production wells are screened in the deep aquifer.

3.3 History of Contamination

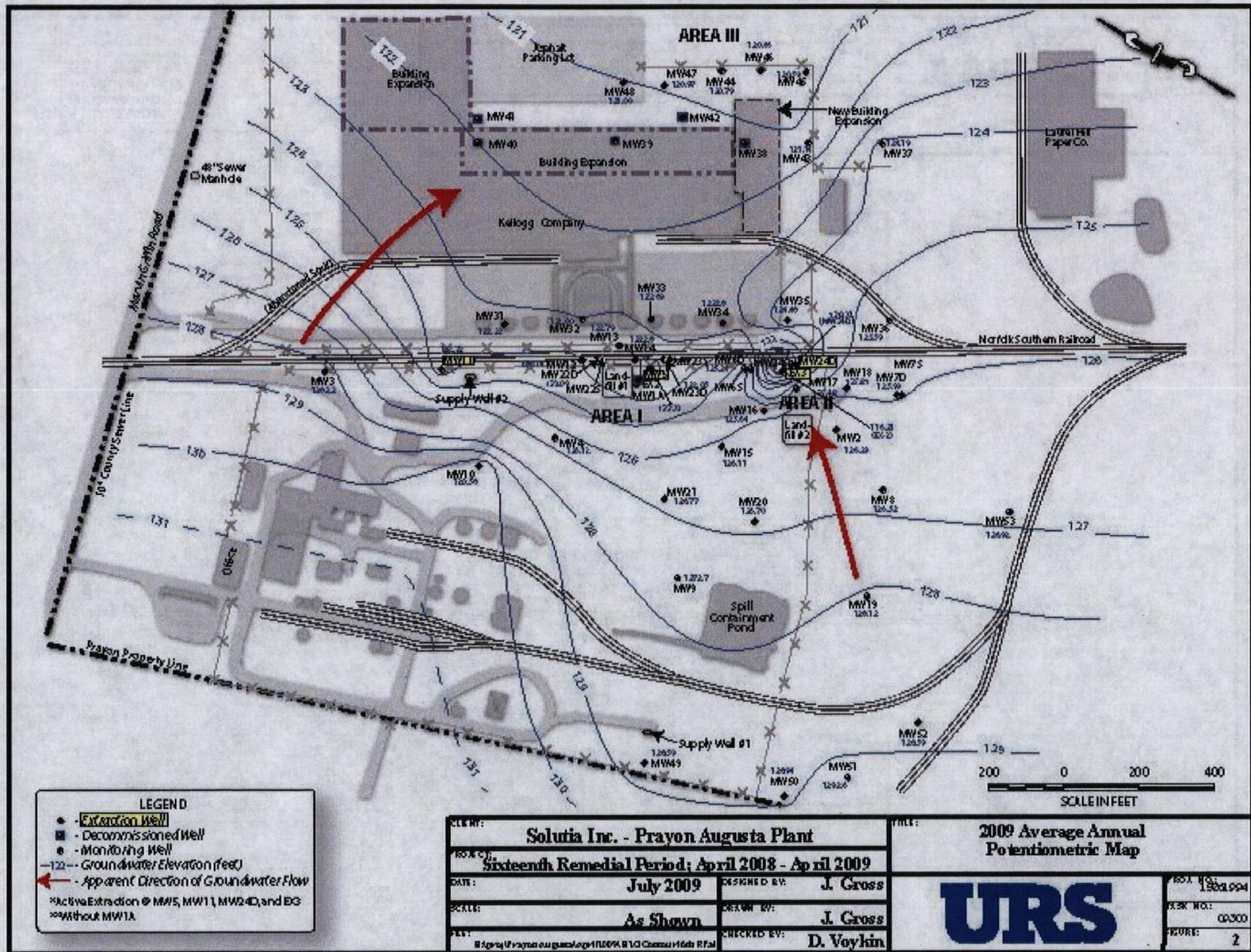
The Site property has been utilized as a phosphoric acid manufacturing facility since 1962. Several waste products including arsenic trisulfide were generated during the manufacturing operations. These materials were disposed of at two small landfills (Landfill #1 and Landfill #2), approximately 0.1 acre each, located along the eastern boundary of the property (Figure 3).

Source: Topozone.com
 Augusta East Quadrangle, 1995
 Richmond County - Georgia
 7.5 Minute Series (Topographic)



CLIENT:	Prayon Inc., Augusta Plant	
PROJECT:	SWMU 1 Vertical Delineation	
DATE:	December 2005	DESIGNED BY:
SCALE:	1:24,000	DRAWN BY:
FILE:		CHECKED BY:
	<small>R:\janie\proj\Prayon\august\VerticalDelineation12-2005\SiteMap.sil</small>	J. Anderson
		D. Voykin

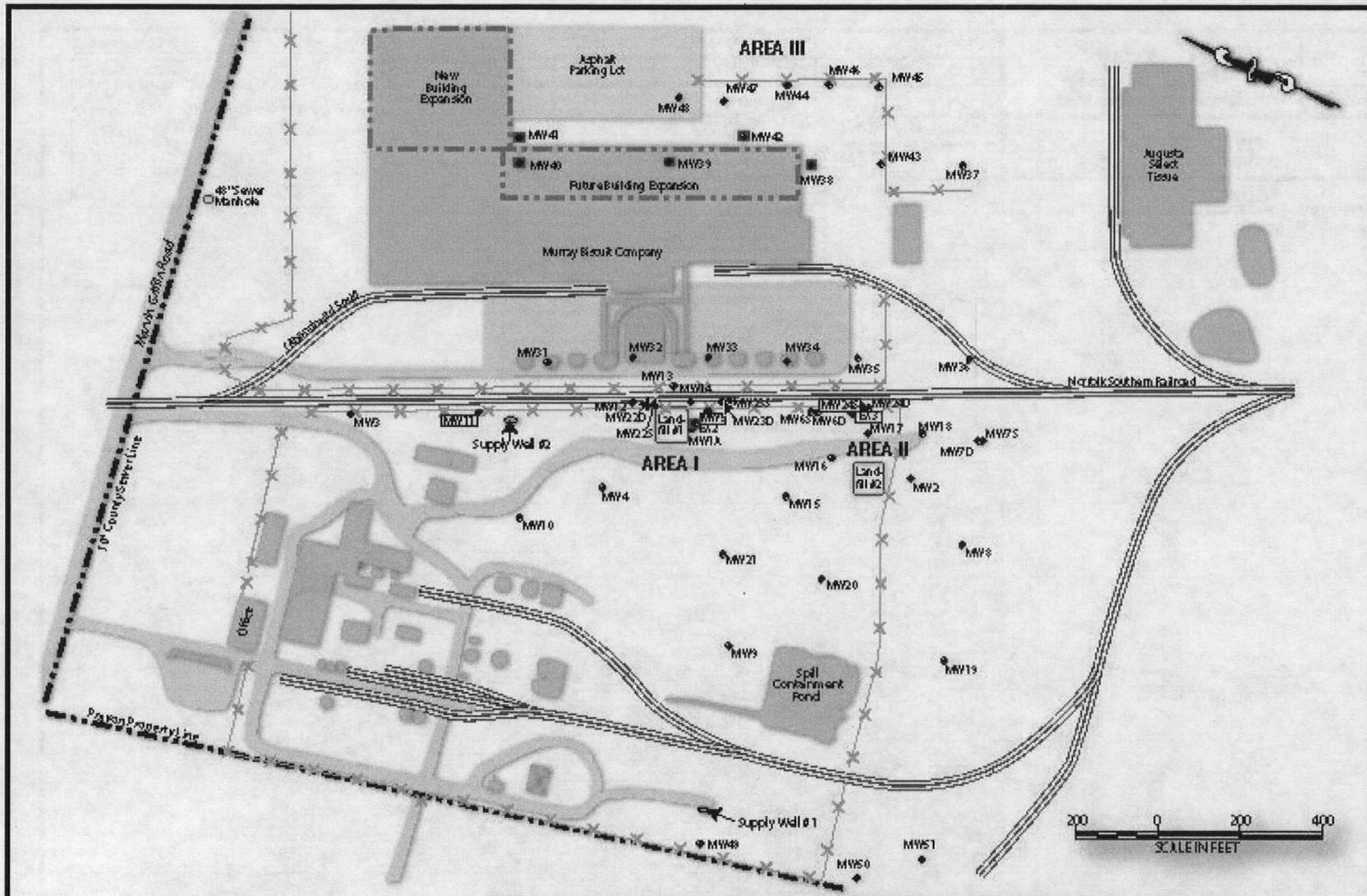
TITLE:	Site Location Map
PROJ NO.:	1528562
TASK:	07071
FIGURE:	1
URS	



LEGEND	
●	Active Extraction Well
■	Decommissioned Well
○	Monitoring Well
-122-	Groundwater Elevation (feet)
←	Apparent Direction of Groundwater Flow
*Active Extraction @ MW5, MW11, MW24D, and B3	
**Without MW1A	

CLIENT:	Solutia Inc. - Prayon Augusta Plant	
PROJECT:	Sixteenth Remedial Period; April 2008 - April 2009	
DATE:	July 2009	DESIGNED BY: J. Gross
SCALE:	As Shown	DRAWN BY: J. Gross
FILE:	CHECKED BY: D. Voyhin	

FILE:	2009 Average Annual Potentiometric Map	
URS		
PROJECT NO.:	1501.004	DATE:
DRAWING NO.:	00300	FIGURE:
		2



- ◆ - Extraction Well
- - Decommissioned Well
- - Monitoring Well

CLIENT:	Solutia Inc. - Prayon Augusta Plant	
PROJECT:	Sixteenth Remedial Period; April 2008 - April 2009	
DATE:	July 2009	DESIGNED BY: J. Gross
SCALE:	As Shown	DRAWN BY: J. Gross
FILE:	E:\proj\prayon Augusta\pril2008\asremop.rvt	
		CHECKED BY: D. Voykin

TITLE:	Site Layout
URS	
REV. NO.:	15021004
DRAW. NO.:	00300
SHEET:	3

These practices resulted in the contamination of soil and groundwater at the Site. Plant officials estimated approximately 1,500 pounds (lbs) of arsenic were placed in these two landfills from 1966 to 1974. The landfills were covered with soil, crowned with gravel, seeded with grass, and closed in 1971 (Landfill #1) and 1977 (Landfill #2).

3.4 Initial Response

The EPD identified the Site in August 1975. In June 1979, under EPD's oversight, Monsanto Corp. initiated a groundwater monitoring program to assess the quality of groundwater in the vicinity of the landfills. In February 1980, additional monitoring wells were installed and soil and groundwater samples were collected and analyzed. Analytical results of the collected soil and groundwater samples revealed that soil and surficial aquifer groundwater in the vicinity of the landfills contained arsenic at concentrations above human health standards.

In November 1983, Monsanto Corp. excavated the contents of the landfills. The excavated materials were transported to a RCRA-permitted facility in Emelle, Alabama for disposal. Post excavation soil samples collected from the bottom of the excavation areas indicated concentrations below the extraction procedures (EP) toxicity standards of 5 part per million (ppm) for arsenic. The excavated landfill areas were backfilled and graded to maintain positive runoff drainage. The areas were also seeded to prevent erosion.

In September 1984, the Site was listed on the NPL due to the potential risks presented by the groundwater contamination. In January 1989, the EPA issued a special notice letter to Monsanto Corp., and provided them with the opportunity to conduct the Remedial Investigation and Feasibility Study (RI/FS) for the Site under the EPA's oversight. In April 1989, the PRP entered into an Administrative Order on Consent (AOC) with the EPA to conduct the RI/FS. The RI/FS activities were conducted from October 1989 until September 1990. Two groundwater plumes containing arsenic at concentrations above the MCL (50 µg/L) were identified during the RI/FS. It should be noted that, in January 2006, the MCL for arsenic was changed from 50 µg/L to 10 µg/L.

In December 1991, the EPA issued the ROD summarizing the remedy to address the Site contamination. The primary components of the remedy are presented in Section 4 of this report.

3.5 Basis for Taking Action

During the RI/FS, human health and ecological risk assessments were conducted. These assessments concluded no exposure pathways existed under the current conditions of the Site. However, future exposure through ingestion of the contaminated groundwater resulted in cumulative risk of 4.15×10^{-5} . Groundwater at the Site contained arsenic, the only contaminant of concern (COC) at the Site, at concentrations above the MCL (50 µg/L at the time of the ROD). Therefore, remedial action to address the contamination was necessary.

4.0 Remedial Actions

In accordance with CERCLA and the NCP, the overriding goals for any remedial action are protection of human health and the environment and compliance with applicable or relevant and appropriate requirements (ARARs). A number of remedial alternatives were considered for the Site, and final selection was made based on an evaluation of each alternative against nine evaluation criteria that are specified in Section 300.430(e)(9)(iii) of the NCP. The nine criteria include:

- Overall Protectiveness of Human Health and the Environment
- Compliance with ARARs
- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility or Volume of Contaminants through Treatment
- Short-term Effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

4.1 Remedy Selection

The ROD selecting the remedy to address the Site groundwater contamination was issued in December 1991. The primary objectives of the remedy consisted of minimizing the potential migration of the contamination from the former landfill areas to Phinzy Swamp and the underlying Cretaceous aquifer, and restoring surficial aquifer groundwater to drinking water quality standard for arsenic (10 µg/L effective January 2006).

The primary components of the remedy included:

- Continue quarterly groundwater monitoring during the design of the selected remedy to determine compliance with the Groundwater Protection Achievement Levels (GPAL)
- Commence extraction of the groundwater which exceeds the Primary Drinking Water Standard for arsenic should the annual average of the levels, as determined by quarterly monitoring, exceed the GPAL
- Discharge extracted groundwater for treatment at a POTW
- Monitor groundwater for a minimum of two (2) years following the achievement of the MCL
- Groundwater use restrictions on the surficial aquifer and Site access control would be required during this period

4.2 Remedy Implementation

In October 1991, the Consent Decree (CD) between EPA and Monsanto Corp. for the implementation of the Site remedy was finalized. Subsequently, the PRP prepared the necessary remedial design documents as specified in the CD. The design documents, including specifications and drawings, were submitted to the EPA for approval prior to implementation.

As specified in the ROD, a quarterly groundwater monitoring program was initiated. The purpose of this program was to monitor the Site groundwater during the remedial design phase of the project to ensure compliance with the GPAL. Analytical results of the groundwater samples collected in October 1991, and January 1992, showed the Site groundwater contained arsenic at concentrations above the GPAL and MCL. Therefore, implementation of the pump and discharge system specified in the ROD was required.

Construction activities were initiated in February 1993, and were completed in April 1994. Subsequent to the completion of the construction activities, a final inspection was conducted to ensure compliance with the design documents.

The groundwater extraction system consisted of two extraction wells (EX-1 and EX-2) located in the vicinity of former Landfill #2 and Landfill #1 respectively. On February 23, 1993, an unsuccessful attempt to redevelop extraction well EX-1 was made. Subsequently, extraction well EX-3 was installed in the vicinity of former Landfill #2 as a replacement for EX-1, which was abandoned.

4.2.1 Area I (Adjacent to Former Landfill #1)

Extraction in Area I started on April 16, 1993. Groundwater was extracted from extraction well EX-2 at a rate of 0.84 gallon per minute (gpm). This extraction system operated for approximately one month and shutdown on May 28, 1993. The system was shut down because the extraction well was located in a perched water zone, and that zone had been dewatered.

On July 10, 1995, operations of an injection/extraction system were initiated in Area I. This system consisted of the injection of potable water from well MW-A and extraction of the injected water through an adjacent well. Initially, the injected water was extracted from MW-5. Piezometer well P3 and MW-43 were subsequently utilized to extract the injected water. On May 17, 2007, extraction was initiated at MW-11, to address elevated arsenic concentrations detected in this well.

