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New York State Department of Environmental Conservation

Site Number 7-04-009A

Vestal Water Supply Site Quarterly Report

Third Quarter 2013

May 2014

ARCADIS

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Vestal Water Supply Site
Quarterly Report

Site Number 7-04-009A

Prepared for:
New York State Department of
Environmental Conservation

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Our Ref.:
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Date:
May 2014

Malcolm Pirnie, Inc. was acquired by ARCADIS in June 2009.

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1. Introduction

The New York State Department of Environmental Conservation (NYSDEC) has issued a Work Assignment (# D007618-7) to Malcolm Pirnie, Inc. (Malcolm Pirnie) for Operation, Maintenance, and Monitoring at the Vestal Water Supply Site in New York State (Site # 7-04-009A). This Quarterly Report was prepared in accordance with the NYSDEC-approved Work Plan to summarize site activities.

2. Site Description

The Vestal Water Supply (Site 1-1) Site is located on Pumphouse Road, Vestal, Broome County, New York (Figure 2-1), along the southern bank of the Susquehanna River. Well 1-1 is located just south of the Susquehanna River and northwest of an industrial park located along Stage Road. Until 1980, Well 1-1 was the main source of water for Water District 1, which provides drinking water for several areas of the Town of Vestal. Currently, there are two other production wells, Wells 1-2A and 1-3 that function as the main source of water for Water District 1. Well 1-1A was installed in 1993 to replace Well 1-1 and is currently being used to pump and treat groundwater, which is then discharged to the Susquehanna River.

3. Operation and Maintenance

Malcolm Pirnie has maintained continuous operation of the groundwater treatment plant at the Vestal Water Supply Site. This includes the operation, maintenance, and influent/effluent sampling in accordance with the operations and maintenance (O&M) manual (Final Operation and Maintenance Manual, Long-Term Response, Operable Unit 1, Vestal Well 1-1 Site, Vestal, New York) (Tetra Tech EC, Inc., 2006) (Final O&M Manual). However, as indicated in the Work Assignment, no work was performed on the Vestal Water Supply (Site 1-1) soil vapor extraction system.

As part of managing the Vestal Water Supply Site, Malcolm Pirnie has a subcontract with Environmental Compliance, Inc. (ECI), who has unique knowledge of operating the groundwater treatment plant. ECI provides materials, labor, equipment, and supervision to maintain continuous operation of the groundwater treatment plant.

3.1 Variable Frequency Drive

A variable frequency drive (VFD) was installed in February 2009 to provide soft-start operation for the Well 1-1A replacement well pump motor and reduced torque on the Certa-Lock® PVC drop pipe. The VFD also provides energy savings by allowing the well pump motor to be operated at a reduced speed. The current VFD setting is 50 hertz.

3.2 Flow Meter

As discussed in the Third and Fourth Quarter 2010 Quarterly Report (Malcolm Pirnie, 2010) the digital flow meter readings for Well 1-1A may be understated and the ECI Monthly Reports and System O&M Logs presented estimated adjusted values. The estimated adjusted flow values for July through December 2010 were calculated by adding an additional 150 gallons per minute (GPM) to the flow displayed on the digital flow meter. The adjustment value was based on the difference between the flow calculated using the manufacturer's pump performance curve, system operating pressure, and pumping level compared to the reading on the digital flow meter. Following discussions with ECI in April 2011, and to be consistent with historical reporting formats, the Monthly Reports and System O&M logs will no longer present the adjusted flow values. Therefore, the flow measurements presented in the Monthly Report and System O&M Logs (Appendix A) are direct readings from the digital flow meter.

3.3 Discharge Orifice

A temporary circular weir orifice (orifice) was installed in the discharge outlet for the Well 1-1A treatment plant on July 18, 2012 as a temporary means to provide a better estimate of flow through the treatment plant. Flow data measured from the orifice will be used to support the pending NYSDEC Remedial System Optimization (RSO) evaluation.

3.3.1 Orifice Configuration

The orifice was constructed using removable five or six inch inside-diameter (ID) orifice plates inserted into a 10 inch ID PVC outlet pipe. Details of the installation were provided in the Third Quarter Report and Annual Groundwater Monitoring Summary (Malcolm Pirnie, 2013). Flow through the orifice is calculated using the following equation from Driscoll, 1986:

$$\boldsymbol{Q = CA\sqrt{2gh}}$$

Where:

Q = Flow (gallons per minute);

C = Correction factor based on diameter of the orifice and orifice discharge pipe;

A = Area of orifice in square inches;

g = acceleration due to gravity (feet per second squared); and

h = height of water (inches) in the piezometer tube

3.3.2 Flow Readings

Based on field measurements of flow using the orifice, the average discharge rate from the Well 1-1A treatment on July 17 was 410 GPM; the average rate measured on August 15 and September 24, 2013 was 400 GPM. These measurements coincide to digital flow meter readings of 180 GPM and 160 GPM, respectively. Therefore, as indicated in Section 3.2, the total flow through the Well 1-1A treatment plant is being under-reported.

3.4 System Operation

Table 3-1 and Figure 3-1 summarize groundwater treatment system flow rates from the Monthly Reports and System O&M Logs. As shown in Table 3-1, the groundwater treatment system flow rate for Well 1-1A decreased from an average of 175 gallons per minute (GPM) in July 2013 to an average of 162 GPM in August 2013. The average flow decreased slightly in September 2013 to approximately 158 GPM. As shown in Table 3-1, approximately 21,640,000 gallons of water were treated during the third quarter 2013 operating period. The system ran continuously through July 2013 and August 2013. The system was shut down on two occasions in September 2013 due to storm activity.

3.5 Influent – Effluent Sampling

Third quarter 2013 influent and effluent groundwater samples were collected from the Well 1-1A treatment system in accordance with the Work Plan. Influent and effluent groundwater samples were sent to TestAmerica Laboratories following chain-of-custody protocols for analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260B. The analyte list was expanded in June 2013 at the request of USEPA to include 1,2,4 trimethylbenzene and 1,3,5 trimethylbenzene; methyl-tert butyl ether (MTBE) was also added. The laboratory analytical reporting forms are provided in Appendix B. The laboratory analytical data for the treatment plan samples are summarized in Tables 3-2 (influent VOCs) and Table 3-3 (effluent VOCs); Figure 3-2 presents the Well 1-1A treatment plant total influent VOC concentrations over time.

As shown in Table 3-2, influent sample concentrations of 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (cis-1,2 DCE), and trichloroethene (TCE) are consistent with previous sampling results and exceed the corresponding NYSDEC Class GA Standards in each of the samples collected in the third quarter, 2013. As shown in Figure 3-2, the total VOCs concentration detected in the Well-1-1A third quarter influent samples are within the range of previous sampling results.

As shown in Table 3-2, MTBE was detected in the July 2013 (3.6 ug/L), August 2013 (2.4 ug/L), and September 2013 (2.4 ug/L) influent samples from Well 1-1A. Table 3-4 shows that this concentration is less than the corresponding NYSDEC Class GA Standard of 10 ug/L.

Table 3-3 shows that MTBE and cis-1,2-DCE were detected in the third quarter 2013 effluent samples.

As shown in Table 3-3, the concentration of MTBE in the July (2 ug/L), August (1.4 ug/L), and September 2013 (1.4 ug/L) post-treatment effluent samples were less than the NYSDEC Class GA Standard of 10 ug/L. Table 3-3 shows that the concentration of cis-1,2-DCE in the August 2013 post-treatment effluent sample was 1.2 ug/L which is less than the NYSDEC Class GA Standard of 5 ug/L.

Based on influent sample concentrations and total flow volumes from the Well 1-1A treatment system, approximately 49 pounds of VOCs were removed by the treatment system during the third quarter 2013 operating period.

3.6 Clear Well Inspection

The clear well for the air stripper was visually inspected on July 22, 2013. The inspection was performed due to a suspected obstruction in the outlet pipe for the air stripper clear well. The suspected obstruction was identified during the May 13, 2013 step-rate pumping test (ARCADIS, 2013) when Well 1-1A was being pumped at a rate of approximately 550 GPM. At this rate, it was observed that the water level in the clear well was near to overflowing onto the floor of the treatment system building.

Entry into the clear well was made through the floor hatch in the treatment system building using the confined-space-entry procedures prescribed in the Site-specific Health and Safety Plan (ARCADIS, 2013a).

Inspection of the clear well revealed significant calcium carbonate precipitate coating the walls of the clear well, clear well pump (drop pipe and bowl assembly), and the base of the air stripper tower. Photographs of the clear well are presented in Appendix C. The inspection also revealed an obstruction in the 12” outlet pipe for the clear well. As shown in Appendix C, calcium carbonate precipitate collected on remnants of a screen that once covered the clear well outlet. The precipitate filled the openings of the screen and significantly reduced the discharge capacity of the clear well.

The obstruction was removed using mechanical force; however, following removal of the obstruction, precipitate was observed coating the wetted perimeter of the discharge pipe. The maximum thickness of precipitate was approximately one inch.

Treatment plant operation was restored following removal of the obstruction. Upon resuming normal operation of the treatment plant, the water level in the clear well was approximately 0.5 feet lower than the operating level before the obstruction was removed.

4. Groundwater Monitoring

Groundwater monitoring wells were sampled in accordance with the Work Plan during the third quarter, 2012. The results of the sampling event were submitted to the NYSDEC with the third quarter 2012 Vestal Water Supply Site Quarterly Report and Annual Groundwater Monitoring Summary (March 2013). The next annual groundwater monitoring event is scheduled for the fourth quarter of 2013.

5. Recommendations

Recommendations for revised instrumentation and controls; replacement of the discharge line from the clear well to the outfall; evaluation of well pump corrosion; and routine well development have been presented to the NYSDEC in the Quarterly Report and Annual Groundwater Monitoring Summary (Malcolm Pirnie, 2013).

6. Summary

The Vestal Well 1-1A groundwater treatment system was shut down on two occasions in September due to storm activity. The system operated without interruption during the remainder of the third quarter 2013 operation and maintenance period. Total flow through the treatment system from July to September 2013 was approximately 21.6 million gallons. Based on monthly influent and effluent sampling, the treatment system successfully removes VOCs from groundwater extracted from the capture zone. Approximately 49 pounds of VOCs were removed by the treatment system during the third quarter 2013 operational period.

A visual inspection of the air stripper clear well was performed on July 22, 2013 to evaluate a potential obstruction in the outlet pipe for the clear well. During the inspection, significant calcium carbonate precipitate was observed on all wetted components in the clear well. The obstruction in the outlet pipe was removed and treatment plant operation restored. An approximately one inch coating of precipitate is still present in the outlet pipe.

Groundwater sampling was conducted during the third quarter 2012. The next sampling event is scheduled for the fourth quarter 2013. Recommendations for revised instrumentation and controls; replacement of the discharge line; evaluation of well pump corrosion; and routine well development have been presented to the NYSDEC.

7. References

ARCAIDS, 2013, Quarterly Report and Annual Groundwater Monitoring Summary, First and Second Quarter 2013, Vestal Water Supply Site, Site Number 7-04-009A.

ARCAIDS, 2013a, Site-specific Health and Safety Plan, Vestal Water Supply Site, Site Number 7-04-009A.

Driscoll, Fletcher. G, 1986, Groundwater and Wells: A Comprehensive Study of Groundwater and the Technologies used to Locate, Extract, Treat, and Protect this Resource. Johnson Screens, St. Paul, Minnesota.

Malcolm Pirnie, 2010, Quarterly Report, Third and Fourth Quarter 2010, Vestal Water Supply Site, Site Number 7-04-009A.

Malcolm Pirnie, 2013, Quarterly Report and Annual Groundwater Monitoring Summary, Third Quarter 2012, Vestal Water Supply Site, Site Number 7-04-009A.

Tetra Tech EC, Inc., 2006, Final Operation and Maintenance Manual, Long-Term Response, Operable Unit 1, Vestal Well 1-1 Site, Vestal, New York.

