LONG-TERM GROUNDWATER MONITORING WORK PLAN

Byron Barrel and Drum Site
Genesee County, Byron Township, New York

Prepared for:

Byron Barrel and Drum PRP Group

Prepared by:

FPM Remediations, Inc.
181 Kenwood Avenue
Oneida, NY 13421

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TABLE OF CONTENTS

PAGE

1 INTRODUCTION 1-1
1.1 BACKGROUND **1-1**
1.1.1 Groundwater Monitoring 2001 Through 2013 1-1
1.1.2 Groundwater Monitoring 2015 1-2
2 GROUNDWATER MONITORING 2-1
2.1 GROUNDWATER SAMPLING METHODS 2-2
2.2 SAMPLE ANALYSIS **2-3**
3 REPORTING REQUIREMENTS 3-1
4 REFERENCES 4-1

LIST OF FIGURES

Figure 1 Site Location
Figure 2 Site Layout and Monitoring Well Locations
Figure 3 TCA/DCA Trend Analysis at MW-1

LIST OF TABLES

Table 1 Occurrence of Most Recent COPC Well Exceedances

LIST OF ATTACHMENTS

Attachment A Historic Data Summary
Attachment B Regulatory Comments and Responses
Attachment C Contract Reporting and Detection Limits

1 Introduction

FPM-Remediations, Inc., (FPM) has developed this Work Plan on behalf of the Byron Barrel Potentially Responsible Party (PRP) Group; Garlock Sealing Technologies (Garlock), Unisys Corporation (Unisys), and General Railway Signal (GRS), to describe the general methods to conduct groundwater monitoring at the Byron Barrel and Drum site located at 6065 Transit Road, in Byron Township, Genesee County, New York (**Figure 1**). The groundwater sampling is being proposed based on communications with the United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC), and New York State Department of Health (NYSDOH), and their comments on the *2015 Groundwater Monitoring Report* (FPM, September 2015) received via email on July 11, 2016.

1.1 Background

The Byron Barrel and Drum site occupies approximately two (2) acres of land that sits approximately one thousand (1,000) feet east of Transit Road at the end of a driveway/access road. The site is part of an eight (8) acre parcel that was once used as a salvage yard. In 1982, two (2) drum disposal sites were identified at the site, and in 1984 the site was added to the Superfund National Priorities List (NPL) in part due to the identification of volatile organic compound (VOC) i.e. chlorinated ethanes (e.g. 1,1,1, trichlorethane) and ethenes (e.g. trichloroethene). Remedial action was completed in subsequent years and included excavating drums and associated impacted soil, installing and operating a soil flushing and groundwater pump and treat system which was operated until 2007. More recently emulsified vegetable oil (EVO) was injected in 2007 and 2009 to enhance biological degradation of compounds of potential concern (COPCs), i.e. 1,1,1-trichloroethane (TCA) and a daughter product of biodegradation/reductive dechlorinaton, namely 1,1-dichloroethane (DCA). The 2009 injection also included zero valent iron (ZVI). Currently, eight (8) monitoring wells (MW-1, MW-4, MW-10B, MW-21, MW-Residential, PW-1, PW-2, and PW-3) remain at the site. Well locations and site lay out are presented in **Figure 2**.

1.1.1 Groundwater Monitoring 2001 Through 2013

A regular schedule of groundwater monitoring was implemented in 2001 to assess site conditions and monitor remedial progress. Based on improving conditions at the site, the groundwater monitoring interval was altered from quarterly to annually in 2013. Monitoring results summarized in the *2013 Annual Report* (APECS, March 2014) and the *Second Five-Year Review Report Addendum* (USEPA, July 2014), indicated that COPCs were below groundwater standards or below detection limits in samples from upgradient monitoring well MW-21 and wells MW-Residential, PW-2, and PW-3, consistent with previous monitoring events (Attachment A). Monitoring well MW-1, which typically exhibits the highest TCA concentrations, had 1,1,1-TCA concentrations that decreased from 1,300 micrograms per liter (ug/l) in 2001 to 23 ug/l in March 2013. TCA daughter product DCA was detected in monitoring wells MW-1 (28 ug/I), MW-4, (14 ug/I), MW-10B (28 ug/I) and PW-1 (6.1 ug/l), at concentrations slightly above the 5 ug/l NYSDEC Class GA water quality standard for TCA and DCA. The concentrations were below the USEPA Maximum Contaminant Limit (MCL) of 200 ug/l. Other compounds including 1,1-dichcloroethylene (1,1 DCE) and

trichloroethylene (TCE) were detected in several monitoring wells, but below their compound specific NYSDEC Class GA water quality standard and USEPA MCL.

Based on the relatively low concentrations of COPCs and a Mann-Kendall statistical analysis, it was concluded that groundwater standards would be met within a few years. The *2013 Annual Report* (APECS, March 2014) indicated that the concentrations of TCA and DCA would meet regulatory requirements in 2016 based on trend analysis and requested groundwater monitoring once every five (5) years in the year prior to the scheduled five-year review (FYR), i.e. 2016, 2021, etc., and only at the wells currently exceeding groundwater quality criteria, i.e. wells MW-1, MW-4, MW-10B, and PW-1. Following discussions between the PRP Group and regulatory agencies (NYSDEC, USEPA, and NYSDOH), however; it was agreed, that an additional round of groundwater samples would be collected in 2015 to aid decision making. The scope of the sampling was to collect groundwater samples from each of the eight (8) monitoring wells (MW-1, MW-4, MW-10B, MW-21, MW-Residential, PW-1, PW-2, and PW-3).

1.1.2 Groundwater Monitoring 2015

A *Work Plan* (FPM, April 2015) describing proposed 2015 monitoring activities was approved by a May 7, 2015 email (USEPA, May 7, 2015). The monitoring event included taking groundwater samples from monitoring wells MW-1, MW-4, MW-10B, MW-21, MW-Residential, PW-1, PW-2, and PW-3 as requested by the regulatory agencies. Groundwater samples were also taken from temporary direct push wells installed in proximity to wells MW-1, MW-4, MW-10B, and PW-1 as part of a "comparison study" to compare water quality between the two (2) sampling approaches.

The results of the groundwater sampling event, were reported in a *2015 Groundwater Monitoring Report* (FPM, September 2015), which concluded that:

- VOCs do not exceed USEPA MCLs in samples from any site wells, and that only 1,1 DCA (MW-1) and 2-butanone (PW-1) exceeded the NYSDEC Class GA standards.

- The detection of 1,1 DCA, a daughter product of 1,1-TCA degradation, in well MW-1 is consistent with historical data and the reported concentration, 23 ug/L, is lower than all concentrations since December 2008, except December 2012 when the concentration was 17 ug/L.

- The concentration of 2-butanone is believed to be a temporary degradation intermediary associated with enhanced bioremediation efforts, and is expected to have a relatively short existence once constituent bio-degradation is complete.

- Field parameter values for ORP and DO suggest that conditions continue to be favorable for continued constituent degradation. This conclusion is supported by the continued decrease in constituent concentrations with time.

- A comparison between temporary well sample data and monitoring well sample data indicate that the concentrations are generally consistent, however, the number of analytes detected, and the analyte concentrations were slightly greater in temporary well samples. The report concluded that the collection of samples using temporary direct push wells will tend to overstate the constituent concentration compared with monitoring well data, and is therefore, more conservative but still a viable alternative for sampling the existing monitoring wells.

- Several monitoring wells have been damaged. During 2015, samples could not be taken from damaged risers for monitoring wells MW-4, MW-21, or PW-2. The riser for monitoring well MW-2 could not be identified and was presumably broken below ground surface. The damage exemplifies the difficulties in protecting site wells as most recently expressed in the *2015 Groundwater Monitoring Report* (FPM, September 2015).

Based on this information the monitoring report recommended:

1. Abandoning all site monitoring wells and complete future monitoring activities using direct push temporary wells to ensure permanent monitoring wells are properly abandoned and obviate the need to protect and repair monitoring wells, and enable collection of complete rounds of groundwater samples.

2. Decommissioning and abandoning the pump and treat system and its appurtenances, since the data indicate remedial efforts have substantially reduced contaminant levels such that no further remedial action is necessary.

3. Completing the next groundwater monitoring event in 2017 in advance of the next Five-Year Review (FYR) using direct push temporary wells, with a follow-up sampling event in 2022 in advance of the next scheduled FYR. However, if the results of the 2017 groundwater monitoring event are below governing criteria or regulatory criteria change, then site closure would be pursued immediately which may include additional confirmatory groundwater sampling to help accelerate the site closure process.

In their July 11, 2016 email comments on the *2015 Groundwater Monitoring Report* (FPM, September 2013), the USEPA indicated that decommissioning and abandonment of site monitoring wells and the pump and treat system was not acceptable at this time (USEPA, July 2016). Similarly, the USEPA indicated that a groundwater monitoring frequency of once every five (5) years was not acceptable.

Subsequent to submittal of the *2015 Groundwater Monitoring Report* (FPM, September 2015), an updated trend assessment was completed utilizing monitoring well MW-1 TCA and DCA groundwater sample results for the period between 2002 and 2015 (**Figure 3**). Since well MW-1 consistently exhibited the highest TCA and DCA concentrations at the site, the assessment should represent a worst case scenario for COPC degradation. As depicted in **Figure 3**, TCA and DCA concentrations decreased between 2002 and 2007 as a result of the soil flushing and pump and treat system that was operated. Following shut-down of the soil flushing/pump and

treat system in 2007, EVO (2007) and EVO and ZVI (2009) injections were completed. As would be expected following EVO injections, DCA concentrations increased for a period of time as the TCA underwent reductive dechlorination. After reaching a maximum concentration at monitoring well MW-1 in September 2011, DCA concentrations have continued to decline. The trend analysis indicates that, if conditions continue as presently documented, the concentrations of DCA should meet regulatory limits in 2023 or 2024.