4.2.2 Area II (Adjacent to Former Landfill #2)

Extraction in Area II started on April 16, 1993. The extraction system initially consisted of one extraction well (EX-3). On July 11, 1994, MW-24D was added to the extraction system to address elevated arsenic concentrations detected in this well. Extraction at this well was discontinued on October 15, 1996, and was initiated at MW-24S the following day, due to elevated arsenic detections observed in the shallow aquifer zone. Extraction continued at MW-24S until May 1, 2007, when extraction at MW-24D was resumed because the arsenic concentrations in this well were in excess of 50 $\mu\text{g/L}$.

4.2.3 Area III (Offsite Area)

Pump and discharge activities were conducted in Area III (offsite area) from February 14, 1994, until May 30, 2000. Groundwater was extracted from this area because elevated arsenic concentrations were observed from the monitoring wells located on the Murray Biscuit Company (currently Kellogg Company) facility. Monitoring wells MW-42 and MW-43 were utilized to extract the contaminated groundwater. These wells were abandoned in May 2000, during the construction expansion of the Murray Biscuit Company facility. In September 2001, a monitoring well network was installed downgradient of MW-42 and MW-43 to monitor the contaminated groundwater.

4.3 System Operations and Maintenance (O&M)

In June 1993, Monsanto Corp. developed an O&M Plan for the Site. The purpose of this plan was to document the O&M activities to be implemented to ensure the integrity and functionality of the remedial system. The primary O&M activities implemented at Site included:

- Operating submersible pumps, in one or more groundwater extraction wells
- Opening and closing pipe valves
- Checking system components to assure unimpeded and uninterrupted flow, proper flow metering/monitoring and system function
- Periodic sampling of extracted groundwater
- Data collection and record keeping

The O&M Plan also described the monitoring activities to be performed during the operation of the treatment system. Monitoring of the remedial action system consisted of daily O&M walk-through inspections. Flow readings and water levels were recorded for each of the extraction wells, and water levels were recorded in select monitoring wells. During the design phase of the project, a quarterly groundwater sampling program was developed and implemented.

Since the Site was adequately being addressed simultaneously by the State of Georgia under RCRA, and the same groundwater cleanup levels must be met to comply with the RCRA standards, EPA initiated the NPL deletion process. In March 1998, the Site was deferred to RCRA, with the State providing oversight of the groundwater treatment system O&M activities and the groundwater monitoring program for the Site.

The RCRA permit for the Site was issued in February 2002. Permit [HW-074(S) Permit Condition IV.D.] states that the GPAL for all groundwater monitoring is the MCL for arsenic. On November 18, 2014, EPD executed a Consent Order (EPD-HW-1827) with the PRPs contained the following general conditions:

- 1) The 2002 RCRA permit was allowed to expire and the PRPs were not required to submit a new permit application. Furthermore, the PRP was no longer required to operate the groundwater extraction system or provide financial assurance.
- 2) The PRPs were required to submit a draft environmental covenant for EPD approval as an IC to minimize potential human exposure to COC and restrict groundwater use in the surficial aquifer within 90 days.

- 3) The PRPs were required to submit a work plan to perform groundwater monitoring at 14 monitoring wells identified in the Consent Order. Upon approval of this work plan, all other monitoring wells at the Site could be abandoned. If the groundwater monitoring results indicate no exceedances of MCLs, or that the exceedances are attributable to an upgradient and off-site source, then the Consent Order can be terminated. If the groundwater data indicate that the exceedances are attributed to the Solutia/Prayon facility, the PRPs will submit a work plan for EPD approval to further investigate the exceedances within 90 days.

Since the 2002 RCRA permit was allowed to expire (February 4, 2012), the PRPs shut down the groundwater extraction system subsequent to the August 2011, groundwater sampling event. As specified in the November 2014 Consent Order, the PRPs submitted a draft groundwater monitoring work plan to EPD in January 2015. EPD approved the submitted work plan in February 2015. The PRPs also submitted a draft environmental covenant to EPD for review in February 2015. Copies of the Consent Order and the Groundwater Monitoring Work Plan are included in Attachment A.

5.0 Progress Since the Last Review

The Table below presents a summary of the progress made on the recommendations from the 2010 FYR.

Table 2: Progress on Recommendations from 2010 FYR

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Significant decrease in groundwater flow rate from extraction well EX-3.	Evaluate EX-3 to determine the cause of the decrease in flow rate and make the necessary modifications to the well to maintain consistent flow rates to support the drawdown cones of depression.	PRP	3/31/2011	EX-3 rehabilitation was not performed as the extraction system was turned off in 2011	N/A
Inconclusive trend analyses in Area II due to the high pH groundwater mobilizing on site.	Perform multivariate or stage-wise trend analyses of arsenic data in areas with elevated pH levels to account for the covariate.	PRP	9/30/2011	Statistical analysis of the historical data concluded that the remaining elevated concentrations of arsenic observed at the Site are the results of groundwater with elevated pH levels migrating onsite from an adjacent and upgradient facility (OxyChem). The groundwater sampling event required by Consent Order EPD-HW-1827 is designed to determine if the current site conditions are still consistent with the findings of the statistical analysis. EPD and the EPA are currently working with OxyChem to address the elevated pH groundwater plume originating from its facility and the impact that has had on arsenic concentrations at the Site.	8/11/2011
Cleanup levels attainment due to elevated pH in groundwater	Perform a comprehensive evaluation to determine the background pH level and arsenic concentrations. Utilize the results of this evaluation to determine whether modifications of the remedy and/or the cleanup levels are necessary.	PRP	9/30/2012		
Groundwater use restrictions not in place as required in 1991 ROD	Place groundwater use restrictions on the surficial aquifer as required in the 1991 ROD	PRP	9/30/2011	The PRP submitted a draft environmental covenant for review in February 2015.	4/30/2016

6.0 Five-Year Review Process

The purpose of the FYR is to evaluate the implementation and performance of the remedy, and to determine whether the remedy is or will be protective of human health and the environment. This Section summarizes the components of the FYR process.

6.1 Administrative Components

The FYR team members conducted a conference call on October 21, 2014, to initiate the review process. Representatives from the PRPs, USACE, and EPD attended a Site visit/meeting on November 20, 2014. The FYR process was led by Mr. Robenson Joseph, the EPA Remedial Project Manager (RPM). The USACE, Hazardous, Toxic, Radiological Waste (HTRW) section representatives provided technical support in developing the report. Mr. Patrick Gragson, the EPD Project Manager, assisted in the review of the report. Ms. Kerisa Coleman, the EPA Community Involvement Coordinator (CIC) provided community involvement support during the review process.

6.2 Community Involvement

On November 21, 2014, a public notice was published in the Augusta Chronicle announcing the commencement of the five-year review process for the Site. A copy of the public notice is included in Attachment B.

The FYR report will be made available to the public once it has been finalized. Copies of the report will be placed in the designated Site repository at the following address: Augusta Richmond Public Library, 902 Green Street, Augusta, GA 30901. Upon completion of the FYR report, a public notice will be placed in the Augusta Chronicle to announce the availability of the FYR report in the Site's document repository.

The USACE and the EPA CIC coordinated and conducted interviews with the Site stakeholders including Site owner(s), PRP's consultant, and EPD. Site interview details are presented in Section 6.6.

6.3 Document Review

The USACE Technical Manager, Mr. Kevin Haborak, began reviewing the Site documents in December 2014. Documents such as monitoring reports, Site investigations, remedy effectiveness evaluation, and delineation reports were reviewed. A listing of documents reviewed in developing the FYR report is included in Attachment C. In addition, Site-specific ARAR and IC were reviewed during the FYR process. The primary ARAR identified for the Site was the MCL for arsenic, which has not changed since the last FYR.

Institutional Control Review

Groundwater use restrictions put in place in accordance to the 1991 ROD have expired. As discussed in Section 4.3, the new Consent Order (EPD-HW-1827) executed in November 2014, requested that the PRPs to submit a draft environmental covenant for EPD approval as an IC to minimize potential human exposure to COC and restrict groundwater use in the surficial aquifer within 90 days. The PRPs

submitted the draft environmental covenant to EPD for review in February 2015. It is anticipated that the environmental covenant will be fully executed by April 2016. Figure 4 shows the extent of the residual groundwater contamination at the Site.

6.4 Data Review

The PRPs previously performed extensive studies to determine the transportation and mobility of arsenic in the groundwater. Several univariate and multivariate statistical techniques were used to assess background arsenic concentrations and pH levels. In addition, laboratory analyses and batch studies were performed in order to evaluate the geochemistry of the Site and to enhance the Site conceptual model. The results of these analyses were presented in a *Technical Memorandum* (CDM, April 2010) and the *Evaluation of Arsenic Mobilization and Transport Report* (CDM, February 2008). These results were summarized in the previous five-year review report and subsequently further discussed and evaluated.

Historical arsenic monitoring data is included in Attachment D. The sampling frequency has varied over time and by well (i.e., quarterly, semi-annually, etc.). Therefore the data have been condensed into average annual arsenic concentrations. The data were included in the *Annual Report of Corrective Action Effectiveness* (URS, 2011) for the 18th monitoring period. One sampling event (June 2011) was conducted after the completion of the previous FYR and prior to shutting the extraction system down. The results of the June 2011 groundwater sampling event are consistent with the previous analyses. The arsenic concentrations in the areas that have not been impacted by high pH groundwater do not exceed the GPAL (Figure 4); while the exceedances present are suspected to be the result of high pH groundwater migrating onto the Site and increasing particulate arsenic solubility.

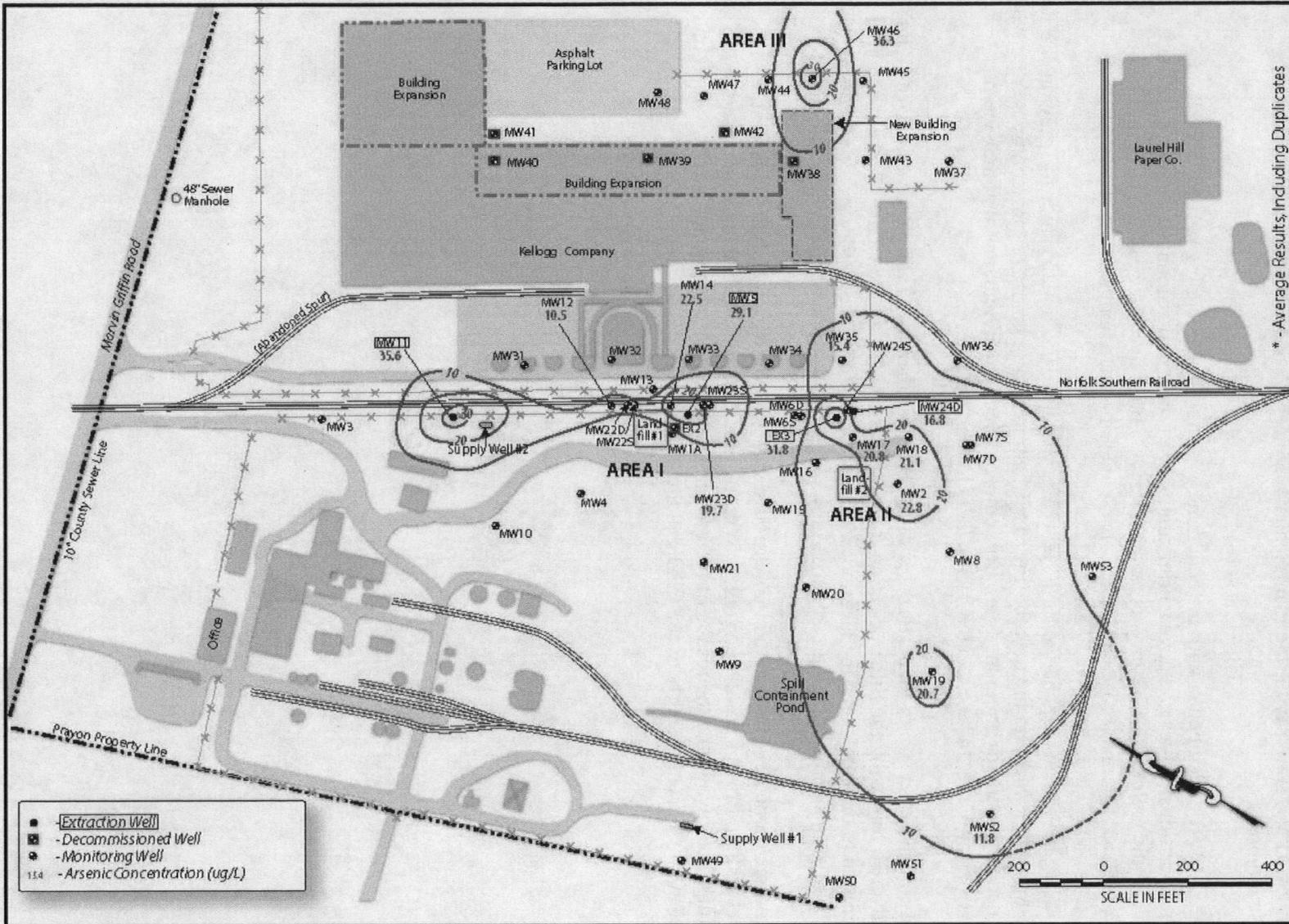
6.5 Site Inspection

On November 20, 2014, USACE representative Kevin Haborak met with Mike House of Solutia Inc., Burt Taylor of Prayon Inc., Dale Voykin of URS Corp., and Patrick Gragson and Mike Gillis of EPD. Mike House led the group in a discussion on the investigations that have been performed since the last FYR and the current status of the discussions with the EPD about the closure of the Site. A tour of the Site was taken following the discussion of recent activities.

The Site visit began with a trip to extraction wells in Area I. The former landfill in Area I is approximately 0.1 acre in size with the boundary defined by a slight mounding of the ground surface. This mounding can be seen in the Site photographs included in Attachment E. The tour proceeded south along the fence line to the vicinity of Area II.

Subsequently, all visitors were guided west along the fence line towards the location of the most recently installed background wells that are located outside the fenced area. The tour then proceeded south along the rail spur off of the Prayon property, to view the source of the anthropogenic high pH water. Finally, the tour looped back towards the Prayon property past some additional monitoring wells and back to the offices.

A copy of the Site Inspection Checklist is included in Attachment F.

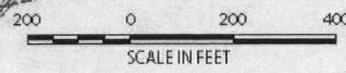


* - Average Results, Including Duplicates

Solutia Inc. - Prayon Augusta Plant 1st Semi-Annual Sampling (February 2011)		URS	
CLIENT:	Solutia Inc. - Prayon Augusta Plant	PROJECT NO.:	15263796
PROJECT:	1st Semi-Annual Sampling (February 2011)	TASK NO.:	15-400
DATE:	May 2015	FIGURE:	4
DESIGNED BY:	J. Gross		
DRAWN BY:	As Shown		
CHECKED BY:	D. Voytkin		
FILE:	H:\proj\PrayonAugusta\May 2015\Arsemi.ai		

Arsenic* in Groundwater
(Above 10 ug/L)

- - Extraction Well
- - Decommissioned Well
- - Monitoring Well
- 11.4 - Arsenic Concentration (ug/L)



6.6 Site Interviews

The Site visit, interviews and meetings were conducted on November 20, 2014. Mike House (Solutia), Burt Taylor (Prayon), Dale Voykin (URS Corp.), Patrick Gragson (EPD), and Mike Gillis (EPD) attended the visit, interviews and meetings. On December 2, 2014, the EPA CIC and RPM visited the Site and interviewed Mr. Burt Taylor, the Plant Senior Engineer. Copies of CIC Site interviews are included in Attachment G.