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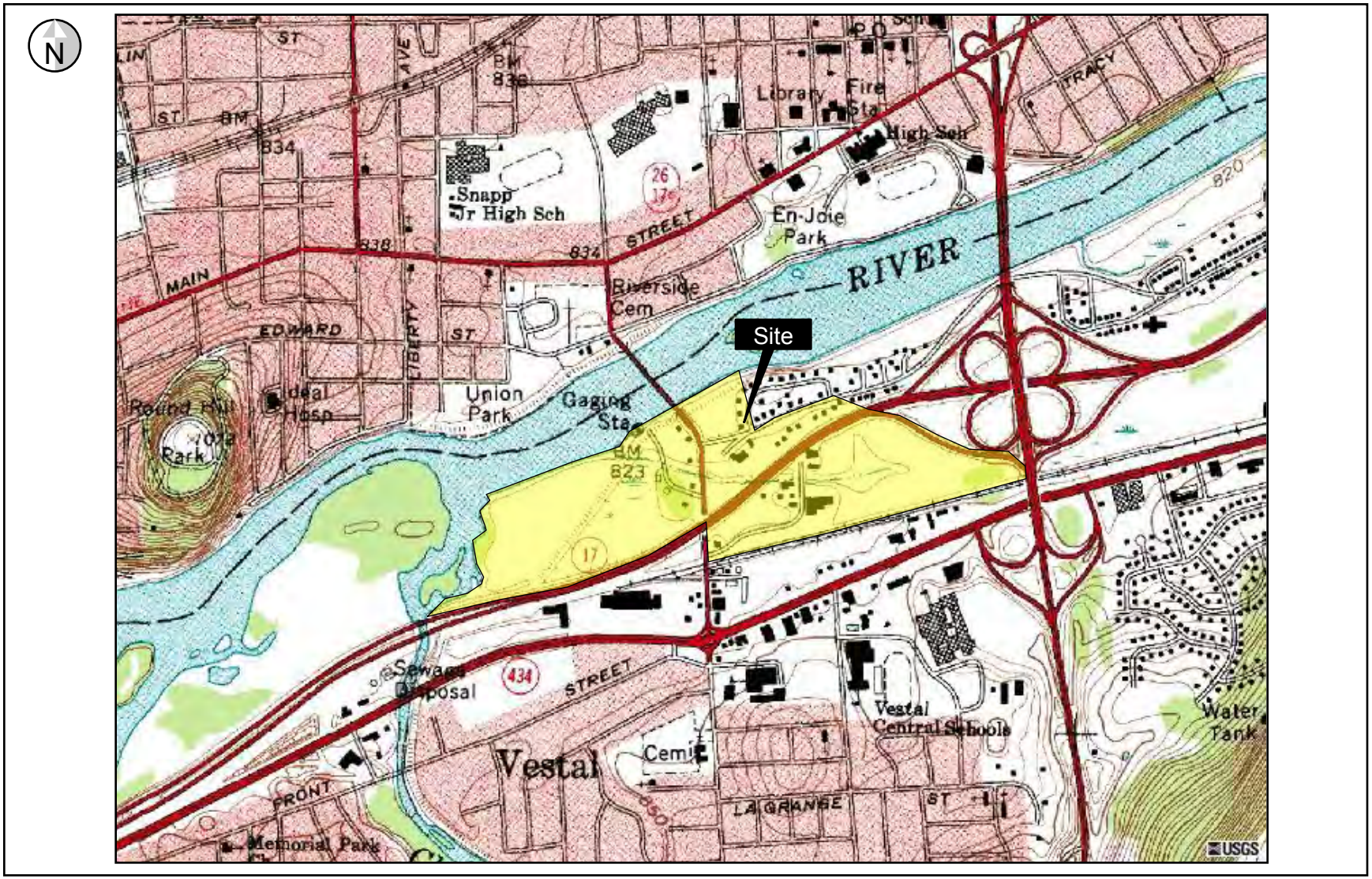
Figure 2-1
Site Location
Vestal Water Supply Site
Vestal, New York
NYSDEC Site # 7-04-009A

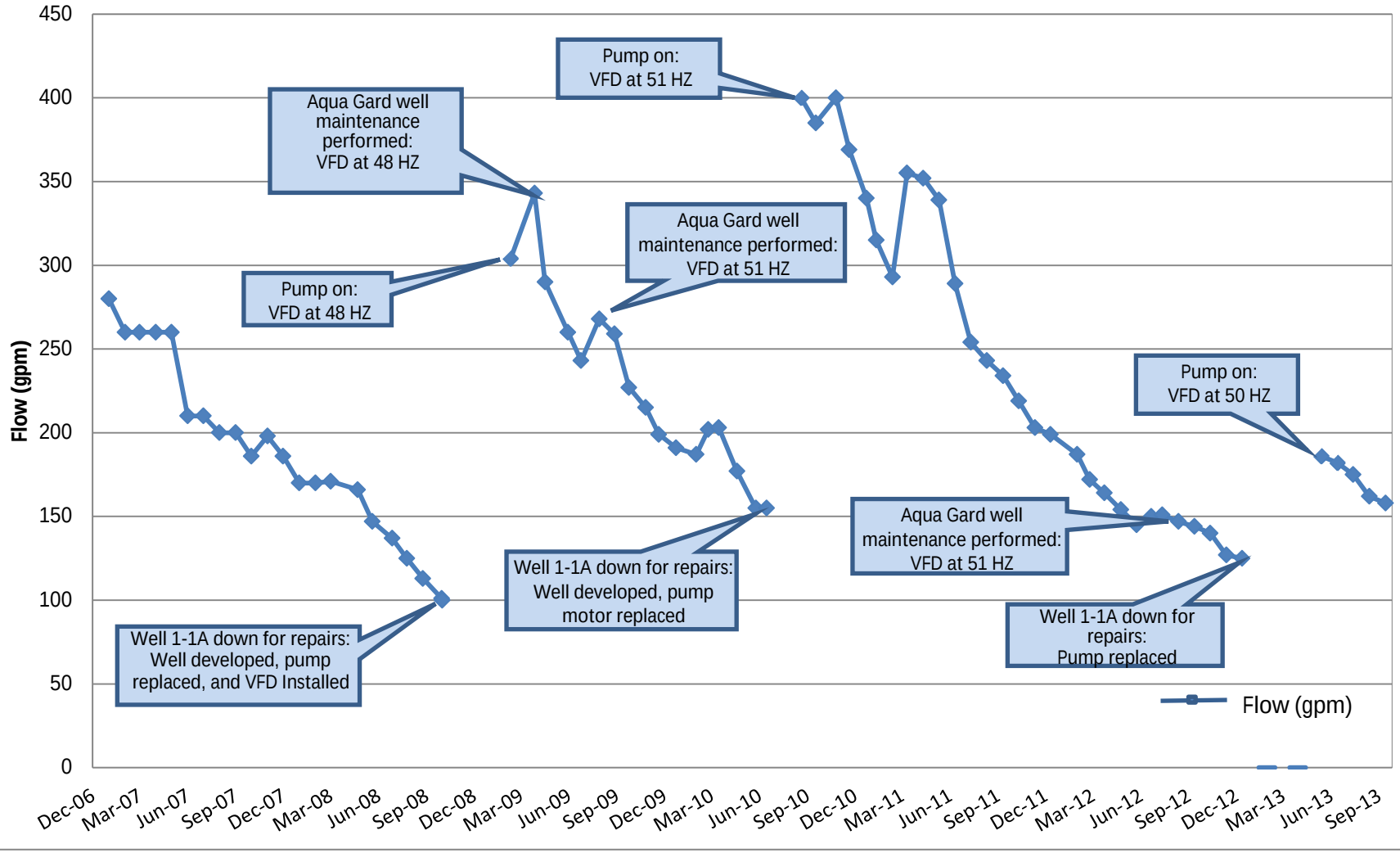
0 2,000 ft



Source: USGS 7.5-minute Series Topographic Quadrangle, Endicott (1988).

G:\project\00266401.0000\file\reports\Figure 2-1.ppt

Figure 3-1
Well 1-1A Treatment Plant Flow
Vestal Water Supply Site
NYSDEC Site Number 7-04-009A



G:\PROJECT\00266401.0000\Reports\3rd Qtr 2013\Tables 3-1, 3-2, 3-3, 3-4.xls

Figure 3-2
Well 1-1A Treatment Plant Total VOCs Concentrations
Vestal Water Supply Site
NYSDEC Site Number 7-04-009A