2 Groundwater Monitoring

Based on USEPA's comments to the *2015 Groundwater Monitoring Report* (FPM, September 2015), the PRP Group has developed a proposed longer term groundwater monitoring program.

The historical groundwater monitoring program included wells MW-1, MW-4, MW-10B, MW-21, PW-1, PW-2, and PW-3. Well MW-Residential was also sampled at the request of th regulatory agencies. **Figure 2** depicts the location of site monitoring wells and layout of the site. As can be observed the monitoring wells are located as follows:

- Monitoring wells MW-21 and MW-Residential are located at background locations, outside of the historical areas impacted by the COPCs;
- Monitoring well PW-3 is located at the western edge of the formerly operated pump and treat system and cross gradient for the historical drum removal area;
- Monitoring well MW-10B is located in a location near the historical drum removal area;
- Monitoring wells MW-4 and PW-1 both monitor the same general area along the western leg of the formerly operated pump and treat system, and are downgradient and west of the historical drum removal area; and
- Monitoring wells PW-2 and MW-1 both monitor the same general area along the eastern leg of the formerly operated pump and treat system, and are downgradient of the historical drum removal area.

Table 1 below identifies the most recent monitoring event that produced groundwater samples exceeding the New York State Class GA Groundwater Quality Criteria (TOGS, June 2006) standards for COPCs at each monitoring well, and the number of monitoring events since the last exceedance. As summarized in **Table 1**, Monitoring wells MW-21 and MW-Residential have never had COPC exceedances of Class GA Groundwater Quality Criteria (TOGS, June 2006), and PW-3 has not had exceedances since 2011.

Table 1. Occurrence of Most Recent COPC Well Exceedances

	MW-1	MW-4	MW-10B	MW-21	MW-Residential	PW-1	PW-2	PW-3
Most Recent Monitoring Event Groundwater Exceedance	3/2013	3/2013	3/2013	NA	NA	3/2013	12/2012	12/2011
Monitoring Events Since Exceedance	None	None	1	18	16	1	1	6
Status	Intact	Damaged	Intact	Damaged	Intact	Intact	Damaged	Intact

NA – indicates that the reference is not applicable because no results have been reported above detection limits.
"None" indicates that the last round of groundwater samples had exceedances of COPCs.
"Status" indicates that the well was "damaged" and is unable to be sampled, or "intact" (i.e. not damaged) in June 2015.

Historical data (**Attachment A**), as summarized in **Table 1**, indicate that wells MW-21, MW-Residential, and PW-3 have not had COPC exceedances since at least 2011. Also, monitoring well groups MW-1/PW-2 and MW-4/PW-1 offer redundancy for monitoring the areas of eastern and western legs of the former pump and treat system. Based on this information, the monitoring program initially proposed included taking water levels from all accessible site monitoring wells, and collecting groundwater samples from monitoring wells MW-1, PW-1, MW-10B according to a schedule that includes monitoring in years two and four of each FYR cycle, beginning in the fall of 2016. However, based on regulatory comments and subsequent communications (**Attachment B**), it was agreed that the fall 2016 monitoring event would include all of the historical monitoring program well locations (i.e., MW-1, MW-4, MW-10B, MW-21, MW-Residential, PW-1, PW-2, and PW-3), and that reductions to the monitoring program would be evaluated following the next FYR. The details of the monitoring program are described below.

2.1 Groundwater Sampling Methods

The 2016 groundwater sampling event is scheduled for November of 2016. NYSDEC, USEPA, and NYSDOH will be provided a minimum ten (10) day notice prior to beginning sampling

Existing Monitoring Wells. Groundwater samples will be taken from the undamaged monitoring wells that are included in the site's monitoring program including wells include MW-1, MW-10B, PW-1, and PW-3. Former water supply well MW-Residential will also be sampled as requested by the USEPA.

Prior to collecting groundwater samples, the water level in each well will be measured and recorded on field sampling forms. Water levels will be measured to the nearest hundredth of a foot using an electronic water-level indicator. The water levels will be used to determine groundwater elevations, based on monitoring well reference points (i.e. top of casing elevation). The reference points have been previously surveyed to provide accurate groundwater elevations. The measuring device will be decontaminated between wells.

Once water levels are recorded, well purging will commence using low-flow sampling methodologies techniques (USEPA, March 1998). Field parameters (pH, DO, ORP, temperature, and conductivity) will be monitored during purging and logged on field sampling forms. Groundwater samples will be taken once field parameters have stabilized for three (3) consecutive readings based on the following criteria:

- pH within 0.1;
- Conductivity within 3%; and
- Turbidity within 10 % (or below 50 NTU);
- Dissolved oxygen within 10%; and
- ORP within 10 mV.

Groundwater samples will be taken with a bladder pump. Water samples will be pumped directly into a laboratory provided sample container. After the bottles are filled they will be placed in an ice filled sample cooler and a maximum of 4 degrees Celsius will be maintained. A chain of custody (CoC) form will be completed and kept in a plastic bag within each cooler to document the sequence of sample possession.

Temporary Monitoring Wells. A total of seven (7) temporary monitoring well points will be installed during the groundwater monitoring event. One temporary monitoring well will be installed in proximity to monitoring wells MW-1, MW-4, MW-10B, MW-21, PW-1, PW-2, and PW-3. The wells will be installed by advancing a Geoprobe® SP16 groundwater sampler or similar device. The borehole will be completed advancing a minimum 1.25-inch diameter steel rod and disposable drive points to the approximate depth of the proximal existing well. The well depths are approximately 12-feet (MW-1 and MW-4), 18-feet (MW-10B), 23-feet (PW-1, PW-2, and PW-3), and 28-feet (MW-21).

Once the well depth is reached, the outer casing will be retracted, exposing the inner slotted rods to the surrounding formation. Groundwater samples will be taken using a decontaminated stainless steel bailer or dedicated disposable bailer, and placed directly into laboratory provided sample containers. After the bottles are filled, they will be placed in an ice filled sample cooler and a maximum of 4 degrees Celsius will be maintained. A chain of custody (CoC) form will be completed and kept in a plastic bag within each cooler to document the sequence of sample possession.

Once the samples have been collected, the bore hole will be backfilled with bentonite chips to within five (5) feet below ground surface and with soil cuttings from five (5) feet to ground surface.

2.2 Sample Analysis

Each of the groundwater samples collected and the field duplicate will be sent to a New York State Environmental Laboratory Approval Program (ELAP) certified laboratory to undergo VOC analysis utilizing USEPA SW-846 Method 8260C. Laboratory reporting and detection limits for the analytes tested for at the site are provided in **Attachment C**.

3 Reporting Requirements

The results of the groundwater sampling will be summarized in a monitoring letter report that will be issued following the receipt of laboratory data. The monitoring report will include the following:

- Summary of field activities;
- Summary of analytical results;
- Data tables summarizing groundwater elevation information, field parameters, and analyte concentrations compared to NYS TOGS (June 1998) and EPA MCLs (UESPA, May 2016);
- Updated groundwater elevation map; and
- A figure presenting analyte concentrations and well locations;
- Recommendations concerning the need for further monitoring or other actions such as site decommissioning (i.e. remediation system, well abandonment) requests.

The monitoring report will be provided in electronic format (i.e. PDF) only unless hard copies are requested. The sampling results, locational data, and field measurements will also be submitted to the NYSDEC in EQuIS Electronic Data Deliverable (EDD) format.

4 References

APECS Environmental Consultants (APECS), *2013 Annual Report, Byron Barrel and Drum Site, 6065 Transit Road, Byron Township, New York*, March 2014.

FPM-Remediations, *Groundwater Monitoring Report, Byron Barrel & Drum Superfund Site, Byron Township, Genesee County, New York*, September 2015.

New York State Division of Water Technical and Operational Guidance Series (1.1.1) *AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES AND GROUNDWATER EFFLUENT LIMITATIONS*, June 1998.

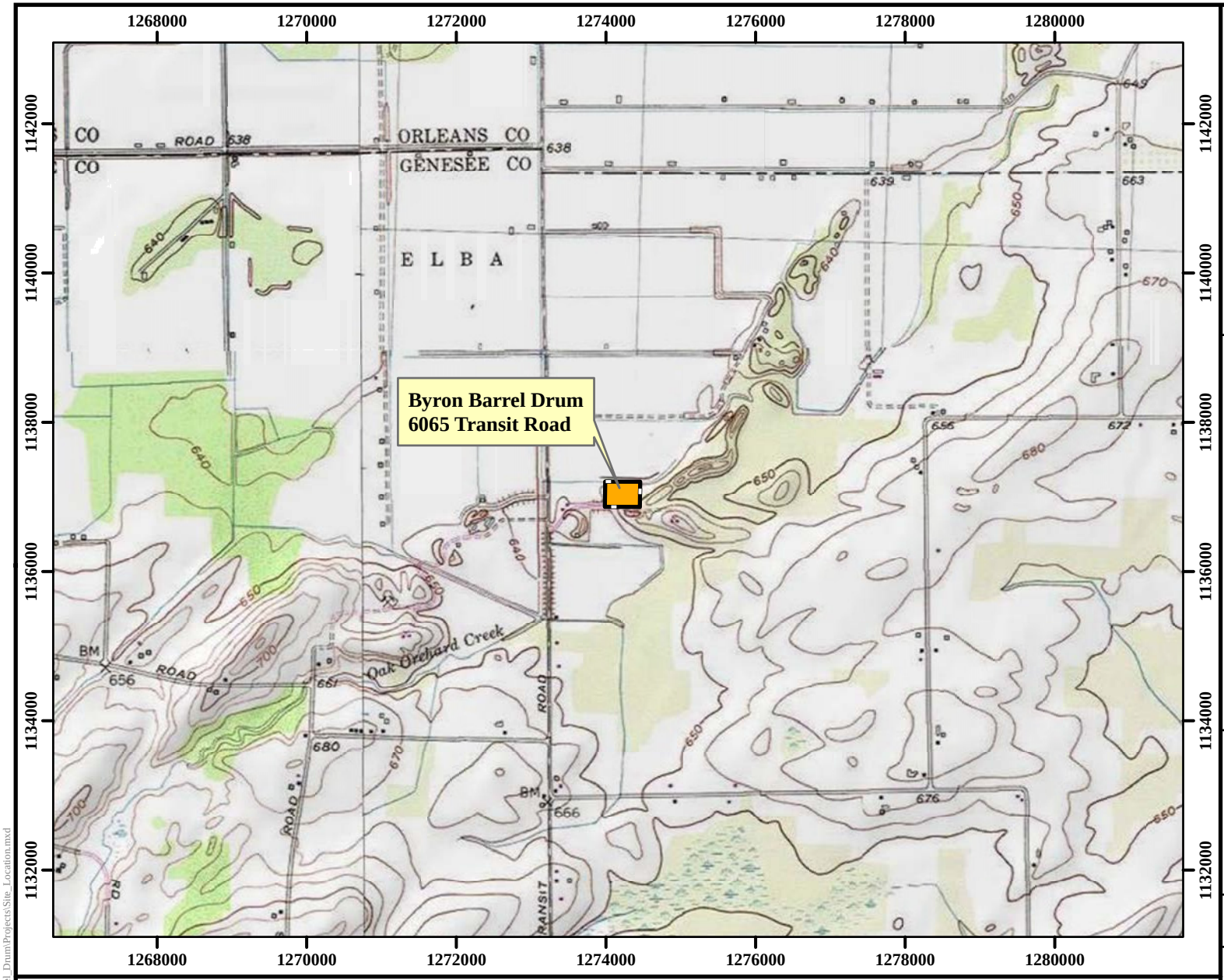
United States Environmental Protection Agency (USEPA), (personal email communication from G. Jacob, May 7, 2015)