The November 20, 2014, visit began with introductions of each of the attending parties. The USACE personnel introduced themselves and gave a brief summary of their professional background. Mike House introduced the members of his project team and gave a brief overview of their contributions to the project. Completed Site inspection checklist is presented in Attachment F.

The discussion began with an explanation of the activities that have taken place since the previous FYR and a brief history of the Site and the neighboring OxyChem facility. The EPD representatives were asked if they had any concerns about the Site, they indicated that they did not and that they were expecting the Consent Order to be executed by the EPD in the near future.

After the question and answer period, a short tour of the Site was then taken (as discussed above). The meeting reconvened following the Site inspection. USACE personnel provided a list of documents that had been submitted to the EPD since the last review and asked Mike House to forward copies of the documents to USACE. The meeting then adjourned following final comments from Mike House.

During the aforementioned discussion, the impression derived by Mr. Kevin Haborak was that both the EPD personnel and the Prayon/Solutia personnel were in agreement that the Site may be closed, but that the deciding factor would be the results of the groundwater monitoring to be included as a part of the November 2014 Consent Order between EPD and the PRPs.

7.0 Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The review of documents, ARARs, risk assumptions, analytical data and Site inspections indicate that progress is being made. Arsenic concentrations above the GPAL persist. However, a report submitted in April 2011 provided multiple lines of evidence suggesting that the residual groundwater contamination is resulted from the migration of high pH groundwater onto the Site, which appears to be increasing the solubility of particulate arsenic.

The review of the remedy included evaluation of the remedial action performance, system operations, opportunities for optimization, early indicators of potential issues, and implementation of ICs. The Site groundwater restrictions have expired; but implementation of new restrictions will be implemented as a term of the new Consent Order.

Concentrations of arsenic in the monitoring wells in the source removal areas have typically been stable or decreasing. Arsenic is expected to be detected in Site monitoring wells above regulatory levels until the effects of the high pH water migrating onsite have either been mitigated or have migrated offsite.

The property is fenced, and access to the Site is limited to plant personnel. The production wells on the Site are deep wells and are screened below the surficial aquifer. Arsenic has never been detected in these wells.

Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

The exposure pathways, toxicity values, risk assessment methods, and standards identified in the ROD were reviewed to identify changes that may affect the protectiveness of the remedy.

New exposure pathways were not identified that could affect the protectiveness of the remedy. The land use in the vicinity of the Site is industrial and is expected to remain industrial. The physical Site conditions have not changed in such a way that they are expected to affect the protectiveness of the remedy and unanticipated toxic byproducts for the remedy have not been identified.

The initial risk assessment did not consider the vapor intrusion pathway. Vapor intrusion occurs when gases or vapors from chemicals in soil or groundwater migrate into occupied buildings. Until recently, this transport pathway was not routinely considered in RCRA or CERCLA investigations. Vapor intrusion is now a standard consideration during these investigations. Exposure via the vapor intrusion pathway does not affect the current protectiveness of the remedy since arsenic is not expected to volatilize (i.e., a complete exposure pathway does not exist).

The oral cancer slope factor (SFO) identified in the ROD is $1.75 \text{ (mg/kg-day)}^{-1}$. The current SFO established in the Integrated Risk Information System (IRIS) is $1.5 \text{ (mg/kg-day)}^{-1}$. However, this change does not affect the remedy since a risk based remediation level was not established in the ROD. A risk based remediation level was not established in the ROD for groundwater restoration because ARAR for arsenic existed. This ARAR is the MCL. Both the ROD and the RCRA permit require the

Site to obtain compliance with the MCL for arsenic. The MCL for arsenic has not changed since the 2010 FYR.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No additional information has been identified that would call into question the protectiveness of the remedy.

Technical Assessment Summary

Based on the data reviewed along with the Site inspection and interviews, the remedy has functioned as intended by the ROD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. ARARs for groundwater were evaluated to determine if the remedy is still protective. The RCRA permit for the Site has expired, but a new Consent Order (EPD-HW-1827) was executed in November 2014, which requires that ICs be placed on the Site.

Furthermore, the PRPs are to perform groundwater monitoring at select locations and provide a report of the results of that monitoring to EPD. All other monitoring wells can be closed. If the results of the sampling activities indicate that any remaining exceedances are the result of offsite sources, the Consent Order would be terminated. Otherwise, the PRPs would be required to submit a work plan to investigate the remaining exceedances.

Site groundwater monitoring data showed that arsenic concentrations at several monitoring wells are above the MCL. However, these exceedances appear to be the result of high pH groundwater migrating onto the Site from an adjacent and upgradient facility (OxyChem). EPD and the EPA are currently working with OxyChem to address the elevated pH issue at this facility.

8.0 Issues, Recommendations and Follow-up Actions

The Table below presents a summary of the issues, recommendations and follow-up actions identified during the fourth FYR.

Table 3: Issues, Recommendations and Follow-up Actions

Issues	Recommendations & Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness	
					Current	Future
Groundwater restrictions as required in the 1991 ROD are expired	Renew or place new surficial groundwater restrictions as required in the 1991 ROD and specified in the 2014 Consent Order.	Solutia	EPD/EPA	4/30/2016	No	Yes
Elevated pH in groundwater at OxyChem facility	Work with OxyChem to address elevated pH groundwater migrating from its facility.	OxyChem	EPD/EPA	9/30/2018	No	Yes

9.0 Protectiveness Statement

In the short-term, the remedy at the Site is protective of human health and the environment because there are no current exposure pathways to the contaminated aquifer. However, in order for the remedy to remain protective in the long-term, groundwater restrictions to prevent exposure to the contaminated surficial aquifer will need to be put in place. In addition, elevated pH groundwater migrating from the OxyChem facility will need to be addressed.

10.0 Next Review

FYRs are required as a matter of policy by CERCLA for this Site because the remedial action is a post-SARA action that, upon completion, will not leave hazardous substances, pollutants, or contaminants onsite above levels that allow for unlimited use and unrestricted exposure, but requires five years or more to complete. The fifth FYR for this Site will be due within five years of the signature/approval date of this report.

Attachment A
2014 Consent Order and 2015 Groundwater Monitoring Work Plan

Georgia Department of Natural Resources

Environmental Protection Division

2 Martin Luther King Jr. Drive, Suite 1456, Atlanta, Georgia 30334
Judson H. Turner, Director
(404) 656-4713

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

NOV 18 2014

Michael L. House
Manager, Remedial Projects
Solutia Inc.
575 Maryville Centre Drive
St. Louis, MO 63141

Mr. Burt Taylor
Prayon Inc.
P.O. Box 1473
Augusta, GA 30903

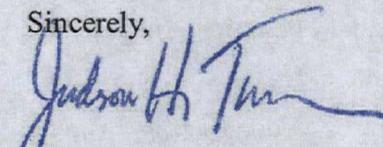
Re: Consent Order No. EPD-HW-1827
Prayon Inc. Facility, Augusta
GAD001700699

Dear Mr. House and Mr. Taylor:

Please find enclosed an executed copy of Consent Order No. EPD-HW-1827 between the Georgia Environmental Protection Division, Solutia Inc. and Prayon Inc. Please note that the Order contains specific requirements and schedules which must be followed.

If you have any questions, please contact Mike Elster at 404/656-2833.

Sincerely,



Judson H. Turner
Director

File : Prayon (R)

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WHEREAS, the former Monsanto Company spun off Solutia Inc. (hereinafter "Respondent") as an independent company on September 1, 1997, and transferred the Site to Respondent; and

WHEREAS, in 1998, EPA deferred the Site to the RCRA program under the oversight of Georgia Environmental Protection Division ("EPD"); and

WHEREAS, a portion of the Site is now currently owned and operated by Prayon Inc. ("Prayon") as a manufacturing facility; and

WHEREAS, Respondent retained responsibility for the pre-existing environmental obligations; and

WHEREAS, the Site is subject to the Georgia Hazardous Waste Management Act, O.C.G.A. § 12-8-60, et seq., as amended, and the Georgia Rules for Hazardous Waste Management, Chapter 391-3-11, as amended; and

WHEREAS, the EPD issued a Hazardous Waste Facility Renewal Permit No. HW-074(S) to Prayon ("Permit"), which became effective on February 4, 2002 and expired on February 4, 2012; and

WHEREAS, the Permit required Prayon, among other things, to pump and extract groundwater if contaminant levels exceed the cleanup goal, consistent with the ROD; and

WHEREAS, Respondent conducted a geochemical evaluation and groundwater sampling at the Site in 2006 and 2007, and the results of this investigation were reported to EPA and EPD in 2008; and

WHEREAS, an evaluation by Respondent of the data collected as part of the geochemical evaluation and groundwater sampling revealed a unique combination of chemicals in the groundwater (high levels of alkalinity, pH, sodium, silica and conductivity) that are not naturally occurring in groundwater; are not consistent with any of the current or historical manufacturing activities conducted on the Site; and are consistent with the kind of waste generated by a neighboring facility owned and operated by Occidental Chemical Corporation ("OCC"); and

WHEREAS, the results of the geochemical analysis and groundwater sampling indicate that groundwater conditions at the Site have been impacted by the migration of groundwater from the neighboring OCC facility onto the Site; and

WHEREAS, an investigation conducted by the EPA and EPD in February 2013 confirmed that there were impoundments on the OCC property with waste that is consistent with the contaminants detected in the groundwater migrating from the neighboring OCC facility and that releases from the OCC property onto the Site have occurred ("OCC Release"); and

WHEREAS, Solutia, Prayon, and EPD wish to cooperate to ensure the protection of human health and the environment at the Site.

NOW, THEREFORE, it is hereby ORDERED by the Director and CONSENTED to by the Respondent and Prayon as follows:

1. Permit. The Permit has expired and Prayon is not required to submit a new application for a Hazardous Waste Facility Permit. Further, Respondent is no longer required to: extract contaminated groundwater from the surficial aquifer and treat and discharge the extracted groundwater to a publicly owned treatment works for further treatment and disposal; or provide financial assurance as was previously required by Section IV.H. of the Permit.
2. Institutional Controls. Not later than ninety (90) days following the Effective Date of this Consent Order, Respondent and Prayon will submit a draft environmental covenant to EPD as an institutional control to minimize the potential for human exposure to contaminants of concern; and restrict on site groundwater use from the surficial aquifer. Once approved by EPD, Respondent and Prayon shall file the approved environmental covenant in accordance with Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1, et seq..
3. Groundwater Monitoring.
 - a. Respondent will perform monitoring of the groundwater at the locations identified in Attachment 1 to this Consent Order, to coincide with the next 5-year review, and provide a report of the results of that monitoring to EPD. The monitoring will be conducted pursuant to an approved work-plan, to be submitted by Respondent to EPD for review. The remaining existing monitoring wells on the Site may be closed by the Respondent after approval of the aforementioned work-plan.
 - b. Respondent will submit a monitoring report within ninety (90) days of commencement of sampling referenced in Paragraph 3.a.
 - i. If the groundwater data obtained in Paragraph 3.a. indicates that there are no exceedances of MCLs, or that the cause of an exceedance is attributable to the OCC Release (i.e., generally consistent in material respects to the previous groundwater data) then upon mutual consent of both parties, the Director will send a letter terminating this Consent Order.
 - ii. If the groundwater data obtained in Paragraph 3.a. indicates that the cause of an exceedance of MCLs is attributable to Solutia and/or Prayon, as opposed to being attributed to the OCC Release, Solutia will submit to the EPD for review and approval, a plan to further investigate the exceedances. If that further investigation determines that Solutia and/or Prayon are responsible for the MCL exceedance, Solutia and/or Prayon shall submit a remediation plan to EPD within ninety (90) days for review and approval by EPD.

4. Submittals.

- a. All documents required by the terms of this Consent Order are, upon approval by the Director, incorporated into this Consent Order. If the document is a plan or a schedule, it shall be implemented pursuant to the details therein. Any noncompliance with such approved documents shall be termed noncompliance with this Consent Order.
- b. If the Respondent or EPD determines that any document required by this Consent Order no longer satisfies the goals of the approved document, the Respondent shall, within thirty (30) days of such determination by the Respondent or written notification by EPD, submit, for EPD approval, a modified document to make the appropriate changes to the document.
- c. In the event of EPD disapproval (in whole or in part) of any document required by this Consent Order, EPD shall specify any deficiencies in writing. The Respondent shall modify the document to correct the deficiencies, and shall submit the document for EPD review within thirty (30) days from the receipt of the referenced disapproval by EPD, subject to the dispute resolution provisions contained in this Consent Order.

5. Dispute Resolution. Should the Respondent take exception to all or part of EPD's disapproval of a document, or any other decision by EPD pursuant to this Consent Order, the Respondent shall submit to EPD a written statement of the grounds for the exception. If agreement cannot be reached, the dispute shall be elevated to the Branch Chief of the EPD's Land Protection Branch ("BC") and a management representative of the Respondent. The BC and management representative of Respondent will confer (in person, in writing, or by telephone) in an attempt to resolve any disagreement. If agreement cannot be reached, the dispute will be elevated to the Director of EPD ("Director") and a management representative of Respondent at the level of Vice President. The Director and Vice President of the Respondent will confer (in person, in writing, or by telephone) in an attempt to resolve any disagreement, after such time the Director shall issue a letter to Respondent setting forth EPD's final decision on the matter. Respondent may challenge such final decision of the Director in accordance with the Georgia Administrative Procedures Act.
6. No change in ownership or corporate status relating to the Site shall alter Respondent's obligations under this Consent Order.
7. Notwithstanding compliance with the terms of this Order, the Respondent may be required to take further action as necessary, including groundwater monitoring assessment and/or remediation to achieve compliance with the Georgia Hazardous Waste Management Act, or other applicable state or federal laws.

The individual signing this Consent Order for the Respondent is duly authorized to enter into and bind the Respondent to the terms of the Consent Order. The individual signing this Consent Order for Prayon is duly authorized to enter into and bind Prayon to the terms of the Consent Order.

This Consent Order shall be signed first by the Respondent and Prayon and shall be deemed fully executed when signed by the Director of EPD. The Effective Date of this Consent Order shall be the date that the Consent Order is signed by the Director of EPD.

It is so ORDERED, CONSENTED, AND AGREED to this 18th day of Nov., 2014 (to be filled in by the Director upon his signature):

**FOR THE RESPONDENT,
SOLUTIA INC.**

By: Edwin Williamson
(Signature)

Edwin Williamson
(Printed Name)

TITLE: Vice President

DATE: October 27, 2014

**FOR THE ENVIRONMENTAL
PROTECTION DIVISION**

Judson H. Turner

Judson H. Turner, Director
Environmental Protection Division
Department of Natural Resources
State of Georgia

FOR PRAYON INC.