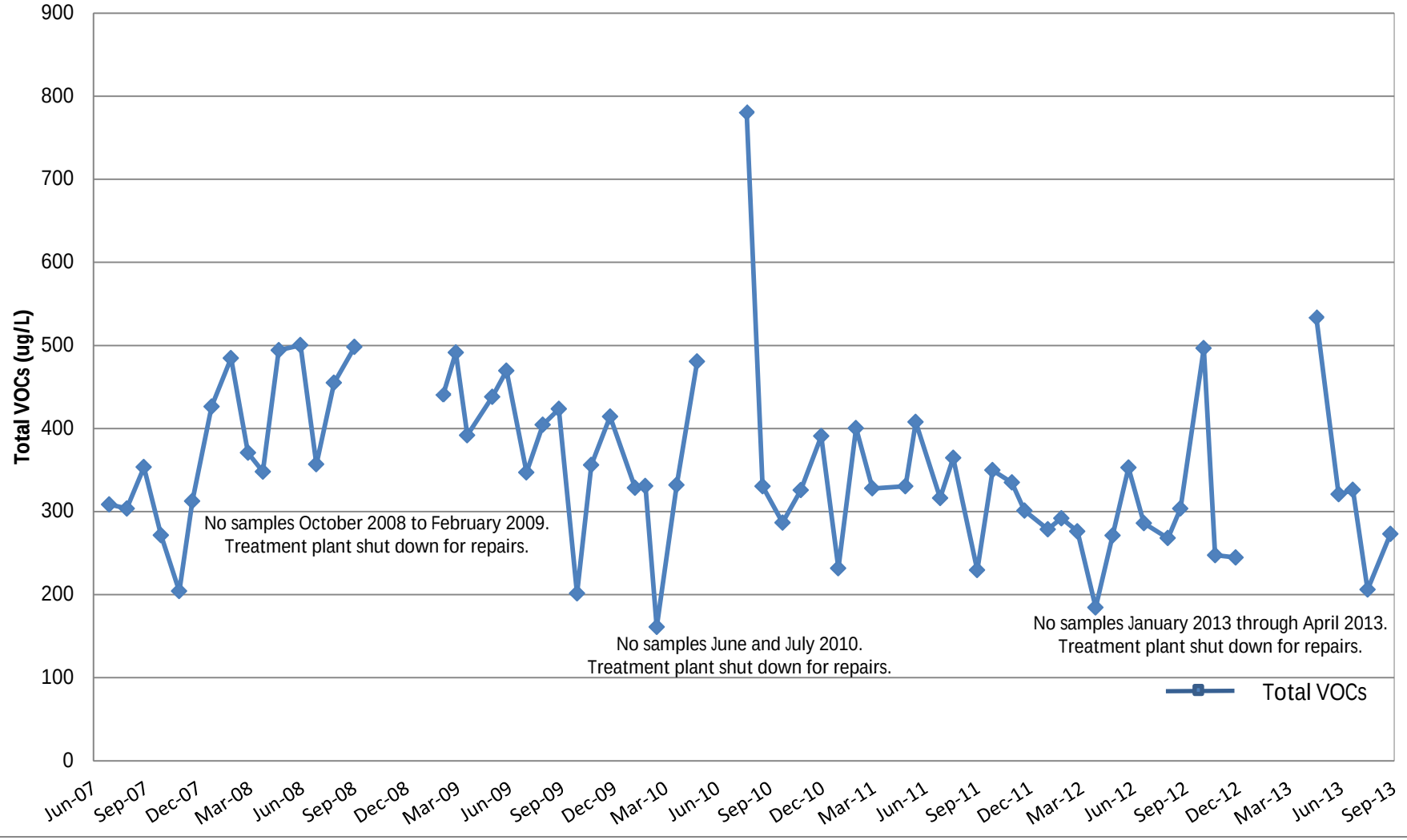


TABLE 3-1
WELL 1-1A FLOW SUMMARY
VESTAL WATER SUPPLY
VESTAL, NEW YORK
NYSDEC SITE NO. 7-04-009A

Date	System Operation[1] (days/month)			Pumping Rate[1] (gpm)	Total Flow[2] (gallons)	Quarterly Flow (gallons)
January-07	31	44640		280	12,499,200	
February-07	28	40320		260	10,483,200	33,840,000
March-07	29	41760	(3)	260	10,857,600	
April-07	30	43200		260	11,232,000	
May-07	31	44640		260	11,606,400	31,910,400
June-07	30	43200		210	9,072,000	
July-07	31	44640		210	9,374,400	
August-07	31	44640		200	8,928,000	26,942,400
September-07	30	43200		200	8,640,000	
October-07	31	44640		186	8,303,040	
November-07	29	41760		198	8,268,480	24,874,560
December-07	31	44640		186	8,303,040	
January-08	31	44640		170	7,588,800	
February-08	29	41760		170	7,099,200	22,321,440
March-08	31	44640		171	7,633,440	
April-08	30	43200		166	7,171,200	
May-08	31	44640		147	6,562,080	19,651,680
June-08	30	43200		137	5,918,400	
July-08	31	44640		125	5,580,000	
August-08	31	44640		113	5,044,320	14,987,520
September-08	30	43200		101	4,363,200	
October-08	6	8640	(4)	100	864,000	
November-08	0	0	(4)	0	0	864,000
December-08	0	0	(4)	0	0	
January-09	0	0	(4)	0	0	
February-09	19	27360	(4)	304	8,317,440	22,641,120
March-09	29	41760	(3)	343	14,323,680	
April-09	30	43200		290	12,528,000	
May-09	30	43200	(5)	260	11,232,000	34,257,600
June-09	30	43200		243	10,497,600	
July-09	29	41760	(4)	268	11,191,680	
August-09	29	41760	(5)	259	10,815,840	31,160,160
September-09	28	40320	(5)	227	9,152,640	
October-09	31	44640		215	9,597,600	
November-09	30	43200	(5)	199	8,596,800	26,720,640
December-09	31	44640		191	8,526,240	
Total Flow (2007)					**117,567,360**	
Total Flow (2008)					**65,750,400**	
Total Flow (2009)					**93,790,080**	

Notes:
1 - From Environmental Compliance, Inc. O&M Reports and Malcolm Pirnie, Inc. field notes.
2 - Calculated assuming system operating 24-hours per day
3 - System shut down for flooding
4 - System shut down for repairs
5 - System down due to power failure
gpm - Gallons per minute

TABLE 3-1
WELL 1-1A FLOW SUMMARY
VESTAL WATER SUPPLY
VESTAL, NEW YORK
NYSDEC SITE NO. 7-04-009A

Date	System Operation[1] (days/month)			Pumping Rate[1] (gpm)	Total Flow[2] (gallons)	Quarterly Flow (gallons)
January-10	25	36000	(3)	187	6,732,000	
February-10	28	40320		202	8,144,640	23,938,560
March-10	31	44640		203	9,061,920	
April-10	30	43200		177	7,646,400	
May-10	31	44640		155	6,919,200	16,128,000
June-10	7	10080	(4)	155	1,562,400	
July-10	0	0	(4)	0	0	
August-10	12	17280	(4)	400	6,912,000	23,544,000
September-10	30	43200		385	16,632,000	
October-10	31	44640		400	17,856,000	
November-10	28	40320	(5)	369	14,878,080	47,911,680
December-10	31	44640		340	15,177,600	
January-11	31	44640		315	14,061,600	
February-11	27	38880	(5)	293	11,391,840	40,278,240
March-11	29	41760	(3)	355	14,824,800	
April-11	26	37440	(3)	352	13,178,880	
May-11	29	41760	(3)	339	14,156,640	39,820,320
June-11	30	43200		289	12,484,800	
July-11	29	41760	(5)	254	10,607,040	
August-11	29	41760	(3)	243	10,147,680	29,178,720
September-11	25	36000	(3)	234	8,424,000	
October-11	31	44640		219	9,776,160	
November-11	30	43200		203	8,769,600	27,429,120
December-11	31	44640		199	8,883,360	
January-12	31	44640		187	8,347,680	
February-12	29	41760		172	7,182,720	22,851,360
March-12	31	44640		164	7,320,960	
April-12	30	43200		154	6,652,800	
May-12	31	44640		145	6,472,800	19,173,600
June-12	28	40320	(4)	150	6,048,000	
July-12	29	41760	(5)	151	6,305,760	
August-12	25	36000	(4)	147	5,292,000	17,818,560
September-12	30	43200		144	6,220,800	
October-12	30	43200	(storm)	140	6,048,000	
November-12	30	43200		127	5,486,400	17,114,400
December-12	31	44640		125	5,580,000	
January-13	0	0		0	0	
February-13	0	0		0	0	0
March-13	0	0		0	0	
April-13	0	0		0	0	
May-13	13	18720		186	3,481,920	11,344,320
June-13	30	43200		182	7,862,400	
July-13	31	44640		175	7,812,000	
August-13	31	44640		162	7,231,680	21,641,760
September-13	29	41760	(5)	158	6,598,080	
Total Flow (2010)					**111,522,240**	
Total Flow (2011)					**136,706,400**	
Total Flow (2012)					**76,957,920**	
Total Flow (2013)					**32,986,080**	

Notes:
1 - From Environmental Compliance, Inc. O&M Reports and Malcolm Pirnie, Inc. field notes.
2 - Calculated assuming system operating 24-hours per day
3 - System shut down for flooding
4 - System shut down for repairs
5 - System down due to power failure

gpm - Gallons per minute

TABLE 3-2
SUMMARY OF GROUNDWATER TREATMENT SYSTEM VOCS (INFLUENT)
VESTAL WATER SUPPLY
VESTAL, NEW YORK
NYSDEC SITE #7-04-009A

Sample ID Sampling Date Matrix Units	NYSDEC GA Standard ug/L	WELL 1A-INF 9/20/2012 WATER ug/L	WELL 1A-INF 10/31/2012 WATER ug/L	WELL 1A-INF 11/20/2012 WATER ug/L	WELL 1A-INF 12/26/2012 WATER ug/L	WELL 1A-INF 5/17/2013 WATER ug/L	WELL 1A-INF 6/25/2013 WATER ug/L	WELL 1A-INF 7/20/2013 WATER ug/L	WELL 1A-INF 8/15/2013 WATER ug/L	WELL 1A-INF 9/24/2013 WATER ug/L
VOCs										
1,1,1-Trichloroethane	5	**170**	**250**	**130**	**130**	**280 E**	**170**	**170**	**99**	**140**
1,1,2,2-Tetrachloroethane	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
1,1,2-Trichloroethane	1	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
1,1-Dichloroethane	5	**19**	**28**	**15**	**18**	**37**	**23**	**24**	**17**	**19**
1,1-Dichloroethene	5	**15**	**34**	**25**	**12**	**44**	**17**	**18**	**8.6**	**18**
1,2-Dichloroethane	0.6	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
1,2-Dichloropropane	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
1,2,4-Trimethylbenzene	5	NA	NA	NA	NA	NA	1 U	1 U	2 U	2 U
1,3,5-Trimethylbenzene	5	NA	NA	NA	NA	NA	1 U	1 U	2 U	2 U
2-Butanone (MEK)	50	20 U	20 U	10 U	20 U	20 U	10 U	10 U	20 U	20 U
2-Hexanone	50*	10 U	10 U	5 U	10 U	10 U	5 U	5 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)		10 U	10 U	5 U	10 U	10 U	5 U	5 U	10 U	10 U
Acetone	50*	20 U	20 U	10 U	20 U	20 U	10 U	10 U	20 U	20 U
Benzene	1	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Bromodichloromethane	50	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Bromoform	50*	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Bromomethane	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Carbon disulfide		2 U	2 U	0.43 J	2 U	5.9	1 U	1 U	2 U	2 U
Carbon tetrachloride	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Chlorobenzene	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Chloroethane	5	2 U	2 U	0.44 J	2 U	2 U	0.79 J	2	2 U	2 U
Chloroform	7	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Chloromethane		2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
cis-1,2-Dichloroethene	5	**47**	**85**	**32**	**37**	**78**	**50**	**50**	**37**	**43**
cis-1,3-Dichloropropene	0.4	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Dibromochloromethane	50	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Ethylbenzene	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Methyl tert-butyl ether	10	NA	NA	NA	NA	NA	3.6	3.6	2.4	2.4
Methylene Chloride	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Styrene	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Tetrachloroethene	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Toluene	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
trans-1,2-Dichloroethene	5	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
trans-1,3-Dichloropropene	0.4	2 U	2 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U
Trichloroethene	5	**47**	**94**	**40**	**42**	**74**	**49**	**52**	**37**	**46**
Vinyl chloride	2	**5.6**	**5.5**	**5.5**	**5.7**	**15**	**11**	**10**	**7.4**	**6.9**
Xylenes, Total	5	4 U	4 U	2 U	4 U	4 U	2 U	3 U	6 U	6 U
Total VOCs		304	497	248	245	534	321	326	206	273

Notes

- Concentration exceeds corresponding NYSDEC Class GA Standard.

U - Not detected at the indicated concentration.
J - Estimated concentration.
B - Analyte found in associated blank as well as the sample.
E - Concentration exceeds instrument calibration range.
D - Laboratory Dilution.
* - MS or MSD exceeded control limits.
NA - Not Analyzed

TABLE 3-3
SUMMARY OF GROUNDWATER TREATMENT SYSTEM VOCS (EFFLUENT)
VESTAL WATER SUPPLY
VESTAL, NEW YORK
NYSDEC SITE #7-04-009A

Sample ID Sampling Date Matrix Units	NYSDEC GA Standard ug/L	WELL 1A-EFF 9/20/2012 WATER ug/L	WELL 1A-EFF 10/31/2012 WATER ug/L	WELL 1A-EFF 11/20/2012 WATER ug/L	WELL 1A-EFF 12/26/2012 WATER ug/L	WELL 1A-EFF 5/17/2013 WATER ug/L	WELL 1A-EFF 6/25/2013 WATER ug/L	WELL 1A-EFF 7/2/2013 WATER ug/L	WELL 1A-EFF 8/15/2013 WATER ug/L	WELL 1A-EFF 9/24/2013 WATER ug/L
1,1,1-Trichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	5	NA	NA	NA	NA	NA	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	5	NA	NA	NA	NA	NA	1 U	1 U	1 U	U
2-Butanone (MEK)	50	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	5 U
4-Methyl-2-pentanone (MIBK)		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	50	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	5	1 U	1 U	1 U	1 U	1 U	1.1	1.1	1.2	1 U
cis-1,3-Dichloropropene	0.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	50	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether	10	NA	NA	NA	NA	NA	2	2	1.4	1.4
Methylene Chloride	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	0.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes, Total	5	2 U	2 U	2 U	2 U	2 U	2 U	3 U	3 U	3 U

Notes
U - Not detected at the indicated concentration.
J - Estimated concentration.
B - Analyte found in associated blank as well as the sample.
* - MS or MSD exceeded control limits.
NA - Not Analyzed

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Appendix **A**

Monthly Reports and System Operation and Maintenance Logs

ENVIRONMENTAL COMPLIANCE, INC.
101 Mount Bethel Rd.
Warren, New Jersey 07059
908-754-1700
908-754-1866 (fax)
http://www.eci-nj.com
j.jimenez@eci-nj.com (email)

Vestal Well 1-1 Monthly Report
July 2013

SECTION I – SUMMARY OF ACTIVITIES

The system operated without interruption the entire month of July at 173 to 176 GPM.

SECTION II – MONTHLY OPERATIONS & MAINTENANCE

- Daily routine inspection of property
- Checked and replaced belts
- Lubricated equipment, as needed
- Changed filters
- Mowed lawn and cut vines off fence.