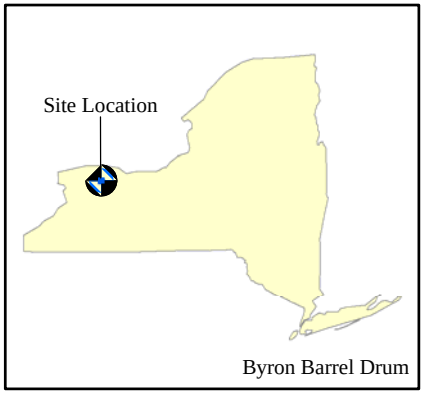
USEPA, 2015, *Regional Screening Levels Summary Resident Tap Water Summary Table*, May 2016, http://www.epa.gov/region9/superfund/prg

USEPA (personal email communication from G. Jacob, July 11, 2016)

United States Environmental Protection Agency (USEPA) Region II, *Second Five Year Review Report Addendum Byron Barrel & Drum Superfund Site*. July 2014.

Figures





Key Features

Property Boundary

Byron Barrel Drum
Byron, New York

FIGURE 1

Byron Barrel Drum
Site Location

FPM Remediations, Inc.

2016

NOTES:

1. USGS Download Aerial 2005
2. MW-21 is 200 feet west of property line.
3. Revision Date: 1/9/2015

Coordinate System:NAD 1983 StatePlane New York West FIPS 3103 Feet
Projection: Transverse Mercator
Horizontal Datum: North American 1983
False Easting: 1,148,291.6667
False Northing: 0.0000
Central Meridian: -78.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US
Base Map Date: 2011
Base Map Source: National Geographic Society, i-cubed

1 inch = 2,000 feet

0 305 610
Meters

0 1,000 2,000
Feet

N W E S

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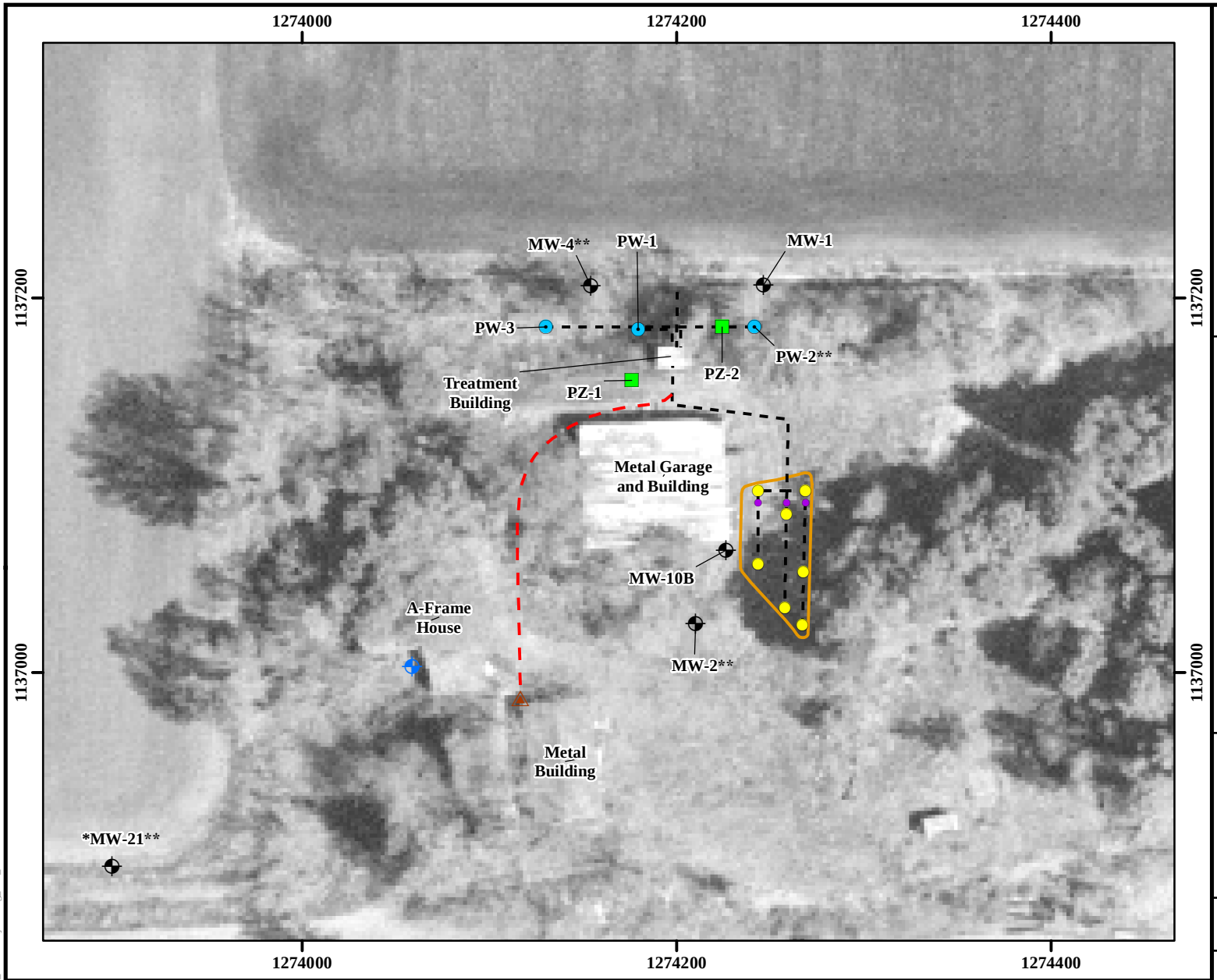

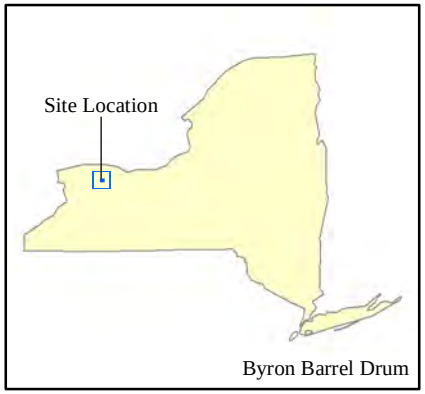

Key Features

- Groundwater Monitoring Well
- Former Residential Well
- Piezometer Well
- Injection Gallery Piezometer Well
- Injection Gallery Valve
- Pumping Well
- Utility Pole
- Electrical and Phone Line
- Reinjection Piping
- Limit of Excavation for Injection Infiltration Gallery

Byron Barrel Drum
Byron, New York

FIGURE 2

Byron Barrel Drum
Site Layout

FPM Remediations, Inc.

2016

NOTES:

1. USGS Download Aerial 2005
2. MW-21 is 200 feet west of property line.
3. Revision Date: 1/9/2015

** Indicates that the well is damaged.

Coordinate System:NAD 1983 StatePlane New York West FIPS 3103 Feet
Projection: Transverse Mercator
Horizontal Datum: North American 1983
False Easting: 1,148,291.6667
False Northing: 0.0000
Central Meridian: -78.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US
Base Map Date: 2011
Base Map Source: National Geographic Society, i-cubed