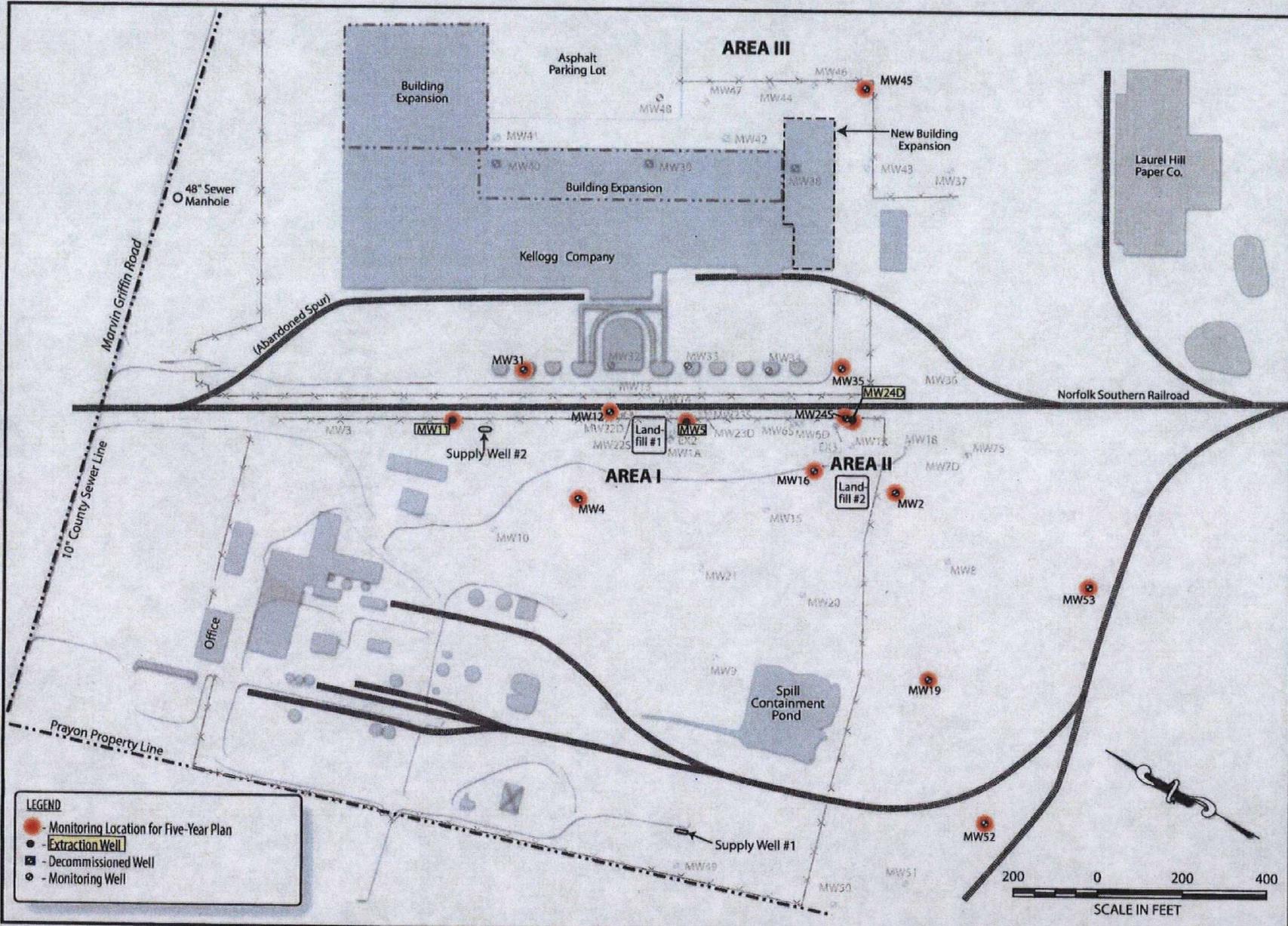
By: [Signature]
(Signature)

B. FAYTES
(Printed Name)

TITLE: COO

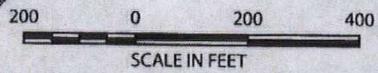
DATE: 10/22/14

Attachment 1



LEGEND

- - Monitoring Location for Five-Year Plan
- - Extraction Well
- ⊠ - Decommissioned Well
- - Monitoring Well



CLIENT: Solutia Inc. - Prayon Augusta Plant		TITLE: Monitoring Location Plan	
PROJECT: Five-Year Monitoring Plan		PROJ. NO.: 15762530	
DATE: April 2014	DESIGNED BY: J. Gross	TASK NO.: 21105	FIGURE: 1
SCALE: As Shown	DRAWN BY: J. Gross		
FILE: H:\proj\PrayonAugusta\April2014\MonitoringPlan.ai	CHECKED BY: D. Voykin		



PROPOSED GROUNDWATER MONITORING WORK PLAN

**PRAYON INC. PLANT SITE
(FORMER MONSANTO PLANT SITE)
1610 MARVIN GRIFFIN ROAD
AUGUSTA, RICHMOND COUNTY, GA
GAD001700699**

Prepared for:

Solutia Inc.
575 Maryville Centre Drive
St., Louis, MO 63141-5813



Prepared By:

AECOM
1000 Abernathy Road, Suite 900
Atlanta, GA 30328

Project No. 15263570.14100

January 26, 2015

CERTIFICATION

PROPOSED GROUNDWATER MONITORING WORK PLAN

JANUARY 26, 2015

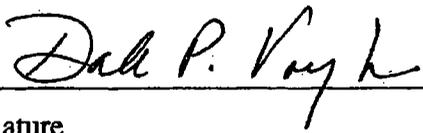
**PRAYON INC. PLANT SITE
(FORMER MONSANTO PLANT SITE)
1610 MARVIN GRIFFIN ROAD
AUGUSTA, RICHMOND COUNTY, GA**

GAD 001700699

**PREPARED FOR
SOLUTIA INC.
575 MARYVILLE CENTRE DRIVE
ST. LOUIS, MO 63141-5813**

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 hydrogeology and related fields, as demonstrated by state registration and completion of accredited university courses, that enabled 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.

State of Georgia Professional Geologist No. 1220



Signature

Dale P. Voykin, P.G.
AECOM - Atlanta

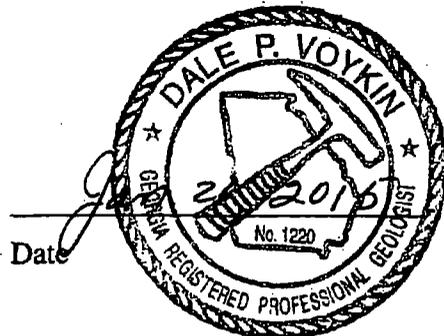


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Table 1	GWMWP Well Details
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This Groundwater Monitoring Work Plan (GWMWP) is intended to outline testing activities proposed to support compliance with the Consent Order (EPD-HW-1827) entered into by Solutia Inc. (Solutia) and the Georgia Environmental Protection Division (GAEPD) for the Prayon Inc. (former Monsanto Company) Augusta Facility, located in Richmond County, Georgia on November 18, 2014 (Consent Order). The groundwater monitoring activities proposed herein are written to address the requirements in Paragraph 3 of the Consent Order.

Detailed site background and additional information concerning the Prayon Inc. site was provided in the Summary of Multiple Lines of Evidence of Offsite Contamination Affecting Onsite Groundwater Arsenic Concentrations Report, submitted to the GAEPD on April 5, 2011. A final report detailing the results of the groundwater investigation proposed herein is scheduled to be submitted in the spring of 2015.

1.1 SITE DESCRIPTION

The former Monsanto Company (now known as Pharmacia, LLC) constructed a manufacturing facility (Facility) at the Site to produce phosphoric acid and sodium tripolyphosphate in 1962. In 1966, the Facility began producing food grade phosphoric acid, which generated process wastes consisting of arsenic trisulfide, filter aid, and residual phosphoric acid. The Facility ceased phosphoric acid production in April 1988.

The Facility is located on approximately 75 acres in an area zoned for commercial and industrial use. A site map (the Site) showing the location of the Facility and nearby properties is presented on **Figure 1**.

The Facility is underlain by Coastal Plain sediments of Cretaceous and Tertiary age. These sediments consist of cross-bedded sands and gravels, with interbedded sandy clays. Groundwater beneath the Site is shallow, ranging from approximately 15 to 25 feet below ground surface (bgs), and predominantly flows eastwards across the Site. In the past, this shallow surficial groundwater had been affected (arsenic contamination) by historic phosphoric acid production. The Tuscaloosa Formation, a major aquifer for production wells in the area, is found approximately 110 - 220 feet bgs at the Site but there has never been any indication that this deeper aquifer has been negatively affected by the process wastes generated by the Facility. Previous pumping tests conducted at the Facility indicate that there is little connection between the shallow surficial water bearing zone and the underlying deeper Cretaceous aquifer, due to the presence of an intervening 40-foot thick clay at the Site.

Historically, all of the remedial activities that have taken place at the Site were to remediate affected groundwater located within the shallow surficial water bearing zone. These activities have included closure of two former permitted onsite landfills in 1974, excavation and offsite disposal of the contents of both landfills in 1983, cessation of phosphoric acid production in 1988, and the continuous operation of a groundwater pump and treat (P&T) system for the shallow surficial aquifer during the period from 1993 to 2011. During this 18-year period of P&T operation, the system extracted approximately 49.5 million gallons of surficial groundwater.

In 2011, in support of a request for no further action (NFA) status for the Site, Solutia submitted a report to both the United States Environmental Protection Agency (EPA) and the GAEPD detailing the lines of evidence demonstrating that offsite groundwater contamination was affecting current onsite groundwater arsenic concentrations. A later investigation conducted by both EPA and GAEPD in 2013 supported the evidence in the Solutia Report. More specifically, it is understood that high pH groundwater from offsite is impacting the site, resulting in an increase in the levels of dissolved arsenic content in site groundwater.

1.2 CONSENT ORDER – PARAGRAPH 3

Paragraph 3 of the Consent Order requires that Solutia conduct monitoring at fourteen (14) specified monitoring well locations, to coincide with the next 5-year review, and that a report of the sampling results is to be submitted to the GAEPD within ninety (90) days of the commencement of sampling. The Consent Order further stipulates that the groundwater monitoring be conducted pursuant to an approved work plan and that, with the exception of the 14 specified monitoring locations, the remaining thirty-five (35) existing well locations can be closed (decommissioned) upon approval of the work plan. The locations of the wells associated with previous groundwater remedial activities at the Site, as well as the 14 key groundwater monitoring wells, are presented on **Figure 2**.

Based upon the groundwater sampling results at the 14 select monitoring locations, two key outcomes under consideration for the Site include:

- a. If the groundwater data indicate that there are no exceedances of EPA Maximum Contaminant Limits (MCLs) for groundwater, or if the cause of the MCL exceedances is generally consistent in material respects to previous historic groundwater data from the Site, the Consent Order can be terminated.
- b. If the groundwater data indicate that there are exceedances of EPA MCLs for groundwater that are attributable to Solutia and/or Prayon operations at the Site, Solutia must submit an approved plan for further investigation of the exceedances. Then, if the subsequent investigation determines that Solutia and/or Prayon are responsible for the MCL exceedances, the responsible party must submit a remediation plan to the GAEPD within 90-days of the determination.

The following sections in this GWMP briefly summarize the various steps that will be taken to address the sampling requirements of Paragraph 3 in the Consent Order.

This section describes the technical approach of the groundwater monitoring activities proposed in this GWMWP to be conducted at the Site to address the requirements of Paragraph 3 of the Consent Order described in Section 1 of this document.

Field procedures, including well development, field measurement, sampling procedures, and field quality control, will be conducted in accordance with GAEPD guidelines and EPA Region IV's "*Field Branches Quality System and Technical Procedures*" (FBQSTP).

The existing site-specific Health and Safety Plan will be modified to incorporate the additional sampling activities and address potential exposure pathways that may be introduced with this sampling effort. The Health and Safety Plan will be completed in accordance with the OSHA requirements specified in 29 CFR 1910.120. Fieldwork will be completed under direction of a URS Georgia-registered Professional Geologist, utilizing resources from the URS office located in Atlanta, Georgia.

Field activities will be conducted at the Facility and on an adjacent downgradient property with a different owner (Kellogg Company). It may be necessary to update the access notification and the agreement with this property owner prior to initiating field activities, although it is possible that the existing agreement can be extended through the date of the field activities. Since no intrusive field activities are anticipated, it will not be necessary to locate any utilities during this sampling effort.

2.1 ADDITIONAL WELL DEVELOPMENT

Currently, there are forty-nine (49) existing groundwater monitoring and/or extraction wells located both on and offsite, which are associated with groundwater activities at the former Monsanto facility. Fourteen (14) of these existing wells have been selected for additional monitoring activities to provide evidence supporting the NFA request for this Site. The select wells for the monitoring effort are MW-2, MW-4, MW-5, MW-11, MW-12, MW-16, MW-19, MW-24S, MW-24D, MW-31, MW-35, MW-46, MW-52, and MW-53.

Many of the 14 select wells have not been sampled on a regular basis since the last sampling conducted in February 2011. Two of the wells (MW-4 and MW-16) have not been sampled on a regular basis since July 1986 and July 1988, respectively. In addition, four of the select wells (MW-5, MW-11, MW-24S, and MW-24D) were previously used as extraction wells within the active P&T system and biological fouling in these wells and the associated piping was the root cause for termination of the P&T system operation in 2011. To rejuvenate the select wells prior to sampling and remove extraneous inert materials (sand, silt, and clay) and much of the biological fouling, additional high energy well development will be conducted at the 14 proposed monitoring well locations prior to sampling. The well development will aid in reducing the potential for false positives, particularly for arsenic analyses.

The construction details of the existing wells associated with the Site are provided on **Table 1**. The 14 select wells, the subject of this monitoring plan, are highlighted in blue on this table.

2.1.1 One and Two-inch Diameter Wells

One of the wells selected for monitoring (MW-2) is constructed of 2-inch diameter (PVC) casing (PVC) and two of the wells selected for monitoring (MW-52 and MW-53) are constructed of 1-inch diameter (PVC) casing. These wells will be redeveloped manually using 0.5-inch diameter PVC piping and the appropriately-sized Qwater well development tool (QWD-100 for MW-52 and MW-53; QWD-200 for MW-2) for surging/pumping of sediment entrained groundwater to the surface.

The Qwater well development tool utilizes the surge block method, along with a ball valve, to develop wells and increase the well yields, while lowering the water turbidity. In wells MW-2, MW-52, and MW-53, the Qwater Well Developers will be connected to standard rigid 1/2-inch PVC piping (or small-diameter coiled polyethylene piping) that will be used as both a push rod and riser during the development activities.

A minimum of 10-bore volumes of groundwater will be manually extracted from each well and collected in drums for later disposal (after solids settling), via the plant's permitted discharge to the local POTW.

2.1.2 Four-inch Diameter Wells

The eleven remaining well selected for monitoring (MW-4, MW-5, MW-11, MW-12, MW-16, MW-19, MW-24S, MW-24D, MW-31, MW-35, and MW-46) are constructed of 4-inch diameter (PVC) casing. Because of the weight associated with the volume of water in these larger-diameter wells, the wells will be redeveloped using a drilling rig. A 4-inch Qwater Production Well Series developer fitted with a 1.5-inch female tapered NPT pipe thread will be attached to the drill rods of the rig. Then, beginning at the bottom of the screen, the well will be surged using a short stroke and raising and lowering the Qwater development tool slowly. To reduce the potential for screen collapse, strong upstrokes will be minimized by maintaining a surging speed to less than 0.5 feet per second. Care will be taken to ensure that the weight of the drill rod does not crush the tool on the downstroke into the bottom of the well. Development will consist of working the Qwater tool up and down, slowly, to surge the water back and forth, in and out of the screen. Periodically the tool will be removed and the turbid water will be pumped (or blown with air) from the well using the drilling rig's on-board capabilities (pump or compressor).

All fluids will be contained at the surface. A minimum of 10-bore volumes of groundwater will be mechanically extracted from each well and collected in drums for later disposal (after solids settling), via the plant's permitted discharge to the local POTW.