SECTION III – REPAIR WORK COMPLETED

- None

SECTION IV – REPAIR WORK NEEDED

- None

SECTION V – RECOMMENDATIONS

- None

ENVIRONMENTAL COMPLIANCE, INC.
101 Mount Bethel Rd.
Warren, New Jersey 07059
908-754-1700
908-754-1866 (fax)
http://www.eci-nj.com
j.jimenez@eci-nj.com (email)

Vestal Well 1-1 Monthly Report
August 2013

SECTION I – SUMMARY OF ACTIVITIES

The system operated without interruption the entire month of August at 160 to 164 GPM.

SECTION II – MONTHLY OPERATIONS & MAINTENANCE

- Daily routine inspection of property
- Checked and replaced belts
- Lubricated equipment, as needed
- Changed filters
- Mowed and trimmed lawn.

SECTION III – REPAIR WORK COMPLETED

- None

SECTION IV – REPAIR WORK NEEDED

- None

SECTION V – RECOMMENDATIONS

- None

ENVIRONMENTAL COMPLIANCE, INC.
101 Mount Bethel Rd.
Warren, New Jersey 07059
908-754-1700
908-754-1866 (fax)
http://www.eci-nj.com
j.jimenez@eci-nj.com (email)

Vestal Well 1-1 Monthly Report
September 2013

SECTION I – SUMMARY OF ACTIVITIES

Due to severe thunderstorms system was shut down overnight on two occasions. Otherwise the system operated without interruption the entire month of September at 158 to 159 GPM.

SECTION II – MONTHLY OPERATIONS & MAINTENANCE

- Daily routine inspection of property
- Checked and replaced belts
- Lubricated equipment, as needed
- Changed filters
- Mowed and trimmed lawn.

SECTION III – REPAIR WORK COMPLETED

- None

SECTION IV – REPAIR WORK NEEDED

- None

SECTION V – RECOMMENDATIONS

- None

ENVIRONMENTAL COMPLIANCE, INC.						VESTAL WELL 1-1 MONTHLY O & M LOG																			July 2013								
DAY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
TIME																															
WELL HOUSE	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
PRE LUBE LINE																															
PUMP MOTOR OIL																															
CHEMICAL BUILDING																															
SUMP PUMP	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
DISCHARGE VALVES	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
FLOW METER (GPM)*			176							175							174							173							
CHLORINE ROOM																															
GENERAL CONDITION	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
TOWER PACKING INSP.	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
MAIN PUMPHOUSE																															
BLOWER AND MOTOR	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
BLOWER AIR FILTERS	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
ALARM / CONTROL PANEL																															
CLEARWELL LEVEL	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
OTHER*																															
GROUNDS	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X
INGROUND TANK LEVEL	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X

***Unadjusted Meter Reading**

ENVIRONMENTAL COMPLIANCE, INC.					VESTAL WELL 1-1 MONTHLY O & M LOG															August 2013										
DAY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
TIME																															
WELL HOUSE	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
PRE LUBE LINE																															
PUMP MOTOR OIL																															
CHEMICAL BUILDING																															
SUMP PUMP	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
DISCHARGE VALVES	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
FLOW METER (GPM)*					164								164							161							160				
CHLORINE ROOM																															
GENERAL CONDITION	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
TOWER PACKING INSP.	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
MAIN PUMPHOUSE																															
BLOWER AND MOTOR	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
BLOWER AIR FILTERS	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
ALARM / CONTROL PANEL																															
CLEARWELL LEVEL	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
OTHER*																															
GROUNDS	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	
INGROUND TANK LEVEL	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	

***Unadjusted Meter Reading**

ENVIRONMENTAL COMPLIANCE, INC.						VESTAL WELL 1-1 MONTHLY O & M LOG																		September 2013								
DAY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
TIME																															
WELL HOUSE		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
PRE LUBE LINE																															
PUMP MOTOR OIL																															
CHEMICAL BUILDING																															
SUMP PUMP		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
DISCHARGE VALVES		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
FLOW METER (GPM)*			159								158							158								158					
CHLORINE ROOM																															
GENERAL CONDITION		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
TOWER PACKING INSP.		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
MAIN PUMPHOUSE																															
BLOWER AND MOTOR		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
BLOWER AIR FILTERS		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
ALARM / CONTROL PANEL																															
CLEARWELL LEVEL		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
OTHER*																															
GROUNDS		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	
INGROUND TANK LEVEL		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	

***Unadjusted Meter Reading**

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Appendix **B**

Analytical Reporting Forms

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

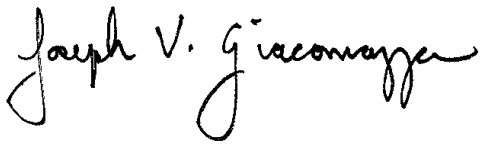
ANALYTICAL REPORT

Job Number: 480-44022-1

Job Description: Vestal Well 1-1A Sampling LMCO

For:
ARCADIS U.S. Inc
855 Route 146
Suite 210
Clifton Park, NY 12065

Attention: Jeremy Wyckoff



Approved for release.
Joe V Giacomazza
Project Management Assistant II
2/21/2014 10:07 AM

Designee for
Judy L Stone, Senior Project Manager
10 Hazelwood Drive, Amherst, NY, 14228-2298
(484)685-0868
judy.stone@testamericainc.com
02/21/2014
Revision: 1

The test results in this report meet all NELAP requirements for analytes for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. All questions regarding this test report should be directed to the TestAmerica Project Manager who has signed this report. TestAmerica Buffalo NELAC Certifications: CADPH 01169CA, FLDOH E87672, ILEPA 200003, KSDOH E-10187, LADEQ 30708, MDH 036-999-337, NHELAP 2973, NJDEP NY455, NHDOH 10026, ORELAP NY200003, PADEP 68-00281, TXCEQ T-104704412-10-1

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Revision I
Report was revised to add compounds of interest as per client request.

Receipt
The samples were received on 8/16/2013 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9º C.

GC/MS VOA
Method(s) 8260B: The following sample(s) was diluted to bring the concentration of target analytes within the calibration range: Well 1-1A INF (480-44022-1). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 135244: 2,2-Dichloropropane, Carbon Tetrachloride and Iodomethane. These compounds are not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. Due to the large number of analytes contained in the CCV, the laboratory's SOP allows for six analytes to be outside limits; therefore, the data have been reported.

No other analytical or quality issues were noted.

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-44022-1

SDG No.:

Instrument ID: HP5973Q Analysis Batch Number: 130641

Lab Sample ID: IC 480-130641/3 Client Sample ID:

Date Analyzed: 07/25/13 13:41 Lab File ID: Q9495.D GC Column: ZB-624 (60) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Bromomethane	1.87	Baseline	BrandtT	07/25/13 15:20

Lab Sample ID: IC 480-130641/4 Client Sample ID:

Date Analyzed: 07/25/13 14:08 Lab File ID: Q9496.D GC Column: ZB-624 (60) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Bromomethane	1.87	Peak Tail	BrandtT	07/25/13 15:21

Lab Sample ID: ICIS 480-130641/5 Client Sample ID:

Date Analyzed: 07/25/13 14:36 Lab File ID: Q9497.D GC Column: ZB-624 (60) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Bromomethane	1.87	Peak Tail	BrandtT	07/25/13 15:22

Lab Sample ID: IC 480-130641/6 Client Sample ID:

Date Analyzed: 07/25/13 15:04 Lab File ID: Q9498.D GC Column: ZB-624 (60) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Bromomethane	1.87	Peak Tail	BrandtT	07/25/13 15:33
Acetone	2.74	Baseline	BrandtT	07/25/13 15:32

Lab Sample ID: IC 480-130641/7 Client Sample ID:

Date Analyzed: 07/25/13 15:31 Lab File ID: Q9499.D GC Column: ZB-624 (60) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Bromomethane	1.87	Peak Tail	BrandtT	07/25/13 16:29

SAMPLE SUMMARY

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-44022-1	Well 1-1A INF	Water	08/15/2013 1600	08/16/2013 0900
480-44022-2	Well 1-1A EFF	Water	08/15/2013 1605	08/16/2013 0900
480-44022-3	Trip Blank	Water	08/15/2013 0000	08/16/2013 0900

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
480-44022-1	**WELL 1-1A INF**					
1,1,1-Trichloroethane		99		2.0	ug/L	8260B
1,1-Dichloroethane		17		2.0	ug/L	8260B
1,1-Dichloroethene		8.6		2.0	ug/L	8260B
cis-1,2-Dichloroethene		37		2.0	ug/L	8260B
Methyl tert-butyl ether		2.4		2.0	ug/L	8260B
Trichloroethene		37		2.0	ug/L	8260B
Vinyl chloride		7.4		2.0	ug/L	8260B
480-44022-2	**WELL 1-1A EFF**					
cis-1,2-Dichloroethene		1.2		1.0	ug/L	8260B
Methyl tert-butyl ether		1.4		1.0	ug/L	8260B

METHOD SUMMARY

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL BUF	SW846 8260B	
Purge and Trap	TAL BUF		SW846 5030B

Lab References:

TAL BUF = TestAmerica Buffalo

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Method	Analyst	Analyst ID
SW846 8260B	Brandt, Todd R	TRB

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Client Sample ID: **Well 1-1A INF**

Lab Sample ID: 480-44022-1
Client Matrix: Water

Date Sampled: 08/15/2013 1600
Date Received: 08/16/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9940.D
Dilution:	2.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/22/2013 0218			Final Weight/Volume:	5 mL
Prep Date:	08/22/2013 0218				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	2.0	U	0.70	2.0
1,1,1-Trichloroethane	99		1.6	2.0
1,1,2,2-Tetrachloroethane	2.0	U	0.42	2.0
1,1,2-Trichloroethane	2.0	U	0.46	2.0
1,1-Dichloroethane	17		0.76	2.0
1,1-Dichloroethene	8.6		0.58	2.0
1,2,4-Trichlorobenzene	2.0	U	0.82	2.0
1,2,4-Trimethylbenzene	2.0	U	1.5	2.0
1,2-Dibromo-3-Chloropropane	2.0	U	0.78	2.0
1,2-Dibromoethane	2.0	U	1.5	2.0
1,2-Dichlorobenzene	2.0	U	1.6	2.0
1,2-Dichloroethane	2.0	U	0.42	2.0
1,2-Dichloropropane	2.0	U	1.4	2.0
1,1-Dichloropropene	2.0	U	1.4	2.0
1,3,5-Trimethylbenzene	2.0	U	1.5	2.0
1,3-Dichlorobenzene	2.0	U	1.6	2.0
1,2,3-Trichlorobenzene	2.0	U	0.82	2.0
1,4-Dichlorobenzene	2.0	U	1.7	2.0
2-Butanone (MEK)	20	U	2.6	20
1,2,3-Trichloropropane	2.0	U	1.8	2.0
2-Hexanone	10	U	2.5	10
p-Isopropyltoluene	2.0	U	0.62	2.0
4-Methyl-2-pentanone (MIBK)	10	U	4.2	10
Acetone	20	U	6.0	20
Benzene	2.0	U	0.82	2.0
Bromodichloromethane	2.0	U	0.78	2.0
Bromoform	2.0	U	0.52	2.0
Bromomethane	2.0	U	1.4	2.0
Carbon disulfide	2.0	U	0.38	2.0
Carbon tetrachloride	2.0	U	0.54	2.0
Chlorobenzene	2.0	U	1.5	2.0
Chloroethane	2.0	U	0.64	2.0
Chloroform	2.0	U	0.68	2.0
Chloromethane	2.0	U	0.70	2.0
cis-1,2-Dichloroethene	37		1.6	2.0
cis-1,3-Dichloropropene	2.0	U	0.72	2.0
Dibromochloromethane	2.0	U	0.64	2.0
Dichlorodifluoromethane	2.0	U	1.4	2.0
Ethylbenzene	2.0	U	1.5	2.0
Isopropylbenzene	2.0	U	1.6	2.0
m,p-Xylene	4.0	U	1.3	4.0
1,3-Dichloropropane	2.0	U	1.5	2.0
Methyl tert-butyl ether	2.4		0.32	2.0
Methylcyclohexane	2.0	U	0.32	2.0
Methylene Chloride	2.0	U	0.88	2.0
n-Butylbenzene	2.0	U	1.3	2.0