1 inch = 80 feet

0 12 24 Meters

0 40 80 Feet

N W E S

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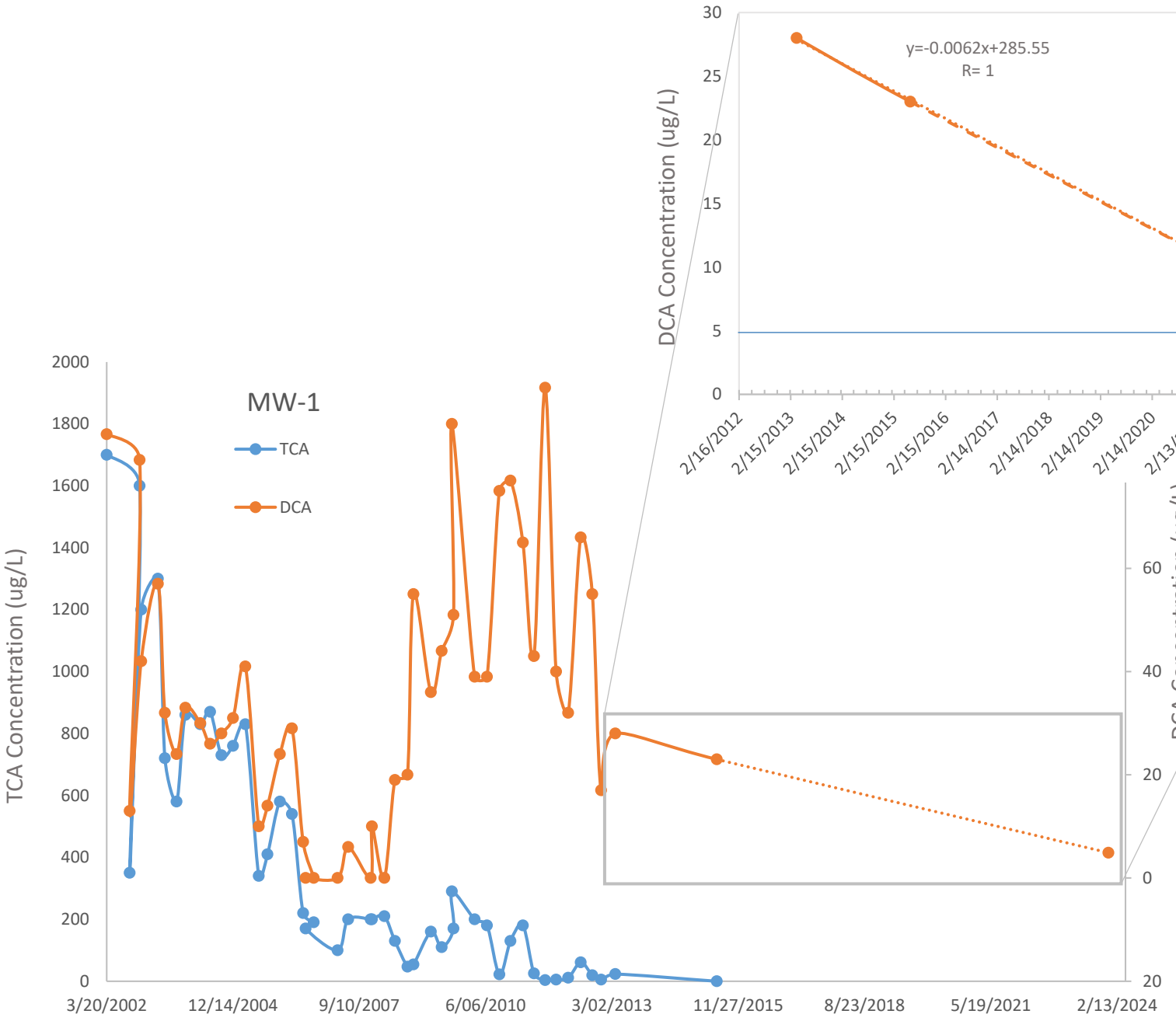
TCA and DCA Trend Analysis (MW-1)



Byron Barrel Drum
Byron, New York

FIGURE 3

Byron Barrel Drum
MW-1 Trend Analysis

FPM Remediations, Inc.

2016

Attachments

Attachment A
Historical Groundwater Monitoring Data Summary Tables

Attachment A
Historical COPC Groundwater Results Summary
Byron Barrel and Drum Site

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water Quality		**5**	**5**	**NA**	**5**	**5**	**5**	**5**	**2**
MW-1	3/20/2002	**86**	**49**	NA	5 U	**1,700**	2 J	5 U	2 J
	6/12/2002	**81**	**38**	NA	5 U	**1,600**	3 J	5 U	5 U
	9/18/2002	**13**	**13 J**	NA	5 UJ	**350**	5 U	5 U	5 U
	12/18/2002	**42**	**37 J**	NA	25 U	**1,200**	5 J	25 U	25 U
	4/29/2003	**57**	**34**	NA	25 U	**1300 J**	25 U	25 U	25 U
	6/24/2003	**32**	**24**	NA	5 U	**720**	4 J	5 U	5 U
	9/24/2003	**24 J**	**17 J**	NA	25 U	**580**	25 U	25 U	25 U
	12/3/2003	**33 J**	**28 J**	NA	40 U	**860 J**	40 U	40 U	40 U
	3/30/2004	**30 J**	**31**	NA	25 U	**830 J**	25 UJ	25 U	25 U
	6/16/2004	**26**	**22 J**	NA	25 UJ	**870**	25 U	25 U	25 U
	9/14/2004	**28**	**26**	NA	25 U	**730**	25 U	25 U	25 U
	12/14/2004	**31**	**26**	NA	25 U	**760**	25 UJ	25 U	25 U
	3/22/2005	**41**	**110**	NA	5 U	**830**	5	5 U	5 U
	6/7/2005	**10 J**	**14 J**	NA	**13 J**	**340**	50 U	50 UJ	50 U
	9/13/2005	**14**	**16**	NA	5 U	**410**	2 J	5 UJ	5 U
	12/20/2005	**24 J**	**24 J**	NA	40 U	**580**	40 U	40 U	40 U
	3/26/2006	**29**	**24**	NA	5 U	**540**	4 J	5 U	5 U
	6/22/2006	**7**	**9**	NA	5 U	**220**	2 J	5 U	5 U
	9/14/2006	**5 J**	**6 J**	NA	10 U	**190**	2 J	10 U	10 U
	12/7/2006	**6 J**	**9 J**	NA	10 U	**170**	2 J	10 U	10 U
	3/22/2007	**2 J**	4 J	NA	10 U	**100**	2 J	10 U	10 U
	6/14/2007	**6**	3 J	NA	5 U	**200**	2 J	5 U	5 U
	9/12/2007	**7 J**	3 J	NA	20 U	**200**	20 U	20 U	20 U
	12/19/2007	**10**	2 J	NA	10 U	**200**	2 J	10 U	10 U
	3/26/2008	**8 J**	3 J	NA	20 U	**210**	20 U	20 U	20 U
	6/18/2008	**19**	3 J	NA	10 U	**130**	1 J	10 U	10 U
	9/25/2008	**20**	1 J	NA	10 U	**47**	1 J	10 U	10 U
	12/11/2008	**55**	2 J	NA	10 U	**54**	2 J	10 U	10 U
	3/30/2009	**36**	3 J	NA	10 U	**160**	1.6 J	10 U	10 U
	6/23/2009	**44**	4.1 J	NA	5 U	**110**	3.2 J	10 U	0.45 J
	9/25/2009	**51**	**7.3**	NA	5 U	**170**	1.8 J	5 U	5 U
	12/9/2009	**88**	**9.6 J**	NA	5 U	**290**	2.2 J	5 U	5 U
	3/11/2010	**39**	**8 J**	NA	5 U	**200**	2 U	5 U	5 U
	6/17/2010	**39**	4.2 J	NA	5 U	**180**	1.6 J	5 U	1.4 J
	9/23/2010	**75**	2.4 J	NA	5 U	**22**	1.2 J	5 U	5 U
	12/20/2010	**77**	5.2	NA	5 U	**130**	2.1 J	5 U	5 U
	3/28/2011	**65**	22	NA	5 U	**180**	1.4 J	5 U	5 U
	6/24/2011	**43**	1.7 J	NA	5 U	**25**	1.3 J	5 U	5 U
	9/20/2011	**95**	3.8 J	NA	5 U	3.6 J	1.8 U	2.6 J	5 U
	12/16/2011	**40**	2 J	NA	5 U	4.9 J	1.8 U	2.6 U	5 U
	3/21/2012	**32**	2.8 J	NA	5 U	**11**	0.67 J	2.6 U	5 U
	6/28/2012	**66**	**8.9**	NA	0.44 U	**61**	0.84 J	0.51 U	0.9 U
	9/28/2012	**55**	4 J	NA	0.44 U	**19**	0.63 J	0.51 U	0.9 U
	12/6/2012	**17**	2.7 J	NA	0.44 U	**5.1**	0.46 U	0.51 U	0.9 U
	3/29/2013	**28**	3.6 J	NA	0.44 U	**23**	0.67 J	0.51 U	0.9 U
	6/10/2015	**23**	0.75	ND	2.5U	0.5U	0.75	2.5U	0.22J