2.2 GROUNDWATER MONITORING

Four (4) to six (6) weeks after the high-energy redevelopment activities at the Site have taken place, groundwater monitoring activities will commence. The 4-6 week period was selected to allow sufficient time after the redevelopment activities have taken place for any suspended soil particles (i.e., very fine silts and clays) in the monitoring well water to settle out prior to the

sampling. Soils in suspension during the subsequent total metal's analysis by the laboratory could result in the generation of false positives.

2.2.1 Groundwater Gauging

Groundwater gauging (depth to groundwater measurements) activities will be conducted at the 49 existing wells associated with the Site. The locations of the existing Site wells to be gauged have previously been provided on **Figure 2**. All gauging will be completed within a 24-hour period, prior to initiating sampling activities at the 14 wells selected for groundwater sampling. **Table 1** provides information on the previously-measured depth to water in the Site wells during the last sampling event conducted at the Facility in February 2011.

Water level measurements will be conducted in accordance with EPA Region IV's FBQSTP Guidance for Groundwater Level and Well Depth Measurement No. SESDPROC-105-R1.

2.2.2 Groundwater Analytes

The chemical constituents that will be analyzed during the monitoring of the 14 select wells are the constituents that historically have been most indicative of manufacturing activities at the site.

Field parameters to be monitored during sampling include:

- pH,
- conductance,
- dissolved oxygen (DO),
- temperature,
- oxidation-reduction potential (ORP), and
- turbidity.

The groundwater analytes, to be determined by an approved (Georgia) sub-contract laboratory, for total (non-filtered) content, include:

- arsenic (Method SW846 6010B),
- sodium (Method SW846 6010B), and
- total phosphorus (EPA 365.3).

The sample container to be used, preservation method, and holding time guide for the analytes of interest are as follows:

- arsenic and sodium - 500 ml plastic container preserved with HNO₃ to a pH < 2 (6 months),
- total phosphorus - 250 ml plastic container preserved with H₂SO₄ to a pH < 2 (28 days),
- aqueous samples to be maintained at a temperature less than 6°C (<42.8°F) after collection.

2.2.3 Quiescent Sample Collection Methods

At each well location, quiescent groundwater sampling of the 14 select wells will be accomplished using low flow/low volume sampling techniques using a peristaltic pump, along with disposable polyethylene tubing. However, depending on individual well yields and the depth to water in each well, it may be necessary to conduct low-flow sampling techniques in some wells using a submersible mechanical pump or using bailer sampling techniques.

Groundwater sampling will be conducted in accordance with the EPD-approved procedures and/or a modification of the EPA Region 4's Field Branches Quality System and Technical Procedures (FBQSTP) Groundwater Sampling Operating Procedure SESDPROC-301-R0 (February 2007). The sampling team will place the pump intake in the middle of the screen and the discharge from the pump will be controlled so that the water level drop in the well is minimized during purging. Generally, unless conditions dictate otherwise, the water level in the well will not be allowed to drop more than 0.33 ft during the sampling event. The type of pump(s) and purge technique used will be included on the field sampling logs, regardless of whether low flow/low volume or low flow/low stress sampling occurred.

Field water-quality parameters (pH, specific conductance, temperature, DO, ORP, and turbidity) will be measured in a flow-through cell connected to the discharge line of the pump using a hand-held water-quality meter. The field water-quality parameters will be collected during well purging and before the collection of groundwater samples. Field parameters will be considered stabilized if, after three consecutive readings at 5-minute intervals, the results are as follows:

- pH \pm 0.1 unit;
- Specific conductance \pm 3%;
- Temperature, DO, and turbidity \pm 10%, and
- ORP \pm 10 mV.

A maximum of ten readings will be collected. Once the parameters have stabilized, the flow-through cell will be disconnected and the samples will be collected from the pump discharge line. The amount of water purged between collection of stabilization readings will be adequate to assess any trends that may be occurring in the field parameters.

If any of the Site wells have a very low yield and are not suitable for low-flow (peristaltic or submersible mechanical pump) sampling, the wells will be sampled using a bailer. At each location requiring bailer sampling, a new, disposable, PVC bottom-loading bailer and nylon bailer line will be used. The well will be purged dry, and once a sufficient volume of groundwater has entered the well casing, a sample will be collected. Field water quality parameters will be collected prior to purging and once again prior to sample collection.

2.2.4 Sample Locations

The locations of the fourteen (14) monitoring wells selected for additional groundwater sampling, with the extraneous wells removed for clarity, are provided on **Figure 3**.

This section describes the general procedures and requirements (calibration, decontamination, documentation, etc.) that are necessary to be followed during the subsequent performance of the groundwater monitoring event presented in the GWMWP.

3.1 FIELD INSTRUMENT CALIBRATION

Field instruments used for the collection of water quality parameters will be calibrated daily in accordance with the manufacturers' specifications. Documentation of field calibration will be maintained in the sampling logs.

3.2 EQUIPMENT DECONTAMINATION

Prior to using any sampling equipment, and between each sample, decontamination of the equipment will be conducted for all non-disposable equipment. Wherever possible, equipment decontamination can be eliminated by using disposable or dedicated equipment (e.g., new tubing at each sampling location purged with a peristaltic pump, the use of laboratory-provided sample containers, etc.). Equipment carried from well to well (e.g., water level meter, submersible pump, etc.) must be decontaminated. Decontamination of groundwater sampling equipment will be accomplished by using the following procedure:

1. Wash with phosphate-free detergent and tap water as soon as possible using a brush to remove any particulate matter or surface film.
2. Rinse the equipment thoroughly with tap water or bottled water.
3. Rinse the equipment thoroughly with de-ionized water.
4. Maintain the equipment in a clean manner until reuse.

3.3 FIELD DOCUMENTATION

Field documentation and sample chain-of-custody documentation will be maintained in accordance with standard company procedures. Field data sheets will be utilized to the maximum extent practical. Laboratory-supplied chain-of-custody documentation will be provided for each sample collected, in order to ensure an accurate written record that can be used to trace the possession and handling of samples from the moment of collection through laboratory analyses.

3.4 FIELD QUALITY ASSURANCE / QUALITY CONTROL SAMPLES

During the monitoring event, field Quality Assurance/Quality Control (QA/QC) samples will be collected and submitted to the subcontract laboratory for analyses. The QA/QC samples specified for groundwater analyses will include:

- Field duplicates; collected at a frequency of one per 20 samples or one every 5 days, whichever is more frequent, per method,
- Blind sample (one standard for arsenic); prepared by an external Laboratory and submitted along with the routine samples for analysis to the subcontract laboratory,

- Rinseate blanks; collected once per week per sampling team.

3.5 REPORTING

The results of the sampling event will be documented in a Groundwater Monitoring Report. The report will include a summary of sample collection activities, tables of verified results for all analytes tested, a water table contour map, and constituent distribution maps for the primary constituents. Report appendices will contain:

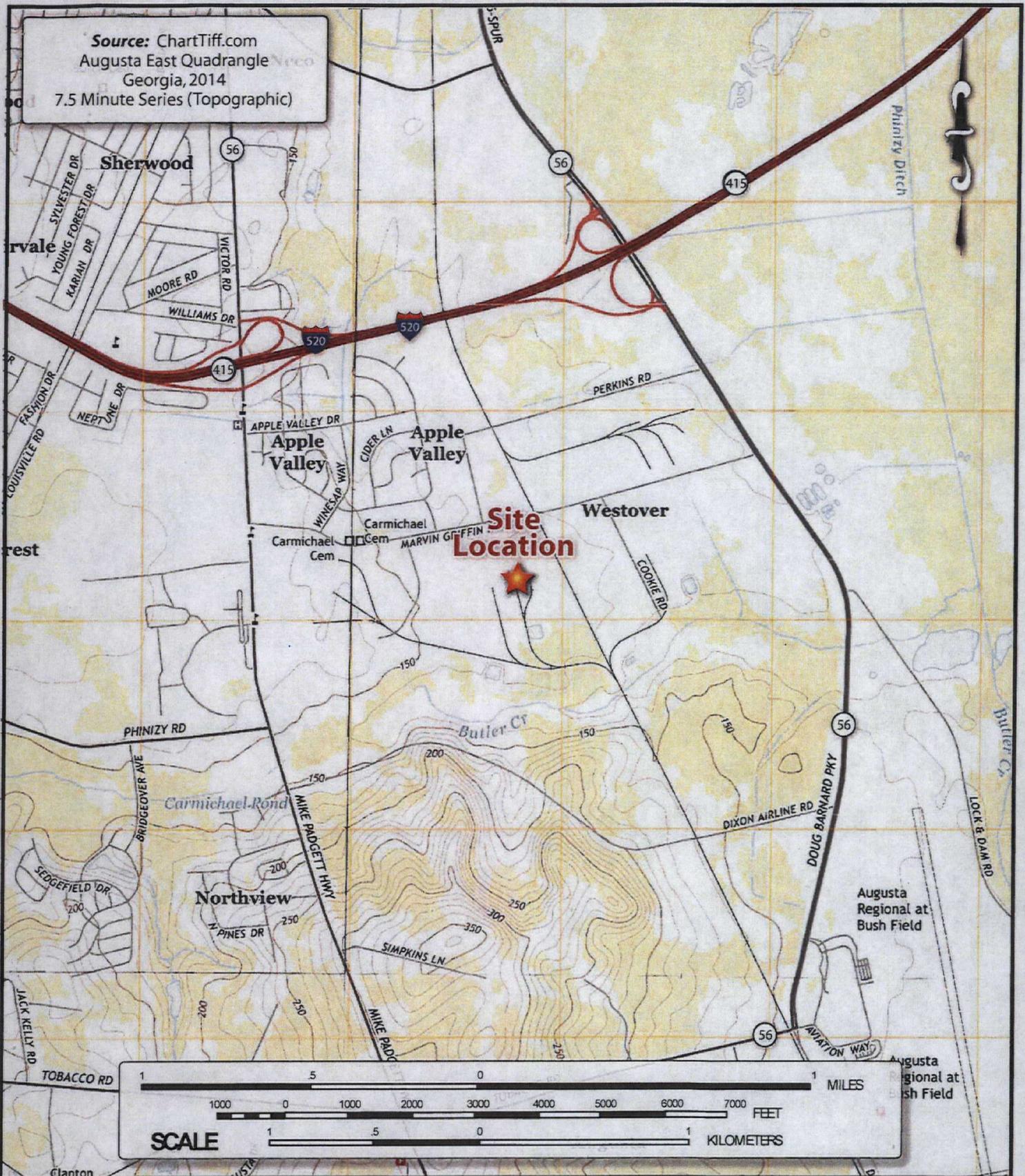
- Field records; i.e., sampling forms, chain-of-custody documentation and calibration logs
- Laboratory analytical reports
- Other (Miscellaneous observations, pictures, etc.)

Each report will be provided to the GAEPD within ninety (90) days of the commencement of sampling.

- CDM and URS. 2011. *Summary of Multiple Lines of Evidence of Offsite Contamination Affecting Onsite Groundwater Arsenic Concentrations, Former Monsanto Plant Site, Augusta, Georgia*. April 5, 2011.
- Georgia EPD. 2014. Consent Order No. EPD-HW-1827. Between EPD, Solutia Inc., and Prayon Inc. Executed November 18, 2014.
- U.S. EPA. 2013. *Region IV Field Branches Quality System and Technical Procedures*. Athens, Georgia. (various dates of issuance for select procedures). <http://www.epa.gov/region4>.

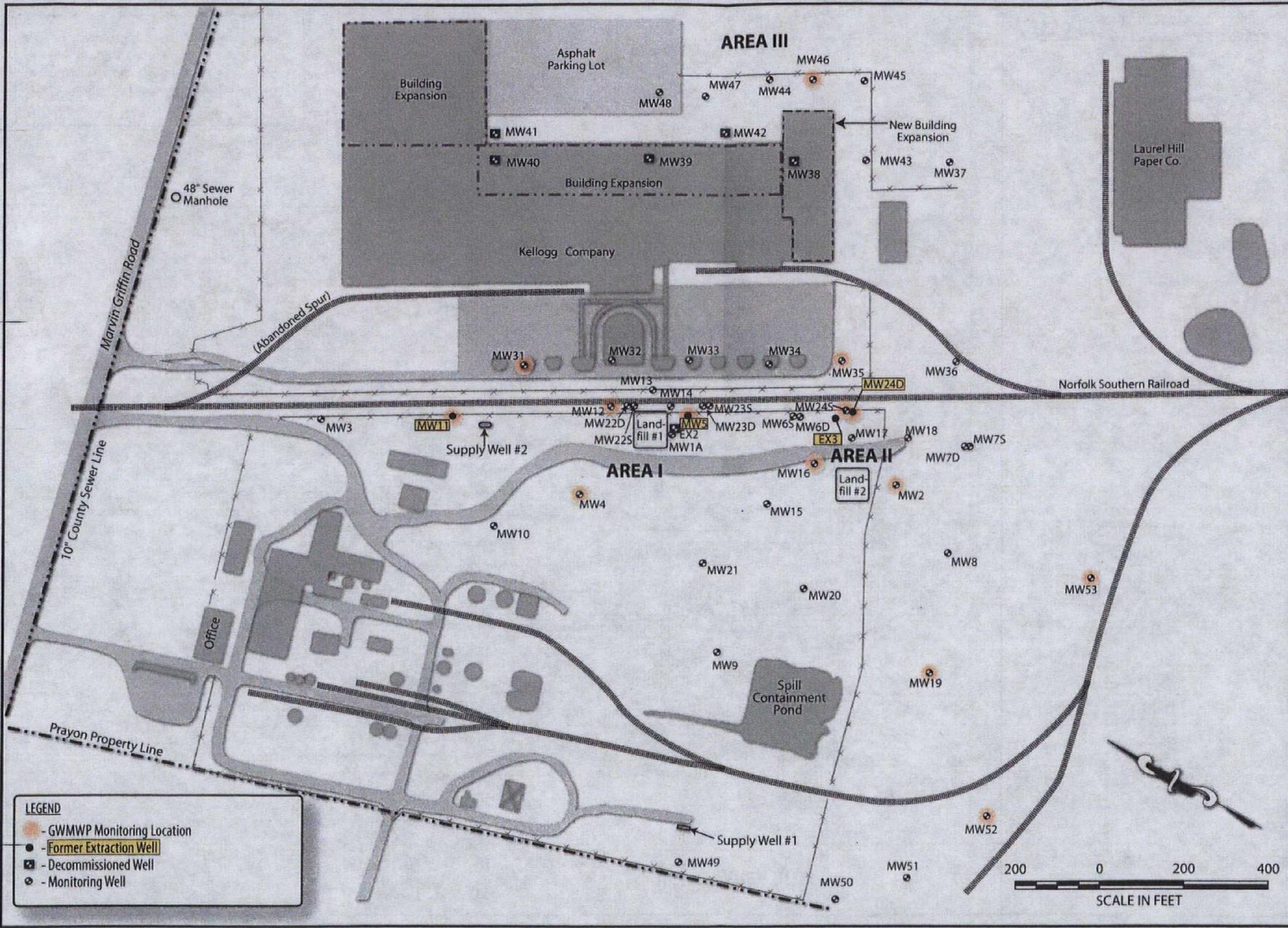
Figures

Source: ChartTiff.com
 Augusta East Quadrangle
 Georgia, 2014
 7.5 Minute Series (Topographic)



CLIENT:	Solutia Inc. - Prayon Augusta Plant	
PROJECT:	Groundwater Monitoring Work Plan (GWMWP)	
DATE:	November 2014	DESIGNED BY:
SCALE:	1:24,000	DRAWN BY:
FILE:	H:\proj\Prayon\Augusta\GWMWP Nov 2014\Figure 1.ai	CHECKED BY:
		J. Gross
		D. Voykin