Client: ARCADIS U.S. Inc | Job Number: 480-44022-1

Client Sample ID: **Well 1-1A INF**

Lab Sample ID: 480-44022-1 | Date Sampled: 08/15/2013 1600
Client Matrix: Water | Date Received: 08/16/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9940.D
Dilution:	2.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/22/2013 0218			Final Weight/Volume:	5 mL
Prep Date:	08/22/2013 0218				

Analyte	Result (ug/L)	Qualifier	MDL	RL
N-Propylbenzene	2.0	U	1.4	2.0
o-Xylene	2.0	U	1.5	2.0
sec-Butylbenzene	2.0	U	1.5	2.0
Styrene	2.0	U	1.5	2.0
2,2-Dichloropropane	2.0	U	0.80	2.0
tert-Butylbenzene	2.0	U	1.6	2.0
Tetrachloroethene	2.0	U	0.72	2.0
Toluene	2.0	U	1.0	2.0
trans-1,2-Dichloroethene	2.0	U	1.8	2.0
trans-1,3-Dichloropropene	2.0	U	0.74	2.0
2-Chlorotoluene	2.0	U	1.7	2.0
Trichloroethene	37		0.92	2.0
Trichlorofluoromethane	2.0	U	1.8	2.0
4-Chlorotoluene	2.0	U	1.7	2.0
Bromobenzene	2.0	U	1.6	2.0
Dibromomethane	2.0	U	0.82	2.0
Hexachlorobutadiene	2.0	U	0.56	2.0
Naphthalene	2.0	U	0.86	2.0
Xylenes, Total	4.0	U	1.3	4.0
Vinyl chloride	7.4		1.8	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	101		66 - 137
4-Bromofluorobenzene (Surr)	89		73 - 120
Toluene-d8 (Surr)	92		71 - 126

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Client Sample ID: **Well 1-1A EFF**

Lab Sample ID: 480-44022-2
Client Matrix: Water

Date Sampled: 08/15/2013 1605
Date Received: 08/16/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9941.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/22/2013 0246			Final Weight/Volume:	5 mL
Prep Date:	08/22/2013 0246				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	1.0	U	0.35	1.0
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2,4-Trichlorobenzene	1.0	U	0.41	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
1,2-Dibromo-3-Chloropropane	1.0	U	0.39	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichlorobenzene	1.0	U	0.79	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,1-Dichloropropene	1.0	U	0.72	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
1,3-Dichlorobenzene	1.0	U	0.78	1.0
1,2,3-Trichlorobenzene	1.0	U	0.41	1.0
1,4-Dichlorobenzene	1.0	U	0.84	1.0
2-Butanone (MEK)	10	U	1.3	10
1,2,3-Trichloropropane	1.0	U	0.89	1.0
2-Hexanone	5.0	U	1.2	5.0
p-Isopropyltoluene	1.0	U	0.31	1.0
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.2		0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Dichlorodifluoromethane	1.0	U	0.68	1.0
Ethylbenzene	1.0	U	0.74	1.0
Isopropylbenzene	1.0	U	0.79	1.0
m,p-Xylene	2.0	U	0.66	2.0
1,3-Dichloropropane	1.0	U	0.75	1.0
Methyl tert-butyl ether	1.4		0.16	1.0
Methylcyclohexane	1.0	U	0.16	1.0
Methylene Chloride	1.0	U	0.44	1.0
n-Butylbenzene	1.0	U	0.64	1.0

Client: ARCADIS U.S. Inc | Job Number: 480-44022-1

Client Sample ID: **Well 1-1A EFF**

Lab Sample ID: 480-44022-2 | Date Sampled: 08/15/2013 1605
Client Matrix: Water | Date Received: 08/16/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9941.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/22/2013 0246			Final Weight/Volume:	5 mL
Prep Date:	08/22/2013 0246				

Analyte	Result (ug/L)	Qualifier	MDL	RL
N-Propylbenzene	1.0	U	0.69	1.0
o-Xylene	1.0	U	0.76	1.0
sec-Butylbenzene	1.0	U	0.75	1.0
Styrene	1.0	U	0.73	1.0
2,2-Dichloropropane	1.0	U	0.40	1.0
tert-Butylbenzene	1.0	U	0.81	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
2-Chlorotoluene	1.0	U	0.86	1.0
Trichloroethene	1.0	U	0.46	1.0
Trichlorofluoromethane	1.0	U	0.88	1.0
4-Chlorotoluene	1.0	U	0.84	1.0
Bromobenzene	1.0	U	0.80	1.0
Dibromomethane	1.0	U	0.41	1.0
Hexachlorobutadiene	1.0	U	0.28	1.0
Naphthalene	1.0	U	0.43	1.0
Xylenes, Total	2.0	U	0.66	2.0
Vinyl chloride	1.0	U	0.90	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	99		66 - 137
4-Bromofluorobenzene (Surr)	89		73 - 120
Toluene-d8 (Surr)	93		71 - 126

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Client Sample ID: **Trip Blank**

Lab Sample ID: 480-44022-3
Client Matrix: Water

Date Sampled: 08/15/2013 0000
Date Received: 08/16/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9942.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/22/2013 0314			Final Weight/Volume:	5 mL
Prep Date:	08/22/2013 0314				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	1.0	U	0.35	1.0
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2,4-Trichlorobenzene	1.0	U	0.41	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
1,2-Dibromo-3-Chloropropane	1.0	U	0.39	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichlorobenzene	1.0	U	0.79	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,1-Dichloropropene	1.0	U	0.72	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
1,3-Dichlorobenzene	1.0	U	0.78	1.0
1,2,3-Trichlorobenzene	1.0	U	0.41	1.0
1,4-Dichlorobenzene	1.0	U	0.84	1.0
2-Butanone (MEK)	10	U	1.3	10
1,2,3-Trichloropropane	1.0	U	0.89	1.0
2-Hexanone	5.0	U	1.2	5.0
p-Isopropyltoluene	1.0	U	0.31	1.0
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.0	U	0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Dichlorodifluoromethane	1.0	U	0.68	1.0
Ethylbenzene	1.0	U	0.74	1.0
Isopropylbenzene	1.0	U	0.79	1.0
m,p-Xylene	2.0	U	0.66	2.0
1,3-Dichloropropane	1.0	U	0.75	1.0
Methyl tert-butyl ether	1.0	U	0.16	1.0
Methylcyclohexane	1.0	U	0.16	1.0
Methylene Chloride	1.0	U	0.44	1.0
n-Butylbenzene	1.0	U	0.64	1.0

Client: ARCADIS U.S. Inc | Job Number: 480-44022-1

Client Sample ID: **Trip Blank**

Lab Sample ID: 480-44022-3 | Date Sampled: 08/15/2013 0000
Client Matrix: Water | Date Received: 08/16/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Q9942.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/22/2013 0314			Final Weight/Volume:	5 mL
Prep Date:	08/22/2013 0314				

Analyte	Result (ug/L)	Qualifier	MDL	RL
N-Propylbenzene	1.0	U	0.69	1.0
o-Xylene	1.0	U	0.76	1.0
sec-Butylbenzene	1.0	U	0.75	1.0
Styrene	1.0	U	0.73	1.0
2,2-Dichloropropane	1.0	U	0.40	1.0
tert-Butylbenzene	1.0	U	0.81	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
2-Chlorotoluene	1.0	U	0.86	1.0
Trichloroethene	1.0	U	0.46	1.0
Trichlorofluoromethane	1.0	U	0.88	1.0
4-Chlorotoluene	1.0	U	0.84	1.0
Bromobenzene	1.0	U	0.80	1.0
Dibromomethane	1.0	U	0.41	1.0
Hexachlorobutadiene	1.0	U	0.28	1.0
Naphthalene	1.0	U	0.43	1.0
Xylenes, Total	2.0	U	0.66	2.0
Vinyl chloride	1.0	U	0.90	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	98		66 - 137
4-Bromofluorobenzene (Surr)	89		73 - 120
Toluene-d8 (Surr)	92		71 - 126

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCA %Rec	TOL %Rec	BFB %Rec
480-44022-1	Well 1-1A INF	101	92	89
480-44022-2	Well 1-1A EFF	99	93	89
480-44022-3	Trip Blank	98	92	89
MB 480-135244/6		100	93	92
LCS 480-135244/5		100	94	92

Surrogate	Acceptance Limits
DCA = 1,2-Dichloroethane-d4 (Surr)	66-137
TOL = Toluene-d8 (Surr)	71-126
BFB = 4-Bromofluorobenzene (Surr)	73-120

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Method Blank - Batch: 480-135244

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 480-135244/6	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Q9931.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/21/2013 2138	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	08/21/2013 2138				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1,2-Tetrachloroethane	1.0	U	0.35	1.0
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2,4-Trichlorobenzene	1.0	U	0.41	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
1,2-Dibromo-3-Chloropropane	1.0	U	0.39	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichlorobenzene	1.0	U	0.79	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,1-Dichloropropene	1.0	U	0.72	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
1,3-Dichlorobenzene	1.0	U	0.78	1.0
1,2,3-Trichlorobenzene	1.0	U	0.41	1.0
1,4-Dichlorobenzene	1.0	U	0.84	1.0
2-Butanone (MEK)	10	U	1.3	10
1,2,3-Trichloropropane	1.0	U	0.89	1.0
2-Hexanone	5.0	U	1.2	5.0
p-Isopropyltoluene	1.0	U	0.31	1.0
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.0	U	0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Dichlorodifluoromethane	1.0	U	0.68	1.0
Ethylbenzene	1.0	U	0.74	1.0
Isopropylbenzene	1.0	U	0.79	1.0
m,p-Xylene	2.0	U	0.66	2.0
1,3-Dichloropropane	1.0	U	0.75	1.0
Methyl tert-butyl ether	1.0	U	0.16	1.0
Methylcyclohexane	1.0	U	0.16	1.0
Methylene Chloride	1.0	U	0.44	1.0

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Method Blank - Batch: 480-135244

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 480-135244/6	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Q9931.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/21/2013 2138	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	08/21/2013 2138				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
n-Butylbenzene	1.0	U	0.64	1.0
N-Propylbenzene	1.0	U	0.69	1.0
o-Xylene	1.0	U	0.76	1.0
sec-Butylbenzene	1.0	U	0.75	1.0
Styrene	1.0	U	0.73	1.0
2,2-Dichloropropane	1.0	U	0.40	1.0
tert-Butylbenzene	1.0	U	0.81	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
2-Chlorotoluene	1.0	U	0.86	1.0
Trichloroethene	1.0	U	0.46	1.0
Trichlorofluoromethane	1.0	U	0.88	1.0
4-Chlorotoluene	1.0	U	0.84	1.0
Bromobenzene	1.0	U	0.80	1.0
Dibromomethane	1.0	U	0.41	1.0
Hexachlorobutadiene	1.0	U	0.28	1.0
Naphthalene	1.0	U	0.43	1.0
Xylenes, Total	2.0	U	0.66	2.0
Vinyl chloride	1.0	U	0.90	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	100	66 - 137
4-Bromofluorobenzene (Surr)	92	73 - 120
Toluene-d8 (Surr)	93	71 - 126