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water Quality		**5**	**5**	**NA**	**5**	**5**	**5**	**5**	**2**
MW-4	3/20/2002	**17 J**	**14 J**	NA	25 U	**450**	**10 J**	25 U	25 U
	6/12/2002	**3 J**	2 J	NA	5 U	**83**	**8**	5 U	5 U
	9/18/2002	5 U	5 UJ	NA	5 UJ	**27**	5	5 U	5 U
	12/18/2002	**40**	**24**	NA	5 U	**200**	**8**	5 U	5 U
	4/29/2003	**31**	**13 J**	NA	25 U	**530**	25 U	25 U	25 U
	6/24/2003	5 UJ	5 UJ	NA	5 U	**17 J**	4 J	5 U	5 UJ
	9/24/2003	**35**	**9 J**	NA	10 U	**240**	8 J	10 U	10 U
	12/3/2003	**65**	**17 J**	NA	20 U	**550**	11 J	20 U	20 U
	3/30/2004	**12**	5	NA	5 U	**130**	3 J	5 U	5 U
	6/16/2004	**15 J**	25 UJ	NA	25 UJ	**150**	25 U	25 U	25 U
	9/14/2004	**11 J**	25 U	NA	25 U	**87**	25 U	25 U	25 U
	12/14/2004	**11 J**	25 U	NA	25 U	**67**	25 U	25 U	25 U
	3/22/2005	50 U	50 U	NA	50 UJ	**87**	50 U	50 U	50 U
	6/7/2005	5 U	5 U	NA	5 U	**8**	1 J	5 U	5 U
	9/13/2005	5 U	5 U	NA	5 U	**11**	2 J	5 U	5 U
	12/20/2005	4 J	25 U	NA	25 U	**48**	25 U	25 U	25 U
	3/25/2006	5 U	5 U	NA	5 U	**8**	1 J	5 U	5 U
	6/22/2006	5 U	5 U	NA	5 U	**9**	1 J	5 U	5 U
	9/14/2006	5 U	5 U	NA	5 U	**13**	2 J	5 U	5 U
	12/7/2006	25 U	25 U	NA	25 U	**6 J**	25 U	25 U	25 U
	3/22/2007	5 U	5 U	NA	5 U	**10**	1 J	5 U	5 U
	6/14/2007	5 U	5 U	NA	5 U	**10**	1 J	5 U	5 U
	9/12/2007	5 U	5 U	NA	5 U	**14**	2 J	5 U	5 U
	12/19/2007	5 U	5 U	NA	5 U	**16**	1 J	5 U	5 U
	3/26/2008	4 J	20 U	NA	20 U	**31**	2 J	20 U	20 U
	6/18/2008	4 J	20 U	NA	20 U	**16**	1 J	20 U	20 U
	9/25/2008	**11**	10 U	NA	10 U	**15**	2 J	10 U	10 U
	12/11/2008	**37**	10 U	NA	10 U	**49**	5 J	10 U	10 U
	3/30/2009	**45**	10 U	NA	9.6	**160**	4 J	10 U	10 U
	6/23/2009	**19**	0.98 J	NA	5 U	**39**	3.5 J	10 U	5 U
	9/25/2009	**21**	5 U	NA	5 U	**21**	5 U	5 U	5 U
	12/9/2009	**39**	5 U	NA	5 U	**11 J**	5 U	5 U	5 U
	3/11/2010	**33**	2 J	NA	5 U	**38**	5 U	5 U	5 U
	6/17/2010	**32**	1.5 U	NA	5 U	**8.4**	5 U	5 U	5 U
	9/23/2010	**27**	0.59 J	NA	5 U	**9.5**	5 U	5 U	5 U
	12/20/2010	**19**	1.2 J	NA	5 U	**9.5**	0.59 J	5 U	5 U
	3/28/2011	**19**	1.7 J	NA	5 U	1.3	0.9 J	5 U	5 U
	6/24/2011	**18**	2.1 J	NA	5 U	5 U	0.82 J	5 U	5 U
	9/20/2011	**21**	2 J	NA	5 U	3.3 U	1.8 U	2.8 J	5 U
	12/16/2011	**8.4 J**	1.2 U	NA	5 U	3.3 U	1.8 U	2 U	5 U
	3/21/2012	**14**	3.2 J	NA	5 U	2.3 J	1.2 J	2 U	1 J
	6/28/2012	**22**	2.6	NA	0.44 U	0.82 U	0.94 J	0.51 U	0.9 U
	9/28/2012	**6.7**	2 J	NA	0.44 U	0.82 U	0.9 J	0.51 U	0.9 U
	12/6/2012	**5.8**	2.1 J	NA	0.44 U	0.82 U	0.77 J	0.51 U	0.9 U
	3/29/2013	**14**	2.7 J	NA	0.44 U	0.82 U	0.73 J	0.65 J	0.9 U
	6/10/2015	Damaged							

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water Quality		**5**	**5**	**NA**	**5**	**5**	**5**	**5**	**2**
MW-10B	3/21/2002	5 U	5 U	NA	5 U	**42**	5 U	5 U	5 U
	6/12/2002	5 U	5 U	NA	5 U	**11**	5 U	5 U	5 U
	9/18/2002	5 U	5 UJ	NA	5 UJ	**7**	5 U	5 U	5 U
	12/18/2002	5 U	5 U	NA	5 U	**52**	5 U	5 U	5 U
	4/30/2003	5 U	5 U	NA	5 U	**8**	5 U	5 U	5 U
	6/23/2003	5 U	5 U	NA	5 U	3 J	5 U	5 U	5 U
	9/24/2003	5 U	5 U	NA	5 U	**7**	5 U	5 U	5 U
	3/30/2004	5 U	5 U	NA	5 U	**17**	5 U	5 U	5 U
	9/14/2004	5 U	5 U	NA	5 U	**14**	5 U	5 U	5 U
	3/22/2005	5 U	5 U	NA	5 U	**11**	5 U	5 U	5 U
	9/13/2005	5 U	5 U	NA	5 U	**5**	5 U	5 U	5 U
	3/25/2006	5 U	5 U	NA	5 U	**6**	5 U	5 U	5 U
	9/14/2006	5 U	5 U	NA	5 U	**6**	5 U	5 U	5 U
	3/22/2007	5 U	5 U	NA	5 U	**6**	5 U	5 U	5 U
	9/12/2007	5 U	5 U	NA	5 U	1 J	5 U	5 U	5 U
	12/19/2007	**64 J**	120 U	NA	31 J	**1,300**	120 U	120 U	120 U
	3/26/2008	5 U	5 U	NA	5 U	**8**	5 U	5 U	5 U
	6/18/2008	0.4 J	5 U	NA	5 U	5	5 U	5 U	5 U
	9/25/2008	5 U	5 U	NA	5 U	1 J	5 U	5 U	5 U
	12/11/2008	0.8 J	5 U	NA	5 U	2 J	5 U	5 U	5 U
	3/30/2009	5 U	5 U	NA	8.8	4.1 J	5 U	5 U	5 U
	6/23/2009	0.53 J	5 U	NA	5 U	0.91 J	0.97 J	5 U	5 U
	9/25/2009	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	12/9/2009	**33**	5 U	NA	10	5 U	5 U	5 U	5 U
	3/11/2010	**6.6**	5 U	NA	1.6 J	5 U	5 U	5 U	5 U
	6/17/2010	1.3 J	5 U	NA	5 U	5 U	5 U	5 U	5 U
	9/23/2010	**9.6**	5 U	NA	5 U	5 U	5 U	5 U	5 U
	12/20/2010	**62**	3 J	NA	0.9 J	37	0.93 J	5 U	5 U
	3/28/2011	**7.6**	1.1 J	NA	5 U	2.8 J	0.52 J	5 U	5 U
	6/24/2011	0.48 J	5 U	NA	5 U	5 U	5 U	5 U	5 U
	9/20/2011	**10 J**	1.2 U	NA	1.8 U	3.3 U	1.8 U	2.5 J	3.6 U
	12/16/2011	**24 J**	1.2 U	NA	1.8 U	3.3 U	1.8 U	2.6 U	3.6 U
	3/21/2012	**33**	0.55 J	NA	1.8 U	0.5 J	1.1 J	2.6 U	3.6 U
	6/28/2012	2.6 J	1.5 U	NA	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	9/28/2012	**26**	1.2 U	NA	1.8 U	3.3 U	1.8 U	2 U	3.6 U
	12/6/2012	**18 J**	1.2 U	NA	1.8 U	3.3 U	1.8 U	2 U	3.6 U
	3/29/2013	**28**	0.33 J	NA	0.44 U	0.82 U	0.46 U	0.51 U	0.9 U
	6/10/2015	2.5U	0.5U	2.5U	2.5U	2.5U	0.5U	2.5U	1U

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water Quality		5	5	NA	5	5	5	5	2
MW-21	3/26/1999	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
	3/21/2002	25 U	25 U	NA	25 U	25 U	25 U	25 U	25 U
	6/12/2002	25 U	25 U	NA	25 U	25 U	25 U	5 BJ	25 U
	9/17/2002	5 U	5 UJ	NA	5 UJ	5 U	5 U	5 U	5 U
	12/17/2002	5 U	5 UJ	NA	5 U	5 UJ	5 U	5 U	5 U
	4/30/2003	25 U	25 U	NA	25 U	25 U	25 U	25 U	25 U
	3/30/2004	5 UJ	5 UJ	NA	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	3/22/2005	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	3/25/2006	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
	3/22/2007	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
	12/19/2007	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
	3/26/2008	20 U	20 U		20 U	20 U	20 U	20 U	20 U
	12/11/2008	20 U	20 U		20 U	20 U	20 U	20 U	20 U
	3/30/2009	5 U	5 U		9.8	5 U	5 U	5 U	20 U
	9/25/2009								
	12/9/2009								
	3/11/2010	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	6/17/2010								
	9/23/2010								
	12/20/2010								
	3/28/2011	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	6/24/2011								
	9/20/2011								
	12/16/2011								
	3/21/2012	0.38 U	0.29 U	NA	0.44 U	0.82 U	0.46 U	0.51 U	0.9 U
	6/28/2012								
	9/28/2012								
	12/6/2012								
	3/29/2013	0.38 U	0.29 U	NA	0.44 U	0.82 U	0.46 U	0.51 U	0.9 U
	6/10/2015	Damaged							

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water Quality		5	5	NA	5	5	5	5	2
MW-Residential	3/21/2002	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	6/12/2002	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	9/17/2002	5 U	5 UJ	NA	5 UJ	5 U	5 U	5 U	5 U
	12/17/2002	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	4/30/2003	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	3/30/2004	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	3/22/2005	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	3/25/2006	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	3/22/2007	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	3/26/2008	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	3/30/2009	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	9/25/2009								
	12/9/2009								
	3/11/2010	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	6/17/2010								
	9/23/2010								
	12/20/2010								
	3/28/2011	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
	6/24/2011								
	9/20/2011								
	12/16/2011								
	3/21/2012	0.38 U	0.29 U	NA	0.44 U	0.82 U	0.46 U	0.51 U	0.9 U
	6/28/2012								
	9/28/2012								
	12/6/2012								
	3/29/2013	0.38 U	0.29 U	NA	0.44 U	0.82 U	0.46 U	0.51 U	0.9 U
	6/10/2015			2.5U	2.5U	0.5	0.5U	2.5U	1U