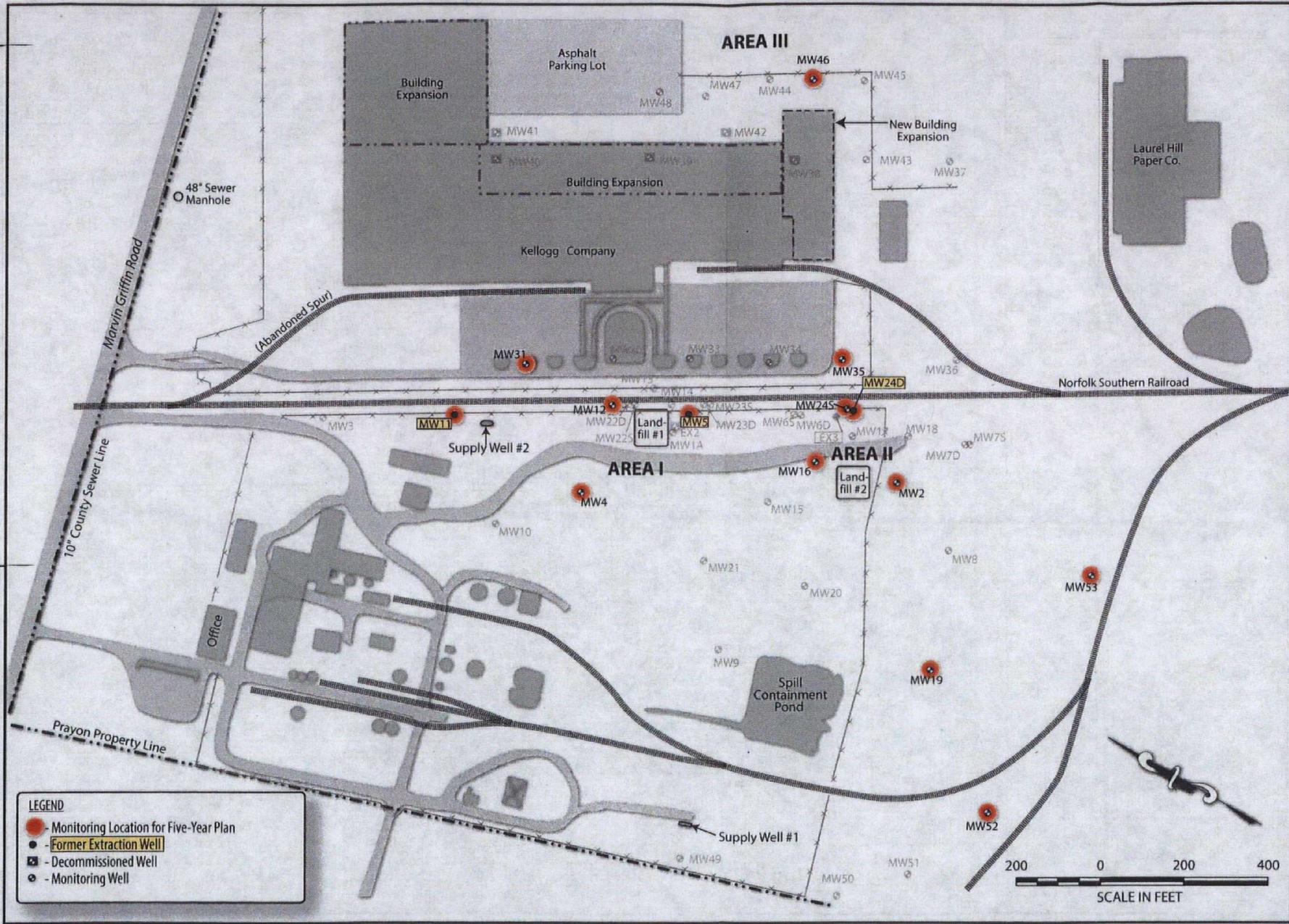
TITLE:	Site Location Map
URS	
PROJ NO.:	15263570
TASK:	14100
FIGURE:	1



LEGEND

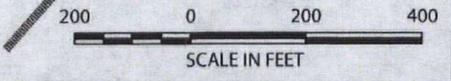
- - GWMWP Monitoring Location
- - Former Extraction Well
- ⊠ - Decommissioned Well
- - Monitoring Well

CLIENT: Solutia Inc. - Prayon Augusta Plant		TITLE: Gauging Locations	
PROJ. NO.: 15263570	DESIGNED BY: J. Gross	PROJ. NO.: 15263570	
DATE: January 2015	DRAWN BY: J. Gross	TASK NO.: 14100	FIGURE: 2
SCALE: As Shown	CHECKED BY: D. Voykin	Laurel Hill Paper Co.	
FILE: H:\proj\PrayonAugusta\GWMWP Jan 2015\GaugingLocs.ai	Norfolk Southern Railroad		



LEGEND

- - Monitoring Location for Five-Year Plan
- - Former Extraction Well
- - Decommissioned Well
- - Monitoring Well



<p>CLIENT: Solutia Inc. - Prayon Augusta Plant</p> <p>PROJECT: Groundwater Monitoring Work Plan (GWMWP)</p> <p>DATE: January 2015</p> <p>SCALE: As Shown</p> <p>FILE: <small>\\:\proj\PrayonAugusta\GW\MWP-Jan 2015\SamplingLocations.ai</small></p>	<p>TITLE: Sampling Locations</p> <p>DESIGNED BY: J. Gross</p> <p>DRAWN BY: J. Gross</p> <p>CHECKED BY: D. Voykin</p> <p>PROJ. NO.: 15263570</p> <p>TASK NO.: 14100</p> <p>FIGURE: 3</p>
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Table

**Table 1
GWMWP WELL DETAILS
FORMER MONSANTO PLANT SITE
AUGUSTA, RICHMOND COUNTY, GEORGIA**

Monitoring Point	Water Level Measurements*			Well Details										Comments
	MP Elev ¹	SWL BMP ²	SWL Elev ³	Installation date	boring depth (feet)	well diameter (inches)	well depth (feet)	sump length (feet)	screen length (feet)	Casing material	stick up	flush mount		
MW1A	147.28	17.51	129.77	6/25/1979	25.0	1.5	24.0		10.0	PVC	yes			
MW2	142.85	14.88	127.97	6/26/1979	31.5	2.0	30.0		20.0	PVC	yes			
MW3	147.55	16.92	130.63	3/27/1980	49.5	2.0	25.0		15.0	PVC	yes			
MW4	147.63	19.13	128.50	3/30/1984	32.0	4.0	28.0		20.0	PVC	yes			
MW5	147.12	23.00	124.12	3/27/1984	30.0	4.0	27.5		20.0	PVC	yes		pump	
MW6S	145.86	18.82	127.04	3/26/1984	31.0	4.0	28.0		20.0	PVC	yes			
MW6D	145.99	18.81	127.18	3/30/1984	40.5	4.0	36.8		20.0	PVC	yes			
MW7S	145.26	17.58	127.68	3/28/1984	30.0	4.0	27.5		20.0	PVC	yes			
MW7D	144.90	17.23	127.68	4/31/1984	48.5	4.0	38.0		20.0	PVC	yes			
MW8	144.01	15.86	128.15	3/28/1984	31.5	4.0	28.0		20.0	PVC	yes			
MW9	146.27	16.90	129.37	3/26/1984	30.0	4.0	29.5		20.0	PVC	yes			
MW10	145.05	12.82	132.23	11/11/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW11	147.39	21.01	126.38	11/5/1985	30.0	4.0	29.3		20.0	PVC	yes		pump	
MW12	148.73	22.13	126.60	11/6/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW13	147.18	20.95	126.23	11/4/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW14	148.39	25.10	123.29	11/5/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW15	144.92	16.85	128.07	10/31/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW16	145.52	18.10	127.42	10/31/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW17	145.50	18.14	127.36	10/30/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW18	143.89	16.30	127.59	11/7/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW19	144.16	14.25	129.91	11/7/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW20	144.82	16.19	128.63	11/6/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW21	144.62	15.74	128.88	11/9/1985	30.0	4.0	29.5		20.0	PVC	yes			
MW22S	148.28	22.22	126.06	6/24/1986	45.0	4.0	41.8		15.0	PVC	yes			
MW22D	148.61	22.82	125.79	6/21/1986	64.0	4.0	61.7		5.0	PVC	yes			
MW23S	148.65	21.85	126.80	6/24/1986	36.0	4.0	35.8		15.0	PVC	yes			
MW23D	148.31	22.75	125.76	6/19/1986	50.0	4.0	43.7		5.0	PVC	yes			
MW24S	144.58	17.04	127.54	6/23/1986	25.0	4.0	23.5		15.0	PVC	yes			
MW24D	144.14	20.72	123.42	6/16/1986	36.0	4.0	33.5		5.0	PVC	yes		pump	
MW31	141.83	15.70	126.15	10/25/1989	45.0	4.0	40.0	3.0	10.0	PVC		yes		
MW32	142.12	16.33	125.79	10/21/1989	38.5	4.0	37.3	3.0	10.0	PVC		yes		
MW33	141.68	16.04	125.64	10/25/1989	40.0	4.0	39.4	3.0	10.0	PVC		yes		
MW34	142.07	16.96	125.11	10/24/1989	40.0	4.0	39.5	3.0	10.0	PVC		yes		
MW35	141.12	14.76	126.36	10/23/1989	30.0	4.0	28.5	3.0	15.0	PVC		yes		
MW36	140.27	12.95	127.32	10/20/1989	55.0	4.0	30.5	3.0	10.0	PVC		yes		
MW37	140.81	15.03	125.78	12/13/1989	35.0	4.0	35.0	3.0	10.0	PVC		yes		
MW38	139.20		127.11	12/11/1989	45.0	4.0	44.2	3.0	10.0	PVC		yes	Decommissioned	
MW39	142.83		126.67	12/6/1989	40.0	4.0	38.5	3.0	10.0	PVC		yes	Decommissioned	
MW40	143.05		125.89	12/5/1989	40.0	4.0	36.2	3.0	10.0	PVC		yes	Decommissioned	
MW41	142.95		10/24/1991	42.0	4.0	38.9	3.0	10.0	PVC		yes	Decommissioned		
MW42	139.47		10/25/1991	42.0	4.0	38.0	3.0	10.0	PVC		yes	Decommissioned		
MW43	140.49	16.63	123.86	10/22/1991	42.0	4.0	38.0	3.0	10.0	PVC		yes		
MW44	138.25	14.48	123.77	12/9/1993	51.3	4.0	49.0	3.0	10.0	PVC		yes		
MW45	139.48	16.10	123.38	9/12/2001	56.0	4.0	49.0		10.0	PVC		yes		
MW46	138.87	15.33	123.54	9/13/2001	56.0	4.0	53.0	5.0	10.0	PVC		yes		
MW47	139.46	15.46	124.00	9/12/2001	56.0	4.0	53.0	5.0	10.0	PVC		yes		
MW48	140.01	15.87	124.14	9/11/2001	51.0	4.0	48.5		10.0	PVC		yes		
MW49	146.93	16.63	130.30	8/25/2004	40.8	2.0	40.0		10.0	PVC	yes			
MW50	146.13	15.76	130.37	8/26/2004	40.8	2.0	40.0		10.0	PVC	yes			
MW51	146.29	15.63	130.66	8/27/2004	36.0	2.0	35.0		10.0	PVC	yes			
MW52	145.03	16.08	129.85	2/8/2007	30.5	1.0	20.0		5.0	PVC/SS	yes			
MW53	146.98	18.92	128.06	2/7/2007	30.0	1.0	25.0		5.0	PVC/SS	yes			
EX1	146.51	19.31	127.20	10/30/1991	47.0	6.0	41.5	5.0	30.0	PVC	yes			
EX2	147.84		2/4/1993	30.0	6.0	24.5		15.0	PVC	yes			Decommissioned	
EX3	146.51	28.54	117.97	3/17/1993	51.0	6.0	49.0	10.0	20.0	PVC	yes		pump	
AVG**	144.45	17.61	126.84		38.30	3.77	35.23		14				2/22/2011	
STD	2.98	2.53			9.42	0.99	8.41		6					

** AVERAGES EXCLUDE PRO2, WB1, AND WB2

¹ MP Elev. - Measuring Point Elevation (feet)

² SWL BMP - Static Water Level Depth Below Measuring Point (feet)

³ SWL Elev. - Static Water Level Elevation (feet)

NR - No Reading

GWMWP Monitoring Locations

AVG - Average

STD - Standard Deviation

EX 1,2,3 - Extraction Wells No. 1, 2, or 3

PRO2 - Production Well No. 2 (process water)

WB1,2 - Weir Box (1 and 2)

Attachment B
Public Notice

AUTOS

WHAT IS IT?

Our photo last week showed a section of the 1967 Chevrolet Camaro, the first year for Chevy's response to the pony car market created by the Ford Mustang.

Pontiac came out with the Camaro's twin, the Firebird, a couple of months later. Plymouth already had brought out the Barracuda just before the Mustang, and Mercury debuted the Mustang-based Cougar for 1967. AMC sold the Javelin and a shortened, sportier version called AMX. For 1970, Dodge finally joined the fray with the Challenger. Pony cars, named for the Mustang, were all the rage.

This editor never owned a Camaro, but when they came out, fellow high schooler Joe was presented one by his parents. It was the base model, with six-cylinder and a sharp-shifting three-speed on the floor, but it was cool for cruising.

One weekend we got word that another guy had made a play for Joe's girlfriend, so we went looking for him and his friends. We all silently hoped we didn't find him, because our only means of defense were the tools we found under the seat. Sitting there with a pair of Craftsman pliers, I felt a bit foolish, which we all were.

Fortunately for us and the reputation of young love everywhere, we never found the other guys.

Last week's photo showed you enough of the side of the Camaro so you would notice the vent window in the door - seen only in the 1967 model - and the clean rear fender, containing no fake louvers as in the otherwise similar Firebird. The front ends of the two General Motors products were vastly different, of course, but that didn't show in last week's photograph.



FILE/ASSOCIATED PRESS

Chevrolet introduced the Camaro for 1967 in response to the very successful Ford Mustang. 1967 was the only year it had door vent windows. The similar Pontiac Firebird could be distinguished by fake louvers behind the doors.

flying around in the press that it was to be called the Panther. When officially announced in June of 1966, true to other Chevrolet names of the period, it was a name - a made-up name - that started with a 'C.' It was suggested that the name indicates the 'comradship of good friends as a personal car should be to its owner.'

"The question of exactly what Camaro means lives on today as evidenced by more than a couple of vehement Camaro Internet blogs that are devoted to this very subject. There are some folks who have quite strong feelings on this subject!

"Only the 1967 Camaro fits all of the styling cues of the photo, so that's what I am sticking with. An older cousin of mine had a 1968 Camaro, Rallye Green with black vinyl interior. I think it only had the 327 V-8, but it was definitely an automatic with the horseshoe shift console. I loved seeing that car and riding in it. I was so jealous! I am not sure what became of it, because I only remember his later having a first-gen-

car is a 1966 or '67 Camaro. Those were the only years that Camaros had vent windows."

GROVETOWN: Terrance Glenn said: "The car is a 1967 Camaro."

HEPHZIBAH: Wendy Rosier identified the 1967 Camaro.

KEYSVILLE, Ga.: Glenn Widner wrote: "1967 Chevrolet Camaro, distinguished by the vent window. At first, I didn't like the looks of the Camaro, but have grown fond of them over the years.

"Camaro came with many options, including Rally Sport, Super Sport and my favorite, Z/28. The Z/28 came from the regular production order code Z/28 option. It was a race-ready car with a 302-cubic-inch engine that would wind to 7,000 rpm with a listed 290 horsepower with a four-barrel carburetor. Actual horsepower was much more.