Client: ARCADIS U.S. Inc

Job Number: 480-44022-1

Lab Control Sample - Batch: 480-135244

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 480-135244/5	Analysis Batch:	480-135244	Instrument ID:	HP5973Q
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Q9930.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/21/2013 2110	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	08/21/2013 2110				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethane	25.0	23.9	95	71 - 129	
1,1-Dichloroethene	25.0	18.7	75	58 - 121	
1,2,4-Trimethylbenzene	25.0	23.0	92	76 - 121	
1,2-Dichlorobenzene	25.0	22.5	90	80 - 124	
1,2-Dichloroethane	25.0	24.4	97	75 - 127	
Benzene	25.0	24.7	99	71 - 124	
Chlorobenzene	25.0	22.2	89	72 - 120	
cis-1,2-Dichloroethene	25.0	23.0	92	74 - 124	
Ethylbenzene	25.0	22.5	90	77 - 123	
m,p-Xylene	50.0	44.2	88	76 - 122	
Methyl tert-butyl ether	25.0	21.2	85	64 - 127	
o-Xylene	25.0	21.5	86	76 - 122	
Tetrachloroethene	25.0	19.7	79	74 - 122	
Toluene	25.0	22.2	89	80 - 122	
trans-1,2-Dichloroethene	25.0	23.6	94	73 - 127	
Trichloroethene	25.0	22.1	88	74 - 123	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	100	66 - 137
4-Bromofluorobenzene (Surr)	92	73 - 120
Toluene-d8 (Surr)	94	71 - 126

DATA REPORTING QUALIFIERS

Client: ARCADIS U.S. Inc Job Number: 480-44022-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 480-42194-1

Job Description: NYSDEC-Standby VESTAL

For:
Malcolm Pirnie, Inc. Invoice to Arcadis
855 Route 146
Suite 210
Clifton Park, NY 12065

Attention: Mr. Jeremy Wyckoff

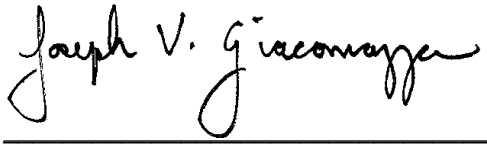
Approved for release.
Joe V Giacomazza
Project Administrator
7/23/2013 5:23 PM

Designee for
Sally J Hoffman, Project Manager II
10 Hazelwood Drive, Amherst, NY, 14228-2298
(716)504-9839
sally.hoffman@testamericainc.com
07/23/2013

Job Number: 480-42194-1

Job Description: NYSDEC-Standby VESTAL

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed within the body of this report. Release of the data contained in this sample data package and in the electronic data deliverable has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.



Approved for release.
Joe V Giacomazza
Project Administrator
7/23/2013 5:23 PM

Designee for
Sally J Hoffman

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Table of Contents

Job Narrative
480-42194-1

Receipt
The samples were received on 7/18/2013 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

GC/MS VOA
Method(s) 8260B: The following samples were diluted to bring the concentration of target analytes within the calibration range: Well 1-1A INF (480-42194-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

SAMPLE SUMMARY

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-42194-1	Well 1-1A INF	Water	07/16/2013 0900	07/18/2013 0900
480-42194-2	Well 1-1A EFF	Water	07/16/2013 0905	07/18/2013 0900
480-42194-3	TRIP BLANK	Water	07/16/2013 0000	07/18/2013 0900

EXECUTIVE SUMMARY - Detections

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
480-42194-1	**WELL 1-1A INF**					
1,1,1-Trichloroethane		170		2.0	ug/L	8260B
1,1-Dichloroethane		24		2.0	ug/L	8260B
1,1-Dichloroethene		18		2.0	ug/L	8260B
Chloroethane		2.0		2.0	ug/L	8260B
cis-1,2-Dichloroethene		50		2.0	ug/L	8260B
Trichloroethene		52		2.0	ug/L	8260B
Vinyl chloride		10		2.0	ug/L	8260B
480-42194-2	**WELL 1-1A EFF**					
cis-1,2-Dichloroethene		1.1		1.0	ug/L	8260B
480-42194-3	**TRIP BLANK**					
Acetone		6.3	J	10	ug/L	8260B
Methylene Chloride		0.89	J	1.0	ug/L	8260B

METHOD SUMMARY

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL BUF	SW846 8260B	
Purge and Trap	TAL BUF		SW846 5030B

Lab References:

TAL BUF = TestAmerica Buffalo

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Method	Analyst	Analyst ID
SW846 8260B	Dias, Nicole M	NMD1
SW846 8260B	Hill, Leah C	LCH

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Client Sample ID: **Well 1-1A INF**

Lab Sample ID: 480-42194-1
Client Matrix: Water

Date Sampled: 07/16/2013 0900
Date Received: 07/18/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-129792	Instrument ID:	HP5973N
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	N8965.D
Dilution:	2.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/20/2013 0807			Final Weight/Volume:	5 mL
Prep Date:	07/20/2013 0807				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	170		1.6	2.0
1,1,2,2-Tetrachloroethane	2.0	U	0.42	2.0
1,1,2-Trichloroethane	2.0	U	0.46	2.0
1,1-Dichloroethane	24		0.76	2.0
1,1-Dichloroethene	18		0.58	2.0
1,2-Dibromoethane	2.0	U	1.5	2.0
1,2-Dichloroethane	2.0	U	0.42	2.0
1,2-Dichloropropane	2.0	U	1.4	2.0
1,2,4-Trimethylbenzene	2.0	U	1.5	2.0
2-Hexanone	10	U	2.5	10
2-Butanone (MEK)	20	U	2.6	20
4-Methyl-2-pentanone (MIBK)	10	U	4.2	10
Acetone	20	U	6.0	20
Benzene	2.0	U	0.82	2.0
1,3,5-Trimethylbenzene	2.0	U	1.5	2.0
Bromodichloromethane	2.0	U	0.78	2.0
Bromoform	2.0	U	0.52	2.0
Bromomethane	2.0	U	1.4	2.0
Carbon disulfide	2.0	U	0.38	2.0
Carbon tetrachloride	2.0	U	0.54	2.0
Chlorobenzene	2.0	U	1.5	2.0
Dibromochloromethane	2.0	U	0.64	2.0
Chloroethane	2.0		0.64	2.0
Chloroform	2.0	U	0.68	2.0
Chloromethane	2.0	U	0.70	2.0
cis-1,2-Dichloroethene	50		1.6	2.0
cis-1,3-Dichloropropene	2.0	U	0.72	2.0
Ethylbenzene	2.0	U	1.5	2.0
Methylene Chloride	2.0	U	0.88	2.0
Styrene	2.0	U	1.5	2.0
Tetrachloroethene	2.0	U	0.72	2.0
Toluene	2.0	U	1.0	2.0
trans-1,2-Dichloroethene	2.0	U	1.8	2.0
trans-1,3-Dichloropropene	2.0	U	0.74	2.0
Trichloroethene	52		0.92	2.0
Vinyl chloride	10		1.8	2.0
Xylenes, Total	4.0	U	1.3	4.0
m,p-Xylene	4.0	U	1.3	4.0
o-Xylene	2.0	U	1.5	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	104		66 - 137
Toluene-d8 (Surr)	100		71 - 126
4-Bromofluorobenzene (Surr)	100		73 - 120

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Client Sample ID: **Well 1-1A EFF**

Lab Sample ID: 480-42194-2
Client Matrix: Water

Date Sampled: 07/16/2013 0905
Date Received: 07/18/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-129634	Instrument ID:	HP5973N
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	N8933.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/19/2013 1844			Final Weight/Volume:	5 mL
Prep Date:	07/19/2013 1844				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
2-Hexanone	5.0	U	1.2	5.0
2-Butanone (MEK)	10	U	1.3	10
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.1		0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Ethylbenzene	1.0	U	0.74	1.0
Methylene Chloride	1.0	U	0.44	1.0
Styrene	1.0	U	0.73	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
Trichloroethene	1.0	U	0.46	1.0
Vinyl chloride	1.0	U	0.90	1.0
Xylenes, Total	2.0	U	0.66	2.0
m,p-Xylene	2.0	U	0.66	2.0
o-Xylene	1.0	U	0.76	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		66 - 137
Toluene-d8 (Surr)	101		71 - 126
4-Bromofluorobenzene (Surr)	100		73 - 120

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 480-42194-3
Client Matrix: Water

Date Sampled: 07/16/2013 0000
Date Received: 07/18/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-129634	Instrument ID:	HP5973N
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	N8934.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/19/2013 1907			Final Weight/Volume:	5 mL
Prep Date:	07/19/2013 1907				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
2-Hexanone	5.0	U	1.2	5.0
2-Butanone (MEK)	10	U	1.3	10
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	6.3	J	3.0	10
Benzene	1.0	U	0.41	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.0	U	0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Ethylbenzene	1.0	U	0.74	1.0
Methylene Chloride	0.89	J	0.44	1.0
Styrene	1.0	U	0.73	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
Trichloroethene	1.0	U	0.46	1.0
Vinyl chloride	1.0	U	0.90	1.0
Xylenes, Total	2.0	U	0.66	2.0
m,p-Xylene	2.0	U	0.66	2.0
o-Xylene	1.0	U	0.76	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		66 - 137
Toluene-d8 (Surr)	101		71 - 126
4-Bromofluorobenzene (Surr)	102		73 - 120

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCA %Rec	TOL %Rec	BFB %Rec
480-42194-1	Well 1-1A INF	104	100	100
480-42194-2	Well 1-1A EFF	107	101	100
480-42194-3	TRIP BLANK	109	101	102
MB 480-129634/6		104	97	98
MB 480-129792/5		108	105	106
LCS 480-129634/5		96	96	99
LCS 480-129792/4		102	104	107

Surrogate	Acceptance Limits
DCA = 1,2-Dichloroethane-d4 (Surr)	66-137
TOL = Toluene-d8 (Surr)	71-126
BFB = 4-Bromofluorobenzene (Surr)	73-120

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Method Blank - Batch: 480-129634

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 480-129634/6	Analysis Batch:	480-129634	Instrument ID:	HP5973N
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N8914.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	07/19/2013 1058	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	07/19/2013 1058				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
2-Hexanone	5.0	U	1.2	5.0
2-Butanone (MEK)	10	U	1.3	10
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.0	U	0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Ethylbenzene	1.0	U	0.74	1.0
Methylene Chloride	1.0	U	0.44	1.0
Styrene	1.0	U	0.73	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
Trichloroethene	1.0	U	0.46	1.0
Vinyl chloride	1.0	U	0.90	1.0
Xylenes, Total	2.0	U	0.66	2.0
m,p-Xylene	2.0	U	0.66	2.0
o-Xylene	1.0	U	0.76	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	104	66 - 137
Toluene-d8 (Surr)	97	71 - 126
4-Bromofluorobenzene (Surr)	98	73 - 120

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Lab Control Sample - Batch: 480-129634

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 480-129634/5	Analysis Batch:	480-129634	Instrument ID:	HP5973N
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N8913.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	07/19/2013 1033	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	07/19/2013 1033				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethane	25.0	25.2	101	71 - 129	
1,1-Dichloroethene	25.0	24.9	100	58 - 121	
1,2-Dichloroethane	25.0	24.3	97	75 - 127	
1,2,4-Trimethylbenzene	25.0	25.9	104	76 - 121	
Benzene	25.0	25.1	100	71 - 124	
Chlorobenzene	25.0	25.5	102	72 - 120	
cis-1,2-Dichloroethene	25.0	25.0	100	74 - 124	
Ethylbenzene	25.0	25.8	103	77 - 123	
Tetrachloroethene	25.0	26.3	105	74 - 122	
Toluene	25.0	25.0	100	80 - 122	
trans-1,2-Dichloroethene	25.0	25.9	104	73 - 127	
Trichloroethene	25.0	25.5	102	74 - 123	
m,p-Xylene	50.0	51.1	102	76 - 122	
o-Xylene	25.0	25.2	101	76 - 122	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	96	66 - 137
Toluene-d8 (Surr)	96	71 - 126
4-Bromofluorobenzene (Surr)	99	73 - 120

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Method Blank - Batch: 480-129792

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 480-129792/5	Analysis Batch:	480-129792	Instrument ID:	HP5973N
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N8945.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	07/20/2013 0013	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	07/20/2013 0013				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
2-Hexanone	5.0	U	1.2	5.0
2-Butanone (MEK)	10	U	1.3	10
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.0	U	0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Ethylbenzene	1.0	U	0.74	1.0
Methylene Chloride	1.0	U	0.44	1.0
Styrene	1.0	U	0.73	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
Trichloroethene	1.0	U	0.46	1.0
Vinyl chloride	1.0	U	0.90	1.0
Xylenes, Total	2.0	U	0.66	2.0
m,p-Xylene	2.0	U	0.66	2.0
o-Xylene	1.0	U	0.76	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108	66 - 137
Toluene-d8 (Surr)	105	71 - 126
4-Bromofluorobenzene (Surr)	106	73 - 120

Client: Malcolm Pirnie, Inc. Invoice to Arcadis

Job Number: 480-42194-1

Lab Control Sample - Batch: 480-129792

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 480-129792/4	Analysis Batch:	480-129792	Instrument ID:	HP5973N
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N8942.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	07/19/2013 2157	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	07/19/2013 2157				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethane	25.0	25.7	103	71 - 129	
1,1-Dichloroethene	25.0	26.1	104	58 - 121	
1,2-Dichloroethane	25.0	25.2	101	75 - 127	
1,2,4-Trimethylbenzene	25.0	27.7	111	76 - 121	
Benzene	25.0	26.5	106	71 - 124	
Chlorobenzene	25.0	27.4	110	72 - 120	
cis-1,2-Dichloroethene	25.0	27.0	108	74 - 124	
Ethylbenzene	25.0	27.6	110	77 - 123	
Tetrachloroethene	25.0	28.8	115	74 - 122	
Toluene	25.0	26.9	108	80 - 122	
trans-1,2-Dichloroethene	25.0	27.6	110	73 - 127	
Trichloroethene	25.0	27.3	109	74 - 123	
m,p-Xylene	50.0	55.2	110	76 - 122	
o-Xylene	25.0	27.3	109	76 - 122	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	102	66 - 137
Toluene-d8 (Surr)	104	71 - 126
4-Bromofluorobenzene (Surr)	107	73 - 120

DATA REPORTING QUALIFIERS

Client: Malcolm Pirnie, Inc. Invoice to Arcadis Job Number: 480-42194-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.
	J	Indicates an estimated value.