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water Quality		**5**	**5**	**NA**	**5**	**5**	**5**	**5**	**2**
PW-1	12/21/1998	20 U	5 J	20 U	9 BJ	270	11 J	20 U	20 U
	12/27/2001	**15**	**6.2**	5 U	5 U	280	5.2	5 U	5 U
	3/20/2002	**11**	5	5 U	5 U	320	3 J	5 U	5 U
	6/12/2002	**18**	3 J	5 U	5 U	380	2 J	5 U	5 U
	9/18/2002	**12**	2 J	5 U	5 UJ	270	2 J	5 U	5 U
	12/18/2002	**8**	5	5 U	5 U	160	2 J	5 U	5 U
	4/30/2003	**11**	2 J	5 U	5 U	180	2 J	5 U	5 U
	6/23/2003	**12**	2 J	5 U	5 U	190	2 J	5 U	5 U
	9/24/2003	**8**	5 U	5 U	5 U	120	5 U	5 U	5 U
	12/3/2003	**8**	2 J	5 U	5 U	150	2 J	5 U	5 U
	3/30/2004	**6**	2 J	5 U	5 U	150	5 U	5 U	5 U
	6/16/2004	**13**	3 J	5 U	5 UJ	380	2 J	5 U	5 U
	9/14/2004	**10**	2 J	5 U	5 U	210	5 U	5 U	5 U
	12/14/2004	**6**	2 J	5 U	5 U	140	5 U	5 U	5 U
	3/22/2005	**15**	**23**	5 U	5 U	200 J	2 J	5 U	5 U
	6/7/2005	**10**	2 J	10 U	2 U	59	1 J	10 U	10 U
	9/13/2005	3 J	0.9 J	5 U	5 U	73	0.5 J	5 U	5 U
	12/19/2005	**9**	2 J	5 U	5 U	140	2 J	5 U	5 U
	3/26/2006	4 J	0.9 J	5 U	5 U	76	0.6 J	5 U	5 U
	6/22/2006	4 J	1 J	5 U	5 U	77	0.8 J	5 U	5 U
	9/14/2006	**9 DJ**	25 U	25 U	25 U	230	25 U	25 U	25 U
	12/7/2006	**6 J**	2 J	10 U	10 U	160	1 J	10 U	10 U
	3/22/2007	**6 J**	2 J	10 U	10 U	170	1 J	10 U	10 U
	6/14/2007	**9 J**	2 J	10 U	10 U	280	2 J	10 U	10 U
	9/12/2007	5 J	10 U	10 U	10 U	130	10 U	10 U	10 U
	12/21/2007	2500 U	2500 U	2500 U	2500 U	2500 U	2500 U	2500 U	2500 U
	3/26/2008	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	6/18/2008	**7**	100 U	100 U	100 U	7	100 U	100 U	100 U
	9/25/2008	**12**	5 U	5 U	5 U	3	0.6 J	2 J	5 U
	12/11/2008	**32**	5 U	5 U	2 J	2 J	1 J	0.8 J	5 U
	3/30/2009	**10**	5 U	5 U	**16**	5 U	5 U	5 U	5 U
	6/23/2009	**6.8**	5 U	5 U	5 U	5 U	1.2 J	0.81 J	5 U
	9/25/2009	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	12/9/2009	5 U	5 U	5 U	5 U	5 U	5 U	44 J	5 U
	3/11/2010	5 U	5 U	5 U	5 U	5 U	5 U	16 J	5 U
	6/17/2010	5 U	5 U	5 U	5 U	5 U	5 U	**16**	5 U
	9/23/2010	**16**	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	**11**	9 U
	12/20/2010	**23**	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	**5.3**	9 U
	3/28/2011	**24 J**	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	3.1 J	4.5 U
	6/24/2011	**13 J**	1.5 U	4.1 U	2.2 J	4.1 U	2.3 U	2.6 U	4.5 U
	9/20/2011	**9.4 J**	1.2 U	3.2 U	2.2 J	3.3 U	1.8 U	4.7 J	3.6 U
	12/16/2011	**13 J**	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	5.1 U	9 U
	3/21/2012	**10**	5 U	5 U	5 U	5 U	5 U	2.5 J	5 U
	6/28/2012	**6.9 J**	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	5 U
	9/28/2012	1.9 U	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	12/6/2012	**7 J**	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	3/29/2013	**6.1 J**	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	6/10/2015	25U	5U	5U	25U	25U	5U	25U	10U

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water		**5**	**5**	**NA**	**5**	**5**	**5**	**5**	**2**
PW-2	12/27/2001	68	23	1.4 J	5 U	**960**	4 J	5 U	1.1 J
	3/20/2002	**24**	**13**	5 U	5 U	**720**	2 J	5 U	5 U
	6/12/2002	**18**	**10**	5 U	5 U	**370**	2 J	5 U	5 U
	9/18/2002	**5**	4 J	5 U	5 UJ	**160**	5 U	5 U	5 U
	12/18/2002	**12**	14	10 U	10 U	**280**	10 U	10 U	10 U
	4/30/2003	**11**	6	5 U	5 U	**200**	2 J	5 U	5 U
	6/23/2003	**8**	5	5 U	5 U	**180**	5 U	5 U	5 U
	9/24/2003	**6**	2 J	5 U	5 U	**120**	5 U	5 U	5 U
	12/3/2003	**6**	3 J	5 U	5 U	**160**	5 U	5 U	5 U
	3/30/2004	4 J	3 J	5 U	5 U	**140**	5 U	5 U	5 U
	6/16/2004	5	5 U	5 U	5 UJ	**120**	5 U	5 U	5 U
	9/14/2004	5	4 J	5 U	5 U	**160**	5 U	5 U	5 U
	12/14/2004	**8**	5	5 U	5 U	**160**	2 J	5 U	5 U
	3/22/2005	5	**11**	5 U	5 U	**140**	5 U	5 U	5 U
	6/7/2005	3 J	2 J	5 U	5 U	**70**	1 J	5 U	5 U
	9/13/2005	3 J	3 J	5 U	5 U	**94 J**	2 J	5 U	5 U
	12/19/2005	1 J	5 U	5 U	5 U	**30**	0.5 J	5 U	5 U
	3/26/2006	5	1 J	5 U	5 U	**54**	0.8 J	5 U	5 U
	6/22/2006	4 J	2 J	10 U	10 BL	**170**	1 J	10 U	10 U
	9/14/2006	3 DJ	1 DJ	10 U	10 U	**92**	1 DJ	10 U	10 U
	12/7/2006	**9 DJ**	3 DJ	10 U	10 U	**230**	2 J	10 U	10 U
	3/22/2007	**8 J**	4 J	10 U	10 U	**90**	1 J	10 U	10 U
	6/14/2007	**8 J**	2 J	20 U	20 U	**270**	20 U	20 U	20 U
	9/12/2007	5 J	1 J	10 U	10 U	**140**	10 U	10 U	10 U
	12/21/2007	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
	3/26/2008	250 U	250 U	250 U	250 U	**30 J**	250 U	**29 J**	250 U
	6/18/2008	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
	9/25/2008	**14**	5 U	5 U	5 U	5 U	0.7 J	3 J	5 U
	12/11/2008	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
	3/30/2009	5 U	5 U	5 U	**16**	5 U	5 U	5 U	5 U
	6/23/2009	**0.41 J**	5 U	5 U	5 U	5 U	1.3 J	1.3 J	5 U
	9/25/2009	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	12/9/2009	5 U	5 U	5 U	5 U	5 U	5 U	**19 J**	5 U
	3/11/2010	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	6/17/2010	7.7 U	5.9 U	16 U	8.8 U	16 U	9.2 U	10 U	18 U
	9/23/2010	7.7 U	5.9 U	16 U	8.8 U	16 U	9.2 U	10 U	18 U
	12/20/2010	7.7 U	5.9 U	16 U	8.8 U	16 U	9.2 U	10 U	18 U
	3/28/2011	**6 J**	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	6/24/2011	**6.2 J**	1.5 U	4.1 U	2.6 J	4.1 U	2.3 U	2.6 J	4.5 U
	9/20/2011	**9.8 J**	1.2 U	3.2 U	1.8 U	3.3 U	1.8 U	4.3 J	3.6 U
	12/16/2011	**7.4 J**	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	5.1 U	9 U
	3/21/2012	**5.9**	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	1.8 J	9 U
	6/28/2012	3.2 J	0.29 U	0.81 U	0.44 U	0.82 U	0.46 U	1.6 J	0.9 U
	9/28/2012	**5.9 J**	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	12/6/2012	**5.1 J**	1.5 U	4.1 U	2.6 J	4.1 U	2.3 U	2.6 U	4.5 U
	3/29/2013	3.5 J	0.29 U	0.81 U	0.44 U	0.82 U	0.46 U	0.87 J	0.9 U
	6/10/2015	Damaged							