"The 302 engine was a 327 block with a 283 crankshaft, made especially for SCCA Trans-Am racing.

"Camaro' is French for 'friend, pal' and 'love to chew on Mustangs.'"

LOUISVILLE, Ga.: Bob Holbert said:

Legal Notices

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Announces a 4th Five-Year Review for the Monsanto Corporation Site, Augusta, Richmond County, Georgia. A 4th Five Year Review is being conducted by the U.S. Environmental Protection Agency (EPA) on the cleanup activities taken at the Monsanto Site located in Augusta, Richmond County, Georgia. The purpose of this review is to evaluate the implementation and performance of the remedy in order to determine if the remedy is protective of human health and the environment. When completed, a copy of the review report will be placed in the Information Repositories located in the EPA Record Center, 11th Floor, 81 Forsyth Street SW, Atlanta, GA 30303, and the Augusta-Richmond County Public Library, 823 Telfair Street, Augusta, GA 30901.

EPA will also conduct interviews with nearby businesses, residents, local officials, state officials and others to obtain their opinion on the cleanup process. The community can contribute during this review by providing comments or questions. The scheduled date of completion for the five-year review is September 30, 2015. If you would like to speak with us about this Site, please contact Kerisa Coleman, EPA Community Involvement Coordinator at (404) 562-8831 or coleman.kerisa@epa.gov or Robenson Joseph, EPA Remedial Project Manager (404) 562-8891 or joseph.robenson@epa.gov. Nov. 21, 2014 Adv. # 16488615

homes.augusta.com

Cemetery Plots

BELLEVUE MEMORIAL GARDENS, prime plot, in the Garden of Faith. \$2,080. (706) 829-6881

Sunset Memory Garden, 4 plot in Resurrection area, 2 plots in Christus, Price neg. 803-215-7273

Two Choice Cemetery Lots at Hillcrest Memorial Park; Fountain Garden. \$4,000 for both, O.B.O. Charles B. Beatse @ 731-609-4421 or Emily Boyles @ 706-825-6480 or 706-738-1472

Looking for a great apartment? You're in the right spot! Check out our website at



General

Fulltime Housekeeper

Active Augusta family is searching for an experienced individual to work in their lovely West Augusta home. Responsibilities include keeping all areas of this multi-level home clean, neat and tidy. Typical daily responsibilities include vacuuming, dusting, mopping and waxing floors, changing linens and ironing. Regular duties will include running errands and cleaning projects like closet organization.

The ideal candidate will be highly energetic and have several years of experience working in a large family home. Drug test and background check is required.

Non-smoking environment. Please send a letter of application and reference to: M 16439864 c/o The Augusta Chronicle PO Box 1928, Augusta, GA 30903-1928

Government / Military

The City of Grovetown is receiving resumes for an **Events Coordinator**. **Preferred Qualifications:** Degree in Recreation, Physical Education or related field, 3 Years' experience in customer oriented environment. Must pass a drug screen and background check. Physically able to lift more than 50 pounds on routine basis. Work a flexible schedule & Must be bondable. Salary: \$14.47 per hour. Submit a detailed resume to: **Elaine Mathews, HR Manager** City of Grovetown, PO Box 120, Grovetown, GA, 30813. **Deadline for applications: December 1, 2014 12 noon** Equal Opportunity/ADA

Healthcare / Social Service

Experienced LPN/Medical Assistant needed. Fax resume to (706) 228-3125.

Fruit Health Augusta

NOW HIRING Full Time ADMISSIONS DIRECTOR We offer a competitive salary and top-tier Benefit package. Please submit your resume to: **lblelock@fruithealth.com** Or apply in person at 2541 Milledgeville Road, Augusta GA 30904 M-F 10AM thru 4PM. You may also visit our website @ **www.fruithealth.com** EOE/M/F/D/V

Let The Augusta Chronicle help you find local job seekers. go online to **augustajobs.com** today and click on Place an Ad or call 706-262-2222

RN FT/PT Men's Health Clinic

Attachment C
List of Documents Reviewed

Attachment C
List of Documents Reviewed

Documents and Information Source	Summary of Contents Relevant to Five-Year Review
Record of Decision Summary of Remedial Alternative Selection (1991)	Site history, risk summary, and remedy description
Third Five-Year Review Report (2010)	Previous Five-Year review recommendations, site history
SWMU Vertical Delineation Report (2005)	Site characterization
Evaluation of Arsenic Mobilization and Transport (2008)	Site characterization
Various Semi-Annual Sampling Groundwater Evaluation Reports	Summary of sampling event results
2011 Annual Report of Corrective Action Effectiveness	Current summary of remediation effectiveness
Technical Memorandum	Responses to 2010 Five Year Review Action Items
Consent Order EPD-HW-1827 (2014)	Requirements for future action
Proposed Groundwater Monitoring Plan (2015)	Implementation of Consent Order

Attachment D
Historical Arsenic Monitoring Data Summary

Table 2
Historical Arsenic Monitoring Data Summary (µg/L)

WELL	AVG AS April 90 April 93	AVG AS April 93 April 94	AVG AS April 94 April 95	AVG AS April 95 April 96	AVG AS April 96 April 97	AVG AS April 97 April 98	AVG AS April 98 April 99	AVG AS April 99 April 00	AVG AS April 00 April 01	AVG AS April 01 April 02	AVG AS April 02 April 03	AVG AS April 03 April 04	AVG AS April 04 April 05	AVG AS April 05 April 06	AVG AS April 06 April 07	AVG AS April 07 April 08	AVG AS April 08 April 09	AS July 09	AS February 11
MW1A	64.33	87	63.75	5	11.75	9.25	21.67	21.5	17	15.5	17.5	5	5	5	14	7.7	11.15	5.4	2
MW2	19.23	35.75	43.5	24.5	39	39.75	23.33	42.5	36	20	33.5	25	31	19.8	23.65	26.15	41.45	17.1	22.8
MW3														5					
MW4														5					
MW5	22.91	33.5	25	26.5	26.25	23.45	22	34	37	38.5	35.5	23.5	32	28.8	30.45	29.55	28.25	34.2	29.1
MW6S	5.56	5	7.75	5	5	5	5	5	5	8	5	5	5	5	3.9	3.25	2.15	5.4	2
MW6D	5.56	5	5	5	5	5	5	5	5	5	5	5	5	5	3.9	3.25	5.4	5.4	2
MW7S														10.3					
MW7D														14.3					
MW8	5									5	5	12	13.8						
MW9	7	19.75	7.75	5	17.75	18.68	15.33	23	24.5	8	11.5	11	10.5	5	7.55	10.25	12.7	14.2	4.6
MW10														10					
MW11														54.6	52.7	17.1	21.4	8.9	35.6
MW12	8.25	5	5	5	5	5	5	5	5	5	5	5	5	5	3.95	4.8	10.65	6.9	10.5
MW13	20.17	17.25	20	19.25	18	17.45	13.67	12	26.5	41.5	38	25	22.5	9.5	24.1	18.7	12.95	7.5	5.6
MW14	28.75	31.75	34	35.75	38.75	36.23	27.33	40.5	56.5	42	40.5	36	31.5	25.3	34.35	22.1	32.05	32.8	22.5
MW15	9.09	5	5	5	5	5	5	12	5	5	14	5	5	5	6.75	6.05	5.95	5.4	4.1
MW16														5					
MW17	53.69	42.25	37.13	32	50.25	76.64	25.67	50.75	83	237.5	335	172	64.5	87.5	26.45	26.75	149.4	25	20.3
MW18	15.92	18.25	25.25	26.75	20	20.48	20.33	23	17.5	17.5	13	5	15.5	8.5	26.65	30.55	14.95	26.9	21.1
MW19	16.25	25	26.75	25.75	18.5	27.65	27.67	33	39	32.5	30.5	16.5	23	18.75	22.95	22.1	23.55	21.9	20.7
MW20	16										34	34.5	30	21.7					
MW21														5					
MW22S														21.8					
MW22D														5					
MW23S	24.17	15.75	28.5	27.25	22.75	27.45	25.67	27	21	36.5	20.5	5	23.5	5	3.9	9.45	5.4	5.4	19.7
MW23D	18.13	9	19.75	10	5	5	7	5	5	5	10	5	5	5	8.05	7.15	7.9	7.4	6.8
MW24S	117.31	17.75	20.88	48	51.13	62.7	44.83	71.75	43.25	37.25	34.5	68.75	40	30.15	35.9	63.6	80.2	71.8	3.1
MW24D	41.82	75.25	39	33	37	41.55	47.67	54	58	58.5	67.5	52	51.5	55.55	55.7	32.15	26.95	21.3	16.8
MW31	14.54	18.25	17.25	18	15	13.25	10.33	12	11	8.5	8	11	5	7.5	15.1	16.6	6.05	11.7	2
MW32	28.46	21	33.25	38.25	33.75	35.38	35.33	35.5	43.5	47	41.5	44	34	22.9	36.75	32.65	28.3	28	2.5
MW33	27.23	26.25	36.25	29	43.5	28.73	22.33	22	33.5	32	29	35.5	30	5	30.5	36.45	15.45	28.4	2
MW34	24.62	15.25	17.25	23	24	31.63	28.33	32.5	30.5	28	31.5	42	33	15.2	14.65	21.55	22.45	32.5	2.3
MW35	42.18	47	32.75	28.75	44.25	21.48	20.33	38.5	31.5	34.5	18.5	16.5	23.5	13	24.9	21.55	44.65	18.1	15.4
MW36	8.85	7.5	5	6.5	9.75	5	7.33	7.5	5	5	5	5	5	5	11.3	9.4	6.95	7.6	7.2
MW37	8.31	6.25	5	5	6.5	9.4	5	5	8.5	5	5	5	5	5	9.4	12	10	8.7	3.1
MW38	25.08	30	19.75	29.75	22.75	18.05	17.33	25											
MW39	32.69	36	36.5	42.25	31.75	30.93	35.67	28.5											
MW40	13.29																		
MW41	8.83	16.5	8	19.25	24.75	18.45	22	33											
MW42	64.67	54	43.25	42	35.88	40.66	43.5	43.5											
MW43	24	8	26	91	56	37.2	53.33	41	8	11	5	37	5	5	32	27.15	7.1	5.4	7

Table 2
Historical Arsenic Monitoring Data Summary (µg/L)

WELL	AVG AS April 90 April 93	AVG AS April 93 April 94	AVG AS April 94 April 95	AVG AS April 95 April 96	AVG AS April 96 April 97	AVG AS April 97 April 98	AVG AS April 98 April 99	AVG AS April 99 April 00	AVG AS April 00 April 01	AVG AS April 01 April 02	AVG AS April 02 April 03	AVG AS April 03 April 04	AVG AS April 04 April 05	AVG AS April 05 April 06	AVG AS April 06 April 07	AVG AS April 07 April 08	AVG AS April 08 April 09	AS July 09	AS February 11
MW44		38	31.25	37	34.75	37.83	29.67	28	19.75	7.25	5	5	5	5	4.4	3.25	5.4	5.4	2
MW45										5	12.5	5	18	7.5	16.1	10.2	12.4	8.6	2
MW46										5	8.5	16.5	5	5	3.9	3.25	5.4	5.4	36.3
MW47										5	5	12.5	5	5	3.9	5.05	10.75	9.8	2
MW48										5	5	8	5	5	3.9	3.25	5.4	5.4	2
MW49													5	5	3.9	3.25	5.4	5.4	2
MW50													5	5	3.9	4.25	11.45	5.4	2
MW51													5	5	3.9	8.4	9.55	8	7.7
MW52																4.75	5.8	6	11.8
MW53																23.8	58.85	45.4	8.2
EX1														16.5					
EX2		57	35.25	29.25	****	Decommissioned 5/30/2000													
EX3		31.75	50.5	46	58	44.9	42	56.5	29.5	12.5	7.5	30	25	12.6	20.75	32.55	19.4	26.3	31.8
P3																			
WB1		32.5	44.5	35.5	43	43.68	37.33	51	40.5	34.5	33	31	33	31.25	35.05	23.55	25.7	23.6	
WB2		40	43.25	41.5	37.75	42.88	45.33	43											

Notes:

Table is annual average concentrations for the quarterly and semi-annual monitoring data.

µ/L = micrograms per liter

**** = Quarterly sampling discontinued.

Attachment E
Site Photographs

Pictures from EPA 5-year Review visit



MW1A and Landfill 1



MW50



MW51



Neighboring Property with High Alkaline Water

Attachment F
Site Inspection Checklist

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents			
	O&M manual	Readily available	Up to date	N/A
	As-built drawings	Readily available	Up to date	N/A
	Maintenance logs	Readily available	Up to date	N/A
	Remarks	<i>No longer operating</i>		
2.	Site-Specific Health and Safety Plan	Readily available	Up to date	N/A ✓
	Contingency plan/emergency response plan	Readily available	Up to date	N/A ✓
	Remarks			
3.	O&M and OSHA Training Records	Readily available	Up to date	N/A ✓
	Remarks			
4.	Permits and Service Agreements			
	Air discharge permit	Readily available	Up to date	N/A ✓
	Effluent discharge	Readily available	Up to date	N/A ✓
	Waste disposal, POTW	Readily available	Up to date	N/A ✓
	Other permits	Readily available	Up to date	N/A ✓
	Remarks			
5.	Gas Generation Records	Readily available	Up to date	N/A ✓
	Remarks			
6.	Settlement Monument Records	Readily available	Up to date	N/A ✓
	Remarks			
7.	Groundwater Monitoring Records	Readily available	Up to date	N/A ✓
	Remarks			
8.	Leachate Extraction Records	Readily available	Up to date	N/A ✓
	Remarks			
9.	Discharge Compliance Records			
	Air	Readily available	Up to date	N/A ✓
	Water (effluent)	Readily available	Up to date	N/A ✓
	Remarks			
10.	Daily Access/Security Logs	Readily available	Up to date	N/A ✓
	Remarks			

IV. O&M COSTS

1. **O&M Organization**
 State in-house _____ Contractor for State
 PRP in-house Contractor for PRP
 Federal Facility in-house _____ Contractor for Federal Facility
 Other _____

2. **O&M Cost Records**
 Readily available _____ Up to date _____
 Funding mechanism/agreement in place _____
 Original O&M cost estimate 0 Breakdown attached _____
 Total annual cost by year for review period (if available) *no longer on*

From _____ To _____	_____	Breakdown attached
Date Date	Total cost	
From _____ To _____	_____	Breakdown attached
Date Date	Total cost	
From _____ To _____	_____	Breakdown attached
Date Date	Total cost	
From _____ To _____	_____	Breakdown attached
Date Date	Total cost	
From _____ To _____	_____	Breakdown attached
Date Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**
 Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
 Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
 Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes <input checked="" type="checkbox"/>	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (e.g., self-reporting, drive by) _____
 Frequency _____
 Responsible party/agency _____
 Contact _____

	Name	Title	Date	Phone no.
Reporting is up-to-date				
Reports are verified by the lead agency				
Specific requirements in deed or decision documents have been met				
Violations have been reported				
Other problems or suggestions:	Report attached			

2. **Adequacy**

Remarks	ICs are adequate	ICs are inadequate	N/A
	<i>not in place yet</i>	<input checked="" type="checkbox"/>	