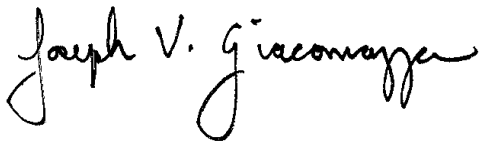
ANALYTICAL REPORT

Job Number: 480-46485-1

Job Description: Vestal Well 1-1A Sampling LMCO

For:
ARCADIS U.S. Inc
855 Route 146
Suite 210
Clifton Park, NY 12065

Attention: Jeremy Wyckoff



Approved for release.
Joe V Giacomazza
Project Management Assistant II
2/20/2014 4:17 PM

Designee for
Judy L Stone, Senior Project Manager
10 Hazelwood Drive, Amherst, NY, 14228-2298
(484)685-0868
judy.stone@testamericainc.com
02/20/2014
Revision: 1

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Table of Contents

Table of Contents

Revision (1)
This report has been revised to add vinyl chloride and total xylenes to the VOA analyate list as requested by the client.

Receipt
The samples were received on 9/25/2013 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7º C.

GC/MS VOA
Method(s) 8260B: The following samples were diluted to bring the concentration of target analytes within the calibration range: Well 1-1A INF (480-46485-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-46485-1

SDG No.:

Instrument ID: HP5973S Analysis Batch Number: 142150

Lab Sample ID: IC 480-142150/5 Client Sample ID:

Date Analyzed: 10/01/13 21:40 Lab File ID: S30640.D GC Column: ZB-624 (60) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloromethane	1.29	Poor chromatography	HillL	10/02/13 09:22

Lab Sample ID: IC 480-142150/10 Client Sample ID:

Date Analyzed: 10/01/13 23:29 Lab File ID: S30645.D GC Column: ZB-624 (60) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloromethane	1.30	Coelution	HillL	10/02/13 10:10

SAMPLE SUMMARY

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-46485-1	Well 1-1A INF	Water	09/24/2013 1430	09/25/2013 0900
480-46485-2	Well 1-1A EFF	Water	09/24/2013 1435	09/25/2013 0900

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
480-46485-1	**WELL 1-1A INF**					
1,1,1-Trichloroethane		140		2.0	ug/L	8260B
1,1-Dichloroethane		19		2.0	ug/L	8260B
1,1-Dichloroethene		18		2.0	ug/L	8260B
cis-1,2-Dichloroethene		43		2.0	ug/L	8260B
Methyl tert-butyl ether		2.4		2.0	ug/L	8260B
Trichloroethene		46		2.0	ug/L	8260B
Vinyl chloride		6.9		2.0	ug/L	8260B
480-46485-2	**WELL 1-1A EFF**					
Methyl tert-butyl ether		1.4		1.0	ug/L	8260B

METHOD SUMMARY

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL BUF	SW846 8260B	
Purge and Trap	TAL BUF		SW846 5030B

Lab References:

TAL BUF = TestAmerica Buffalo

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Method	Analyst	Analyst ID
SW846 8260B	Larson, Renee A	RAL

Client: ARCADIS U.S. Inc | Job Number: 480-46485-1

Client Sample ID: **Well 1-1A INF**

Lab Sample ID: 480-46485-1 | Date Sampled: 09/24/2013 1430
Client Matrix: Water | Date Received: 09/25/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-142495	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S30724.D
Dilution:	2.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/03/2013 1418			Final Weight/Volume:	5 mL
Prep Date:	10/03/2013 1418				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	2.0	U	0.70	2.0
1,1,1-Trichloroethane	140		1.6	2.0
1,1,2,2-Tetrachloroethane	2.0	U	0.42	2.0
1,1,2-Trichloroethane	2.0	U	0.46	2.0
1,1-Dichloroethane	19		0.76	2.0
1,1-Dichloroethene	18		0.58	2.0
1,2,4-Trichlorobenzene	2.0	U	0.82	2.0
1,2,4-Trimethylbenzene	2.0	U	1.5	2.0
1,2-Dibromo-3-Chloropropane	2.0	U	0.78	2.0
1,2-Dibromoethane	2.0	U	1.5	2.0
1,2-Dichlorobenzene	2.0	U	1.6	2.0
1,2-Dichloroethane	2.0	U	0.42	2.0
1,2-Dichloropropane	2.0	U	1.4	2.0
1,1-Dichloropropene	2.0	U	1.4	2.0
1,3,5-Trimethylbenzene	2.0	U	1.5	2.0
1,3-Dichlorobenzene	2.0	U	1.6	2.0
1,2,3-Trichlorobenzene	2.0	U	0.82	2.0
1,4-Dichlorobenzene	2.0	U	1.7	2.0
2-Butanone (MEK)	20	U	2.6	20
1,2,3-Trichloropropane	2.0	U	1.8	2.0
2-Hexanone	10	U	2.5	10
p-Isopropyltoluene	2.0	U	0.62	2.0
4-Methyl-2-pentanone (MIBK)	10	U	4.2	10
Acetone	20	U	6.0	20
Benzene	2.0	U	0.82	2.0
Bromodichloromethane	2.0	U	0.78	2.0
Bromoform	2.0	U	0.52	2.0
Bromomethane	2.0	U	1.4	2.0
Carbon disulfide	2.0	U	0.38	2.0
Carbon tetrachloride	2.0	U	0.54	2.0
Chlorobenzene	2.0	U	1.5	2.0
Chloroethane	2.0	U	0.64	2.0
Chloroform	2.0	U	0.68	2.0
Chloromethane	2.0	U	0.70	2.0
cis-1,2-Dichloroethene	43		1.6	2.0
cis-1,3-Dichloropropene	2.0	U	0.72	2.0
Dibromochloromethane	2.0	U	0.64	2.0
Dichlorodifluoromethane	2.0	U	1.4	2.0
Ethylbenzene	2.0	U	1.5	2.0
Isopropylbenzene	2.0	U	1.6	2.0
m,p-Xylene	4.0	U	1.3	4.0
1,3-Dichloropropane	2.0	U	1.5	2.0
Methyl tert-butyl ether	2.4		0.32	2.0
Methylcyclohexane	2.0	U	0.32	2.0
Methylene Chloride	2.0	U	0.88	2.0
n-Butylbenzene	2.0	U	1.3	2.0

Client: ARCADIS U.S. Inc | Job Number: 480-46485-1

Client Sample ID: **Well 1-1A INF**

Lab Sample ID: 480-46485-1 | Date Sampled: 09/24/2013 1430
Client Matrix: Water | Date Received: 09/25/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-142495	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S30724.D
Dilution:	2.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/03/2013 1418			Final Weight/Volume:	5 mL
Prep Date:	10/03/2013 1418				

Analyte	Result (ug/L)	Qualifier	MDL	RL
N-Propylbenzene	2.0	U	1.4	2.0
o-Xylene	2.0	U	1.5	2.0
sec-Butylbenzene	2.0	U	1.5	2.0
Styrene	2.0	U	1.5	2.0
2,2-Dichloropropane	2.0	U	0.80	2.0
tert-Butylbenzene	2.0	U	1.6	2.0
Tetrachloroethene	2.0	U	0.72	2.0
Toluene	2.0	U	1.0	2.0
trans-1,2-Dichloroethene	2.0	U	1.8	2.0
trans-1,3-Dichloropropene	2.0	U	0.74	2.0
2-Chlorotoluene	2.0	U	1.7	2.0
Trichloroethene	46		0.92	2.0
Trichlorofluoromethane	2.0	U	1.8	2.0
4-Chlorotoluene	2.0	U	1.7	2.0
Bromobenzene	2.0	U	1.6	2.0
Dibromomethane	2.0	U	0.82	2.0
Hexachlorobutadiene	2.0	U	0.56	2.0
Naphthalene	2.0	U	0.86	2.0
Xylenes, Total	4.0	U	1.3	4.0
Vinyl chloride	6.9		1.8	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103		66 - 137
4-Bromofluorobenzene (Surr)	97		73 - 120
Toluene-d8 (Surr)	101		71 - 126

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Client Sample ID: **Well 1-1A EFF**

Lab Sample ID: 480-46485-2
Client Matrix: Water

Date Sampled: 09/24/2013 1435
Date Received: 09/25/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-142495	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S30725.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/03/2013 1440			Final Weight/Volume:	5 mL
Prep Date:	10/03/2013 1440				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	1.0	U	0.35	1.0
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2,4-Trichlorobenzene	1.0	U	0.41	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
1,2-Dibromo-3-Chloropropane	1.0	U	0.39	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichlorobenzene	1.0	U	0.79	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,1-Dichloropropene	1.0	U	0.72	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
1,3-Dichlorobenzene	1.0	U	0.78	1.0
1,2,3-Trichlorobenzene	1.0	U	0.41	1.0
1,4-Dichlorobenzene	1.0	U	0.84	1.0
2-Butanone (MEK)	10	U	1.3	10
1,2,3-Trichloropropane	1.0	U	0.89	1.0
2-Hexanone	5.0	U	1.2	5.0
p-Isopropyltoluene	1.0	U	0.31	1.0
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.0	U	0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Dichlorodifluoromethane	1.0	U	0.68	1.0
Ethylbenzene	1.0	U	0.74	1.0
Isopropylbenzene	1.0	U	0.79	1.0
m,p-Xylene	2.0	U	0.66	2.0
1,3-Dichloropropane	1.0	U	0.75	1.0
Methyl tert-butyl ether	1.4		0.16	1.0
Methylcyclohexane	1.0	U	0.16	1.0
Methylene Chloride	1.0	U	0.44	1.0
n-Butylbenzene	1.0	U	0.64	1.0

Client: ARCADIS U.S. Inc | Job Number: 480-46485-1

Client Sample ID: **Well 1-1A EFF**

Lab Sample ID: 480-46485-2 | Date Sampled: 09/24/2013 1435
Client Matrix: Water | Date Received: 09/25/2013 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-142495	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S30725.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/03/2013 1440			Final Weight/Volume:	5 mL
Prep Date:	10/03/2013 1440				