Sample Location ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Methylene Chloride	1,1,1-Trichloroethane	Trichloroethene	Toluene	Vinyl Chloride
Class GA Water Quality		**5**	**5**	**NA**	**5**	**5**	**5**	**5**	**2**
PW-3	12/27/2001	5 U	5 U	5 U	5 U	**16**	1.7 J	5 U	5 U
	3/20/2002	5 U	5 U	5 U	5 U	**8**	1 J	5 U	5 U
	6/12/2002	5 U	5 U	5 U	5 U	**6**	5 U	5 U	5 U
	9/18/2002	5 U	5 UJ	5 U	5 UJ	4 J	5 U	5 U	5 U
	12/18/2002	5 U	5 U	5 U	5 U	4 J	5 U	5 U	5 U
	4/30/2003	5 U	5 U	5 U	5 U	3 J	5 U	5 U	5 U
	6/23/2003	5 U	5 U	5 U	5 U	3 J	5 U	5 U	5 U
	9/24/2003	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U
	12/3/2003	5 U	5 U	5 U	5 U	3 J	5 U	5 U	5 U
	3/30/2004	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U
	6/16/2004	5 U	5 U	5 U	5 UJ	2 J	5 U	5 U	5 U
	9/14/2004	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U
	12/14/2004	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U
	3/22/2005	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U
	6/7/2005	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	9/13/2005	5 U	5 U	5 U	5 U	1 J	5 U	5 U	5 U
	12/19/2005	5 U	5 U	5 U	5 U	1 J	5 U	5 U	5 U
	3/26/2006	5 U	5 U	5 U	5 U	1 J	5 U	5 U	5 U
	6/22/2006	5 U	5 U	5 U	5 U	1 J	5 U	5 U	5 U
	9/14/2006	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U
	12/7/2006	6 DJ	2 DJ	5 U	5 U	**170**	1 J	5 U	5 U
	3/22/2007	**7**	4 J	5 U	5 U	**210**	1 J	5 U	5 U
	6/14/2007	**9 J**	3 J	20 U	20 U	**260**	20 U	20 U	20 U
	9/12/2007	4 J	1 J	10	**10**	**130**	10 U	10 U	10 U
	3/26/2008	0.9 J	5 U	5 U	5 U	**24**	5 U	5 U	5 U
	6/18/2008	0.6 J	5 U	5 U	5 U	**24**	5 U	5 U	5 U
	9/25/2008	5 U	5 U	5 U	5 U	**22**	5 U	5 U	5 U
	12/11/2008	5 U	5 U	5 U	5 U	**14**	5 U	5 U	5 U
	3/30/2009	5 U	5 U	5 U	5 U	**18**	5 U	5 U	5 U
	6/23/2009	0.41 J	5 U	5 U	5 U	**16**	0.77 J	5 U	5 U
	9/25/2009	5 U	5 U	5 U	5 U	**9**	5 U	5 U	5 U
	12/9/2009	5 U	5 U	5 U	**16 J**	5 U	**7.2 J**	5 U	5 U
	3/11/2010	5 U	5 U	5 U	**6.6 J**	5 U	**5.1 J**	5 U	5 U
	6/17/2010	5.9 U	7.7 U	16 U	8.8 U	16 U	9.2 U	10 U	18 U
	9/23/2010	3.8 U	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	5.1 U	9 U
	12/20/2010	**20**	2.9 U	8.1 U	**13**	8.2 U	4.6 U	5.1 U	9 U
	3/28/2011	1.9 U	1.5 U	4.1 U	3.7 J	4.1 U	2.3 U	2.6 U	4.5 U
	6/24/2011	0.64 J	1.5 U	4.1 U	0.78 J	4.1 U	2.3 U	2.6 U	4.5 U
	9/20/2011	1.5 U	1.2 U	3.2 U	1.8 U	3.3 U	1.8 U	2 U	3.6 U
	12/16/2011	**7.4 J**	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	5.1 U	9 U
	3/21/2012	1.9 U	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	6/28/2012	1.9 U	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	9/28/2012	1.9 U	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	12/6/2012	1.9 U	1.5 U	4.1 U	2.2 U	4.1 U	2.3 U	2.6 U	4.5 U
	3/29/2013	3.8 U	2.9 U	8.1 U	4.4 U	8.2 U	4.6 U	5.1 U	9 U
	6/10/2015	0.84J	0.5U	0.5U	2.5U	2.5U	0.5U	0.83J	1U

Notes: **NM = Not Measured**

All concentrations in micrograms per liter (µg/L) **NA = Class GA Standard is not AvailableNot Available**

Bold type face highlights an exceedance of NYS Class GA Water Quality Standards NYS TOGS (June 1998).

Blank cell indicates sample data is not available.

Attachment B
Regulatory Comments and Responses

Sorbello, Donald

To: 'Jacob, George'
Cc: john.grathwol@dec.ny.gov; mark.sergott@health.ny.gov; 'Etter, Terry R.'
Subject: RE: RE: Byron Barrel Groundwater Monitoring Work Plan and Response To July 2016 Comments

Good afternoon George. On behalf of the Byron Barrel PRP Group, please see the responses to your October 2016 comments in blue text below. We will modify the work plan consistent with the July and October response to comments (included in this email string) with agency concurrence. In parallel to revising the work plan, we will also work to schedule the monitoring program. Once a definitive date is scheduled we will notify you at least 10 days prior. If you have any questions, please let us know.

Regards,

Don

Donald Sorbello
FPM Remediations, Inc.
181 Kenwood Ave.
Oneida, NY 13421
O 315.336.7721 x226
M 315.491.4845
d.sorbello@fpm-remediations.com

PLEASE NOTE OUR NEW ADDRESS:
181 Kenwood Avenue, Oneida, NY13421

-----Original Message-----
From: Jacob, George [mailto:Jacob.George@epa.gov]
Sent: Friday, October 28, 2016 2:48 PM
To: 'Etter, Terry R.' <terry.etter@unisys.com>
Cc: john.grathwol@dec.ny.gov; mark.sergott@health.ny.gov; Sorbello, Donald <d.sorbello@fpm-remediations.com>
Subject: RE: Byron Barrel Groundwater Monitoring Work Plan and Response To July 2016 Comments

Terry,

The September 2016 work plan for groundwater sampling is conditionally approved subject to the accommodation of the following comments:

1) The work plan appears to be very limited and shows significant reduction from the 2015 approved groundwater sampling plan which leaves a significant uncertainty as to the actual protectiveness of the site remedy which will be reviewed during the upcoming Five Year Review (FYR) process for the Site. All monitoring wells should be sampled for VOCs. In cases where the wells are damaged, Agencies agree that the PRP will take direct push GW samples as close as possible to the damaged wells. Typically, only four rounds of data indicating concentrations below groundwater standards are required to make a determination that standards have been met. The sampling proposed for 2016 is based on eliminating wells that have had significantly more than four rounds of data indicating concentrations are less than NYS Class GA standards. We do not agree that modifying the monitoring program to eliminate wells with multiple

rounds of data spanning several years below Class GA standards creates uncertainty regarding the protectiveness of the remedy. On the contrary, the multiple rounds of data that exist increases the certainty by identifying wells containing target constituents above standards from those that are below standards. However, recognizing the value of an additional round of monitoring well and temporary well data to establish a relationship between the two sampling methods, we agree to collect an additional round of samples from all of the site wells sampled during the 2015 Monitoring Event for use by the agencies in preparing the FYR. Assuming that the data from the temporary wells are greater than, or similar to the concentrations reported in the permanent monitoring wells, it is requested that future monitoring events be completed using direct push methodologies and permanent monitoring be abandoned. If this approach is acceptable to the agencies, the 2016 monitoring work plan will be modified to make the sampling methodology consistent with the 2015 monitoring work plan, and to reference a well abandonment plan to be submitted under separate cover.

2) The work plan also notes that the previous use of temporary wells provided sampling results with greater uncertainty than initially anticipated and does not appear to address or consider the monitoring wells that were discovered to exist. The submitted work plan does not clarify what "other" monitoring wells are to have water level measurements obtained in addition to the wells proposed to be sampled. During the 2015 monitoring event, groundwater samples were taken from monitoring wells and from temporary direct push wells in proximity to select monitoring wells. The intent of the sampling event was to compare sample results between monitoring wells and temporary direct push monitoring well sampling methodologies, and to evaluate if direct push temporary wells could be used in the future to allow permanent monitoring wells to be abandoned. The evaluation of the two sampling methodologies indicated that the temporary direct push monitoring wells tended to produce groundwater samples with slightly higher concentrations of target constituents, and therefore would be more conservative than utilizing the permanent monitoring wells.

It would appear that the “monitoring wells that were determined to exist”, would include wells that are components to the pump and treat/soil flushing system. There may be the opportunity to substitute these wells for damaged monitoring wells, however, in most cases temporary direct push wells located in proximity to the damaged monitoring well locations, and would more representative of the damaged well water quality. We also believe based on the previous data, that utilizing temporary direct push monitoring wells would yield more conservative estimates of target constituents in groundwater. The “other” monitoring wells slated for water level measurements in the work plan was intended to include monitoring wells typically included in the monitoring program that are not damaged. This will be clarified in the revised plan.

3) Recommend additional sampling data for the former private drinking water well that existed and was previously sampled as it will have to be reviewed and discussed in the next FYR report. The private supply well was included in the 2015 monitoring event, and sampling will be completed in 2016 following agency acceptance of the monitoring work plan. The 2016 data will supplement historical monitoring data and will be used to recommend monitoring program modifications that lead to a program that efficiently and effectively monitors groundwater remediation progress.

4) The groundwater monitoring and sampling at the Site must be conducted on an Annual basis. However, the PRP's request to reduce the sampling frequency will be reconsidered after reviewing the November 2016 GW sample results and the Agencies decision on this matter will be included in the FYR Report for the Site which is expected to be finalized by the Spring of 2017. The PRP Group appreciates the USEPA’s intent to revisit the request for a reduction in the monitoring frequency following the 2016 monitoring event. The PRP Group looks forward to working with the agencies to implement an efficient monitoring program that effectively monitors groundwater remediation progress, and will reiterate requests for logical reductions in the monitoring program.

5) As commented before, the ROD remedy components, such as P&T system, monitoring wells etc cannot be decommissioned and dismantled. These must remain on-site until the groundwater cleanup standards are met. Site security and protection of the remedy components are the responsibility of the PRP. It is understood that the remediation system components will remain in place, however, it is recommended that damaged and undamaged

monitoring wells be abandoned, and their coordinates fixed with GPS coordinates so that temporary direct push wells can be utilized during future sampling events.

OTHER GENERAL COMMENTS:

A) The FRPM trend analysis is within the range of the previously submitted analysis, and it appears to be reasonable. There is a low groundwater gradient in this area and there isn't much of a volume of groundwater flow. Additional and enhanced monitoring was suggested so that the trends could be updated to re-assess the estimated time for groundwater restoration. An active enhancement (such as ISCO) at the remaining impacted area will be appropriate to ensure the 2024 target date is met on time or before. Agencies support the idea that this decision be made after reviewing the November 2016 groundwater sampling data. It appears that the groundwater constituents continue to be degraded as a result of previous remediation efforts. As indicated by the comment, remedial progress can continue to be monitored and evaluated.