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
 Remarks _____

2. **Land use changes on site** N/A
 Remarks _____

3. **Land use changes off site** N/A
 Remarks _____

VI. GENERAL SITE CONDITIONS

A. **Roads** Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
 Remarks _____

B. Other Site Conditions			
Remarks _____ _____ _____ _____			
VII. LANDFILL COVERS Applicable N/A <input checked="" type="checkbox"/>			
A. Landfill Surface			
1.	Settlement (Low spots) Areal extent _____ Remarks _____	Location shown on site map Depth _____	Settlement not evident
2.	Cracks Lengths _____ Widths _____ Remarks _____	Location shown on site map Depths _____	Cracking not evident
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map Depth _____	Erosion not evident
4.	Holes Areal extent _____ Remarks _____	Location shown on site map Depth _____	Holes not evident
5.	Vegetative Cover Grass Cover properly established Trees/Shrubs (indicate size and locations on a diagram) Remarks _____		No signs of stress
6.	Alternative Cover (armored rock, concrete, etc.) Remarks _____		N/A
7.	Bulges Areal extent _____ Remarks _____	Location shown on site map Height _____	Bulges not evident

8.	Wet Areas/Water Damage Wet areas Ponding Seeps Soft subgrade Remarks _____	Wet areas/water damage not evident Location shown on site map Location shown on site map Location shown on site map Location shown on site map	Areal extent _____ Areal extent _____ Areal extent _____ Areal extent _____	
9.	Slope Instability Areal extent _____ Remarks _____	Slides	Location shown on site map	No evidence of slope instability.
B. Benches Applicable N/A ✓ (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)				
1.	Flows Bypass Bench Remarks _____	Location shown on site map		N/A or okay
2.	Bench Breached Remarks _____	Location shown on site map		N/A or okay
3.	Bench Overtopped Remarks _____	Location shown on site map		N/A or okay
C. Letdown Channels Applicable N/A ✓ (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)				
1.	Settlement Areal extent _____ Remarks _____	Location shown on site map Depth _____	No evidence of settlement	
2.	Material Degradation Material type _____ Remarks _____	Location shown on site map Areal extent _____	No evidence of degradation	
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map Depth _____	No evidence of erosion	

4.	Undercutting Areal extent _____ Remarks _____	Location shown on site map Depth _____	No evidence of undercutting
5.	Obstructions Type _____ Location shown on site map Size _____ Remarks _____	Areal extent _____	No obstructions
6.	Excessive Vegetative Growth No evidence of excessive growth Vegetation in channels does not obstruct flow Location shown on site map Remarks _____	Type _____ Areal extent _____	
D. Cover Penetrations Applicable N/A			
1.	Gas Vents Properly secured/locked Evidence of leakage at penetration N/A Remarks _____	Active Functioning	Passive Routinely sampled Good condition Needs Maintenance
2.	Gas Monitoring Probes Properly secured/locked Evidence of leakage at penetration Remarks _____	Functioning	Routinely sampled Good condition Needs Maintenance N/A
3.	Monitoring Wells (within surface area of landfill) Properly secured/locked Evidence of leakage at penetration Remarks _____	Functioning	Routinely sampled Good condition Needs Maintenance N/A
4.	Leachate Extraction Wells Properly secured/locked Evidence of leakage at penetration Remarks _____	Functioning	Routinely sampled Good condition Needs Maintenance N/A
5.	Settlement Monuments Remarks _____	Located	Routinely surveyed N/A

E. Gas Collection and Treatment		Applicable	N/A ✓
1.	Gas Treatment Facilities Flaring Good condition Remarks _____	Thermal destruction Needs Maintenance	Collection for reuse
2.	Gas Collection Wells, Manifolds and Piping Good condition Remarks _____	Needs Maintenance	
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) Good condition Remarks _____	Needs Maintenance	N/A ✓
F. Cover Drainage Layer		Applicable	N/A
1.	Outlet Pipes Inspected Remarks _____	Functioning	N/A
2.	Outlet Rock Inspected Remarks _____	Functioning	N/A
G. Detention/Sedimentation Ponds		Applicable	N/A ✓
1.	Siltation Areal extent _____ Siltation not evident Remarks _____	Depth _____	N/A
2.	Erosion Areal extent _____ Erosion not evident Remarks _____	Depth _____	
3.	Outlet Works Remarks _____	Functioning	N/A
4.	Dam Remarks _____	Functioning	N/A

H. Retaining Walls		Applicable	N/A ✓
1.	Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____	Location shown on site map	Deformation not evident
2.	Degradation Remarks _____	Location shown on site map	Degradation not evident
I. Perimeter Ditches/Off-Site Discharge		Applicable	N/A ✓
1.	Siltation Areal extent _____ Remarks _____	Location shown on site map Depth _____	Siltation not evident
2.	Vegetative Growth Vegetation does not impede flow Areal extent _____ Remarks _____	Location shown on site map Type _____	N/A ✓
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map Depth _____	Erosion not evident
4.	Discharge Structure Remarks _____	Functioning	N/A
VIII. VERTICAL BARRIER WALLS		Applicable	N/A ✓
1.	Settlement Areal extent _____ Remarks _____	Location shown on site map Depth _____	Settlement not evident
2.	Performance Monitoring Type of monitoring _____ Performance not monitored Frequency _____ Head differential _____ Remarks _____		Evidence of breaching

IX. GROUNDWATER/SURFACE WATER REMEDIES		Applicable	N/A ✓
A. Groundwater Extraction Wells, Pumps, and Pipelines		Applicable	N/A
1.	Pumps, Wellhead Plumbing, and Electrical Good condition All required wells properly operating	Needs Maintenance	N/A
Remarks _____ _____			
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance		
Remarks _____ _____			
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade	Needs to be provided	
Remarks _____ _____			
B. Surface Water Collection Structures, Pumps, and Pipelines		Applicable	N/A
1.	Collection Structures, Pumps, and Electrical Good condition Needs Maintenance		
Remarks _____ _____			
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance		
Remarks _____ _____			
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade	Needs to be provided	
Remarks _____ _____			

turned off

C. Treatment System		Applicable	N/A	<input checked="" type="checkbox"/>
1.	Treatment Train (Check components that apply) Metals removal _____ Oil/water separation _____ Bioremediation _____ Air stripping _____ Carbon adsorbers _____ Filters _____ Additive (e.g., chelation agent, flocculent) _____ Others _____ Good condition _____ Needs Maintenance _____ Sampling ports properly marked and functional _____ Sampling/maintenance log displayed and up to date _____ Equipment properly identified _____ Quantity of groundwater treated annually _____ Quantity of surface water treated annually _____ Remarks _____			
2.	Electrical Enclosures and Panels (properly rated and functional) N/A _____ Good condition _____ Needs Maintenance _____ Remarks _____			
3.	Tanks, Vaults, Storage Vessels N/A _____ Good condition _____ Proper secondary containment _____ Needs Maintenance _____ Remarks _____			
4.	Discharge Structure and Appurtenances N/A _____ Good condition _____ Needs Maintenance _____ Remarks _____			
5.	Treatment Building(s) N/A _____ Good condition (esp. roof and doorways) _____ Needs repair _____ Chemicals and equipment properly stored _____ Remarks _____			
6.	Monitoring Wells (pump and treatment remedy) Properly secured/locked _____ Functioning _____ Routinely sampled _____ Good condition _____ All required wells located _____ Needs Maintenance _____ N/A _____ Remarks _____			
D. Monitoring Data				
1.	Monitoring Data Is routinely submitted on time _____ Is of acceptable quality <input checked="" type="checkbox"/>			
2.	Monitoring data suggests: Groundwater plume is effectively contained _____ Contaminant concentrations are declining _____ <i>one more round of sampling</i>			

D. Monitored Natural Attenuation**I. Monitoring Wells (natural attenuation remedy)**

Properly secured/locked	Functioning	Routinely sampled	Good condition
All required wells located	Needs Maintenance		N/A

Remarks _____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

neighborhood high alkaline
water

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

not on

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Attachment G
Site Interviews

Interview Record

Site Name: Monsanto – Augusta Plant

EPA ID No: GAD001700699

Interviewer's Name: Kerisa Coleman, EPA Region 4 CIC

Interviewee's Name/Title: Robenson Joseph, EPA Remedial Project Manager

Contact Information: joseph.robenson@epa.gov (404) 562-8891

Date: January 20, 2015

Type of Interview (Circle one): In person Phone E-Mail

Monsanto Plant Corporation
Five-Year Review Questionnaire
Community Involvement

Interview Category: U.S. EPA (Region 4)

1.) What is your overall impression of the project?

Overall impression of the project is positive. Implemented remedy operated as intended. Site is active and properly maintained.

2.) How well do you believe the remedy currently in place is performing?

Groundwater remedy performed as intended.

3.) Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents in the last five years?

None that I'm aware of.

4.) Are you aware of any community concerns regarding the Site or its operation and administration? If so, please give details.

None that I'm aware of.

5.) Are you aware of any changes in projected land use at the Site?

None that I'm aware of.

6.) Are you comfortable with the status of the institutional controls at the Site? If no, what do you see as the outstanding issues?

Yes

7.) Do you have any comments, suggestions or recommendations regarding the Site's management or operation?

As stated above, remedy operated as intended. However, it's believed residual elevated arsenic concentrations in the site groundwater is resulted from low pH groundwater migrating from adjacent property.

Interview Record

Site Name: Monsanto – Augusta Plant

EPA ID No: GAD001700699

Interviewer's Name: Kerisa Coleman, EPA Region 4 CIC

Interviewee's Name/Title: Patrick Gragson, Compliance Officer

Contact Information: 404-657-8692

Date: February 17, 2015

Type of Interview (Circle one): In person

Phone

E-Mail

Monsanto Plant Corporation
Five-Year Review Questionnaire
Community Involvement

Interview Category: GA EPD

1.) What is your overall impression of the project?

Overall, good. Solutia, Inc. completed many years of remediation to address the contaminants of concern in the groundwater and the project now appears to be nearing completion.

2.) How well do you believe the remedy currently in place is performing?

There is no longer any active remediation taking place at the Site.

3.) Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents in the last five years?

No, we are not aware of any complaints or inquiries from residents in the last five years.

4.) Are you aware of any community concerns regarding the Site or its operation and administration? If so, please give details.

No, we are not aware of any community concerns regarding the Site.

5.) Are you aware of any changes in projected land use at the Site?

No, we are not aware of any changes in projected land use at the Site.

6.) Are you comfortable with the status of the institutional controls at the Site? If no, what do you see as the outstanding issues?

Solutia, Inc. and Prayon are in the process of developing a uniform environmental covenant (UEC) to act as an institutional control to minimize any human exposure to contaminants of concern and restrict on site groundwater use.

7.) Has your office conducted any site-related activities or communications in the last five years? If so, please give purpose and results of these activities.

A consent order between the EPD and Solutia, Inc. was executed on November 18, 2014. This consent order acknowledged that the groundwater conditions at the Site appear to have been affected by offsite sources outside of the control of

Solutia, Inc. The consent order requires Solutia, Inc. to complete one round of groundwater monitoring and submit those results to the EPD. If those results are consistent with previous results attributable to the offsite source, the consent order will be terminated. A monitoring work plan has been approved for the required round of sampling.

8.) Do you have any comments, suggestions or recommendations regarding the Site's management or operation?

No comments.

INTERVIEW FOR FIVE YEAR REVIEW

Site Name: Monsanto Corporation (Augusta)

Interviewer Name: Kerisa Coleman, Public Affairs Specialist, U.S. EPA

Type of Interview: Face-to-face

Date: December 2, 2014

Location: On Site – Prayon

Interviewee's Name: Burt Taylor, Senior Plan Engineer

Contact Information: burt@prayoninc.com (706) 771-3421

Site Owners

- 1. What is your overall impression of the remedial activities at the Site? Taken into the account the impact from our neighbors, I think that remedial activities are performing well.**
- 2. What effect has this Site had on the surrounding community, if any? We do not have residences surrounding the community. We do have the Apple Valley neighborhood near the park and it is fairly new and well used. We have not had any complaints or any negative impacts on the community. We have had permits issued, not air permits, but NPDES permits.**
- 3. How well do you believe the remedy currently in place is performing? It seems as if it is performing as we wish; overall, the progress has been good. I feel like we are in a good place, based on feedback from EPA and EPD.**
- 4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup? No, I cannot recall.**
- 5. What is the frequency of O&M activities and inspections at the Site? To your knowledge has the maintenance been implemented as intended? It was daily of course; but as discussions ensued, we stopped pumping approximately two years ago and stopped taking readings at the well in January 2014. Essentially, activity levels have dropped off in the last five years.**

- 6. Have the institutional control requirements been implemented and enforced as designed? Institutional Controls that we control, yes; there have been discussions about a deed restriction being reinstated.**
- 7. What effect has the reuse of the site had on the community? Are you aware of any changes in projected land use? None for us. I have heard rumors that Solutia may sale the property behind us, but that's just a rumor.**
- 8. Do you feel well informed about the Site's activities and progress? If not, what other methods of conveying information should EPA use? Yes**
- 9. Do you have any comments, suggestions, or recommendations regarding the Site's management or operation? No, I have full confidence in EPA and EPD that it will all get resolved.**

INTERVIEW FOR FIVE YEAR REVIEW

Site Name: Monsanto Corporation (Augusta)

Interviewer Name: Kerisa Coleman, Public Affairs Specialist, U.S. EPA

Type of Interview: Email/Telephone

Date: 01/23/2015

Location: Email

Interviewee's Name: Dale Voykin, Senior Hydrogeologist (AECOM, formerly URS Corporation)

Contact Information: dale.voykin@urs.com; (678) 808-8935 or (404) 432-3049

O & M Contractor

- 1. What is your overall impression of the remedial activities at the Prayon Site?**
During the course of time that the P&T system was operational, the P&T remedy effectively reduced what initially began as three distinct elevated groundwater (arsenic) plumes, located both on and offsite, to concentrations in all wells below the Pre-2002 arsenic MCL.
- 2. Is the remedy functioning as expected? How well is the remedy performing?**
Currently, our involvement in the remedial activities is minimal, since the pump and treat (P&T) system is no longer required to be operational. It has done its job well.
- 3. What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?**
The data show that arsenic concentrations in most wells are below the current MCL and, in the few instances where exceedances may occur; the exceedances in those wells are reflective of impacts due to upgradient offsite conditions. Although small decreases are still evident, in most instances the levels have stabilized and the trends have become asymptotic.
- 4. Is there a continuous on-site O&M presence? If so, please describe staff and activities. If there is not a continuous on-site presence, describe staff and frequency of site inspections and activities.**
Prior to cessation of P&T operation, plant personnel inspected the pump operations daily during the normal work-week schedule.
- 5. Have there been any significant changes in the O & M requirements, maintenance schedules, or sampling routines since start-up or in the last**

five years? If so, do they affect the protectiveness or effectiveness of the remedy?

Please describe changes and impacts.

The P&T system was non-operational due to biological fouling in the wells, pumps, and discharge lines. Repair and startup was not required by the GAEPD as discussions were being held regarding appropriate future actions for the site. As a result of these discussions, a Consent Order was executed that no longer requires operation of the P&T system. The implemented remedy was effective and is protective.

- 6. Have there been unexpected O & M difficulties or costs at the site since start up or in the last five years?**

With the exception of lightning strikes, the only O&M difficulties in the past five years (although not entirely unexpected in a shallow groundwater recovery system) resulted from the extreme biological fouling in the wells, pumps, and discharge lines. This fouling increased the level of effort by the onsite personnel to maintain continuous operation of the P&T system.

- 7. Have there been opportunities to optimize O & M, or sampling efforts?
Please describe changes and resultant or desired cost savings or improved efficiency.**

No comment.

- 8. Do you have any comments, suggestions, or recommendations regarding the project?**

For a number of years, we have recommended turning the pumps off, particularly due to the upgradient offsite affected groundwater continuing to migrate onto the property unabated. Now that the pumps are off they should stay off, since the remedy appears complete.