Analyte	Result (ug/L)	Qualifier	MDL	RL
N-Propylbenzene	1.0	U	0.69	1.0
o-Xylene	1.0	U	0.76	1.0
sec-Butylbenzene	1.0	U	0.75	1.0
Styrene	1.0	U	0.73	1.0
2,2-Dichloropropane	1.0	U	0.40	1.0
tert-Butylbenzene	1.0	U	0.81	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
2-Chlorotoluene	1.0	U	0.86	1.0
Trichloroethene	1.0	U	0.46	1.0
Trichlorofluoromethane	1.0	U	0.88	1.0
4-Chlorotoluene	1.0	U	0.84	1.0
Bromobenzene	1.0	U	0.80	1.0
Dibromomethane	1.0	U	0.41	1.0
Hexachlorobutadiene	1.0	U	0.28	1.0
Naphthalene	1.0	U	0.43	1.0
Xylenes, Total	2.0	U	0.66	2.0
Vinyl chloride	1.0	U	0.90	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	102		66 - 137
4-Bromofluorobenzene (Surr)	95		73 - 120
Toluene-d8 (Surr)	100		71 - 126

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DCA %Rec	TOL %Rec	BFB %Rec
480-46485-1	Well 1-1A INF	103	101	97
480-46485-2	Well 1-1A EFF	102	100	95
MB 480-142495/6		102	102	97
LCS 480-142495/4		103	101	98

Surrogate	Acceptance Limits
DCA = 1,2-Dichloroethane-d4 (Surr)	66-137
TOL = Toluene-d8 (Surr)	71-126
BFB = 4-Bromofluorobenzene (Surr)	73-120

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Method Blank - Batch: 480-142495

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 480-142495/6	Analysis Batch:	480-142495	Instrument ID:	HP5973S
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	S30716.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/03/2013 1116	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	10/03/2013 1116				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1,2-Tetrachloroethane	1.0	U	0.35	1.0
1,1,1-Trichloroethane	1.0	U	0.82	1.0
1,1,2,2-Tetrachloroethane	1.0	U	0.21	1.0
1,1,2-Trichloroethane	1.0	U	0.23	1.0
1,1-Dichloroethane	1.0	U	0.38	1.0
1,1-Dichloroethene	1.0	U	0.29	1.0
1,2,4-Trichlorobenzene	1.0	U	0.41	1.0
1,2,4-Trimethylbenzene	1.0	U	0.75	1.0
1,2-Dibromo-3-Chloropropane	1.0	U	0.39	1.0
1,2-Dibromoethane	1.0	U	0.73	1.0
1,2-Dichlorobenzene	1.0	U	0.79	1.0
1,2-Dichloroethane	1.0	U	0.21	1.0
1,2-Dichloropropane	1.0	U	0.72	1.0
1,1-Dichloropropene	1.0	U	0.72	1.0
1,3,5-Trimethylbenzene	1.0	U	0.77	1.0
1,3-Dichlorobenzene	1.0	U	0.78	1.0
1,2,3-Trichlorobenzene	1.0	U	0.41	1.0
1,4-Dichlorobenzene	1.0	U	0.84	1.0
2-Butanone (MEK)	10	U	1.3	10
1,2,3-Trichloropropane	1.0	U	0.89	1.0
2-Hexanone	5.0	U	1.2	5.0
p-Isopropyltoluene	1.0	U	0.31	1.0
4-Methyl-2-pentanone (MIBK)	5.0	U	2.1	5.0
Acetone	10	U	3.0	10
Benzene	1.0	U	0.41	1.0
Bromodichloromethane	1.0	U	0.39	1.0
Bromoform	1.0	U	0.26	1.0
Bromomethane	1.0	U	0.69	1.0
Carbon disulfide	1.0	U	0.19	1.0
Carbon tetrachloride	1.0	U	0.27	1.0
Chlorobenzene	1.0	U	0.75	1.0
Chloroethane	1.0	U	0.32	1.0
Chloroform	1.0	U	0.34	1.0
Chloromethane	1.0	U	0.35	1.0
cis-1,2-Dichloroethene	1.0	U	0.81	1.0
cis-1,3-Dichloropropene	1.0	U	0.36	1.0
Dibromochloromethane	1.0	U	0.32	1.0
Dichlorodifluoromethane	1.0	U	0.68	1.0
Ethylbenzene	1.0	U	0.74	1.0
Isopropylbenzene	1.0	U	0.79	1.0
m,p-Xylene	2.0	U	0.66	2.0
1,3-Dichloropropane	1.0	U	0.75	1.0
Methyl tert-butyl ether	1.0	U	0.16	1.0
Methylcyclohexane	1.0	U	0.16	1.0
Methylene Chloride	1.0	U	0.44	1.0

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Method Blank - Batch: 480-142495

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 480-142495/6	Analysis Batch:	480-142495	Instrument ID:	HP5973S
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	S30716.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/03/2013 1116	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	10/03/2013 1116				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
n-Butylbenzene	1.0	U	0.64	1.0
N-Propylbenzene	1.0	U	0.69	1.0
o-Xylene	1.0	U	0.76	1.0
sec-Butylbenzene	1.0	U	0.75	1.0
Styrene	1.0	U	0.73	1.0
2,2-Dichloropropane	1.0	U	0.40	1.0
tert-Butylbenzene	1.0	U	0.81	1.0
Tetrachloroethene	1.0	U	0.36	1.0
Toluene	1.0	U	0.51	1.0
trans-1,2-Dichloroethene	1.0	U	0.90	1.0
trans-1,3-Dichloropropene	1.0	U	0.37	1.0
2-Chlorotoluene	1.0	U	0.86	1.0
Trichloroethene	1.0	U	0.46	1.0
Trichlorofluoromethane	1.0	U	0.88	1.0
4-Chlorotoluene	1.0	U	0.84	1.0
Bromobenzene	1.0	U	0.80	1.0
Dibromomethane	1.0	U	0.41	1.0
Hexachlorobutadiene	1.0	U	0.28	1.0
Naphthalene	1.0	U	0.43	1.0
Xylenes, Total	2.0	U	0.66	2.0
Vinyl chloride	1.0	U	0.90	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	102	66 - 137
4-Bromofluorobenzene (Surr)	97	73 - 120
Toluene-d8 (Surr)	102	71 - 126

Client: ARCADIS U.S. Inc

Job Number: 480-46485-1

Lab Control Sample - Batch: 480-142495

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 480-142495/4	Analysis Batch:	480-142495	Instrument ID:	HP5973S
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	S30714.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/03/2013 1033	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	10/03/2013 1033				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1-Dichloroethane	25.0	25.9	103	71 - 129	
1,1-Dichloroethene	25.0	21.2	85	58 - 121	
1,2,4-Trimethylbenzene	25.0	27.3	109	76 - 121	
1,2-Dichlorobenzene	25.0	27.7	111	80 - 124	
1,2-Dichloroethane	25.0	26.6	106	75 - 127	
Benzene	25.0	26.4	106	71 - 124	
Chlorobenzene	25.0	27.0	108	72 - 120	
cis-1,2-Dichloroethene	25.0	26.6	106	74 - 124	
Ethylbenzene	25.0	26.5	106	77 - 123	
m,p-Xylene	50.0	53.4	107	76 - 122	
Methyl tert-butyl ether	25.0	24.3	97	64 - 127	
o-Xylene	25.0	26.1	105	76 - 122	
Tetrachloroethene	25.0	26.4	106	74 - 122	
Toluene	25.0	26.1	105	80 - 122	
trans-1,2-Dichloroethene	25.0	26.6	106	73 - 127	
Trichloroethene	25.0	27.2	109	74 - 123	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103	66 - 137
4-Bromofluorobenzene (Surr)	98	73 - 120
Toluene-d8 (Surr)	101	71 - 126

DATA REPORTING QUALIFIERS

Client: ARCADIS U.S. Inc Job Number: 480-46485-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.

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Appendix **C**

Project Photographs

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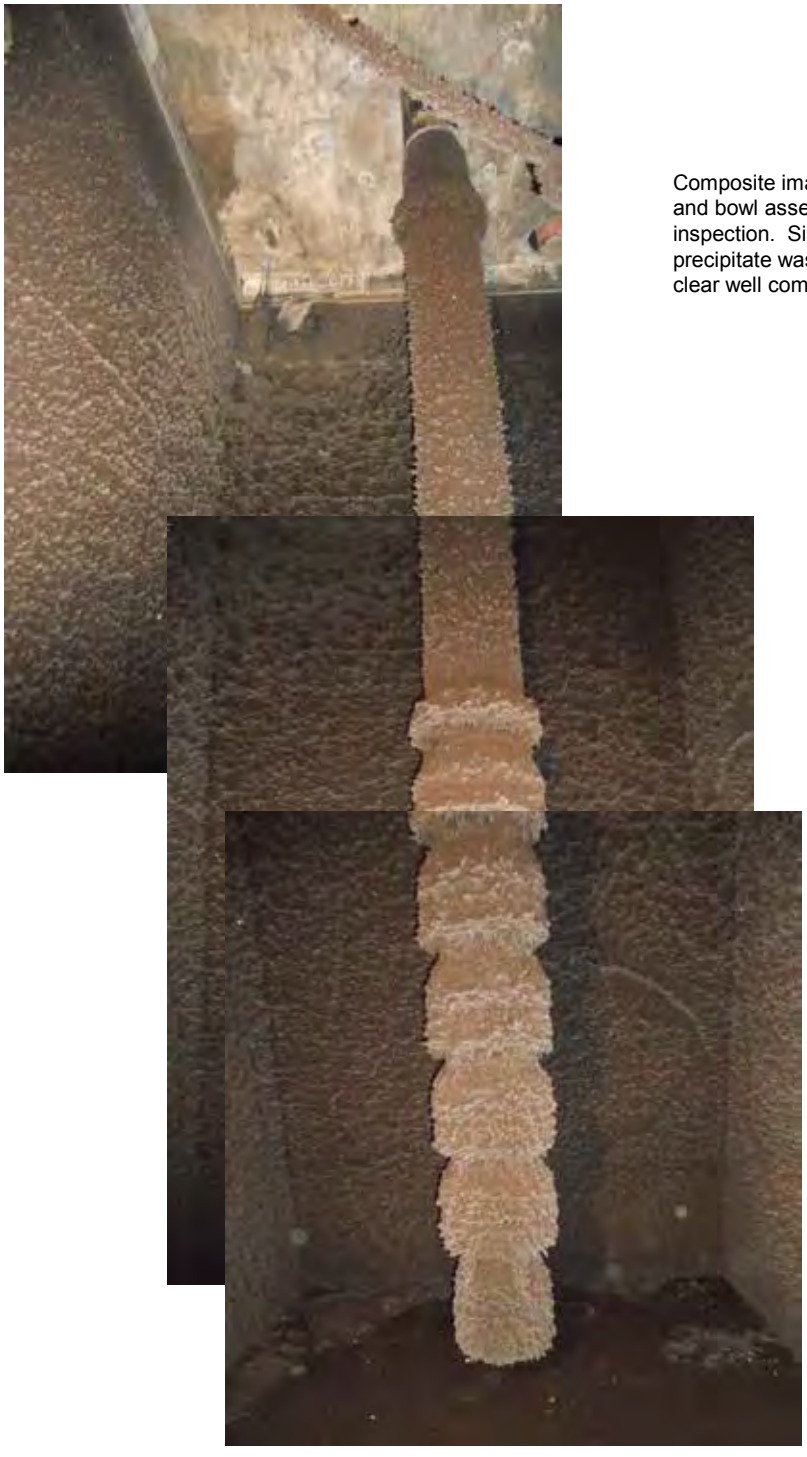
Project Photos

NYSDEC Vestal Water Supply
Site # 7-04-009A
Vestal, New York



Composite image of clear well pump (drop pipe and bowl assembly) observed during clear well inspection. Significant calcium carbonate precipitate was observed on all wetted internal clear well components.

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Project Photos

NYSDEC Vestal Water Supply
Site # 7-04-009A
Vestal, New York

Obstruction in 12” clear well outlet pipe.

Media support screen at base of air stripper tower.

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Project Photos

NYSDEC Vestal Water Supply
Site # 7-04-009A
Vestal, New York

12” clear well outlet pipe following removal of obstruction..

View of inside of 12” clear well outlet pipe.