B) Regarding the tires, empty metal tanks and drums located in Area 1 (see map) of the site, EPA, NYSDEC & NYSDOH visited the Site in July 2015. The NYSDEC's Division of Materials Management have further discussed the disposal options for the tires and steel tanks with the property owner, Mr. Randall. The Agencies request that the PRP group address the drums in Area 1 as we do not believe the current property owner brought these drums on site. However, if Mr. Randall is effectively removing these items for profit as scrap materials as reported, then it should be fine and it will be verified at the next Site visit by one of the Agencies. It is unclear how the presence of salvageable metal and tires relate to the site remedial activities. The PRP Group's consultant will complete a site reconnaissance during the 2016 sampling event to compare the status of site development in July 2015 with the site's status at the time of the 2016 sampling event. We can convey this information informally to the agencies and can discuss this further to clarify the regulatory agencies concerns.

C) Institutional Controls (ICs) must be implemented as required by July 2015 ESD (see attached). Protectiveness of the remedy is affected by the lack of required ICs. Please contact EPA Counsel, Michael Mintzer Esq, for further assistance with this item. This item was initially discussed in 2015 in the context of ongoing site management, however, the timing of the institutional controls implementation was not clear. Based on our previous discussions, it is anticipated institutional controls will include groundwater use restrictions, and site use restrictions. We request a teleconference at your convenience to discuss this issue further to help devise a path forward.

If you have any questions, please contact me.

Thank you

George

George Jacob, Project Manager
United States Environmental Protection Agency, Region 2 Emergency & Remedial Response Division
212 637 4266 (phone) 212 637 3966 (fax)
jacob.george@epa.gov

-----Original Message-----
From: Sorbello, Donald [mailto:d.sorbello@fpm-remediations.com]
Sent: Wednesday, September 28, 2016 2:56 PM

To: Jacob, George <Jacob.George@epa.gov>
Cc: 'Etter, Terry R.' <terry.etter@unisys.com>; john.grathwol@dec.ny.gov; mark.sergott@health.ny.gov
Subject: RE: Byron Barrel Groundwater Monitoring Work Plan and Response To July 2016 Comments

Hello George. On behalf of the Byron Barrel PRP Group, please see the attached groundwater monitoring work plan for your review and acceptance. Also, please note that we have provided responses to your July 2016 comments in blue text below. We have tentatively scheduled the next monitoring event for November 2016, and will finalize the schedule following regulatory approval of the work plan. If you have any questions, please let us know.

Thank you,

Don

Donald Sorbello
FPM Remediations, Inc.
181 Kenwood Ave.
Oneida, NY 13421
O 315.336.7721 x226
M 315.491.4845
d.sorbello@fpm-remediations.com<mailto:d.sorbello@fpm-remediations.com>

PLEASE NOTE OUR NEW ADDRESS:
181 Kenwood Avenue, Oneida, NY13421

From: Jacob, George [mailto:Jacob.George@epa.gov]
Sent: Monday, July 11, 2016 2:17 PM
To: Etter, Terry R.
Cc: Grathwol, John (DEC); Mintzer, Michael
Subject: Byron Barrel and Drum Superfund Site

Terry,

Please find some General Site comments as well as specific comments on the September 2015 Groundwater Monitoring report below from the Agencies:

1) September 2015 Groundwater monitoring report.

-per the M-K statistical analysis groundwater standards will be met in few years. Not clear, how many years is few years. Since there is a relatively low gradient and not much flow, remnants may continue from between roughly 5 and 50 years in our Agency estimates. Groundwater conditions have improved dramatically since 2002 when monitoring began. As an example, the concentrations of 1,1 DCA and 1,1,1 TCA at MW-1 have decreased from 86 ppb and 1,700 ppb in 2002, to 23 ppb and ND in 2015, respectively. The 2015 results identified the presence of 2-butanone, which is believed to be a degradation by-product associated with last round of EVO injections at the site. The presence of 2-butanone could be an indication that bio-degradation of site COPCs continue, therefore, the monitoring program should be continued before any additional remedial decisions are evaluated.

-Recommendation of 'no further remedial action', is not acceptable to the Agencies. Further enhancement is strongly recommended. Agencies might seriously consider a targeted ISCO as a PILOT proposal from the PRPs. As indicated above, based on 2015 monitoring data it would appear that bio-degradation of COPCs continues, therefore, the monitoring program should continue to monitor for continued COPC reduction.

-Recommendation of abandoning all permanent wells at the Site and using direct push temporary wells for future monitoring, is not acceptable to the Agencies. A more rigorous approach would be to keep the permanent monitoring wells (to look at trend data) and add temporary direct push wells for future sampling. Based on 2015 monitoring event report conclusions, the "comparison study" completed to compare results from direct push temporary monitoring well samples and permanent monitoring well samples suggest that the direct push temporary wells are more conservative (i.e. tended to yield more elevated concentrations than permanent well samples). Site control and vandalism has reportedly been an issue at the site despite the existence of a perimeter fence with locking gate. As a result, protecting and maintaining site monitoring wells is an issue. As an indication, monitoring well MW-2 was damaged in the time between the sampling event of June 2015 and a site meeting with regulators in July 2015. Abandoning the permanent monitoring wells and employing direct push temporary wells for monitoring would be an approach to ensure that all wells are abandoned properly, while also providing groundwater data to monitor groundwater quality. Nevertheless, as requested we have provided a work plan for continued monitoring via permanent monitoring wells, as requested. We request that we revisit this approach in the near future to discuss further.

-Recommendation of dismantling the P&T system before the cleanup goals are met, is not acceptable to the Agencies. The remedy selected in the ROD cannot be removed until all clean up goals are met. Understood. This recommendation was developed using a similar thought process as the recommendation for abandoning monitoring wells; ensure proper abandonment of the system due issues with vandalism and site control.

-Recommendation of monitoring groundwater once in 5 years is not acceptable to the Agencies. At a minimum ANNUAL sampling is required to provide sufficient data needed for EPA 5 Year Reviews. Based on historical groundwater data it appears that groundwater concentrations have not fluctuated greatly on a year-by-year basis. For example, in the last 5 years the concentration of 1,1 DCA at MW-1 has ranged between 17 ppb and 66 ppb. It is believed that completing monitoring events during the 2nd and 4th years of each 5 year review cycle would strike a balance between providing sufficient groundwater quality data to evaluate site conditions, and being cost effective. We have provided a monitoring work plan that proposes additional monitoring at the stated frequency while alternating between spring and fall.

-Recommendation of the next monitoring event to be conducted in 2017 is not acceptable to the Agencies. Next monitoring event should be conducted in Summer 2016. A monitoring work plan has been prepared and includes a groundwater monitoring event in the fall of 2016.

2) General Comments:

-Financial Assurance: We have no record of the balance left in the Trust Fund for the site. Please provide proof funds for financial assurance required for site cleanup with a minimum amount of $250,000.00 immediately for the PRP's compliance with the financial assurance requirement under the Consent Decree. EPA Site Counsel may be able to provide further assistance with this requirement. Please have the PRP Counsel contact Mr. Michael Mintzer at 212-637-3168. Mr. Mintzer is being copied here as well. We are currently evaluating financial assurance with corporate counsel and will follow-up in the near future.

-In 2015 after a Site recon, it was brought to your attention that several tires, tanks and drums were scattered around the Site. Any progress on cleaning up these debris? It is our understanding from the July 2015 site meeting that the referenced items were empty and are the property and responsibility of the site owner (Mr. Randall), and that Mr. Randall is removing these items for profit as scrap materials during his efforts to beautify property for his use. We would recommend that the agency contact Mr. Randall for additional information.

Thanks

George

George Jacob, Project Manager
United States Environmental Protection Agency, Region 2 Emergency & Remedial Response Division
212 637 4266 (phone) 212 637 3966 (fax)
jacob.george@epa.gov<mailto:jacob.george@epa.gov>

Attachment C
Laboratory Reporting Limits and Detection Limits

Byron Barrel & Drum Site - Groundwater Monitoring Laboratory
Reporting and Detection Limits For EPA Method 8260C Analysis

Holding Time: 14 days
Container/Sample Preservation: 3 - Vial HCl preserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Methylene chloride	75-09-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,1-Dichloroethane	75-34-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Chloroform	67-66-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Carbon tetrachloride	56-23-5	0.5	0.134	ug/l	63-132	20	63-132	20	20			
Dibromochloromethane	124-48-1	0.5	0.149	ug/l	63-130	20	63-130	20	20			
1,1,2-Trichloroethane	79-00-5	1.5	0.5	ug/l	70-130	20	70-130	20	20			
Tetrachloroethene	127-18-4	0.5	0.181	ug/l	70-130	20	70-130	20	20			
Chlorobenzene	108-90-7	2.5	0.7	ug/l	75-130	20	75-130	20	20			
1,2-Dichloroethane	107-06-2	0.5	0.132	ug/l	70-130	20	70-130	20	20			
1,1,1-Trichloroethane	71-55-6	2.5	0.7	ug/l	67-130	20	67-130	20	20			
Bromodichloromethane	75-27-4	0.5	0.192	ug/l	67-130	20	67-130	20	20			
Benzene	71-43-2	0.5	0.159	ug/l	70-130	20	70-130	20	20			
Toluene	108-88-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Vinyl chloride	75-01-4	1	0.0699	ug/l	55-140	20	55-140	20	20			
1,1-Dichloroethene	75-35-4	0.5	0.142	ug/l	61-145	20	61-145	20	20			
Trichloroethene	79-01-6	0.5	0.175	ug/l	70-130	20	70-130	20	20			
1,2-Dichlorobenzene	95-50-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,4-Dichlorobenzene	106-46-7	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Xylene (Total)	1330-20-7	2.5	0.7	ug/l				20	20			
cis-1,2-Dichloroethene	156-59-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
2-Butanone	78-93-3	5	1.94	ug/l	63-138	20	63-138	20	20			