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ENVIRONMENTAL

Mr. Payson Long
Remedial Bureau E
Section D
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7017

Subject:
McKesson Envirosystems Site
400 West Bear Street
Syracuse, New York
Site No. 7-34-020

Date:
June 11, 2015

Contact:
Dawn E. Penniman

Phone:
315.671.9229

Email:
Dawn.Penniman@arcadis.com

Our ref:
B0026003.2015.00190

Dear Mr. Long:

ARCADIS of New York, Inc. (ARCADIS) has prepared this monitoring memorandum for the McKesson Envirosystems Site located at 400 West Bear Street in Syracuse, New York (Site). ARCADIS prepared this memorandum on behalf of McKesson Corporation to describe groundwater monitoring activities and present the results of the April 2015 monitoring event conducted at the Site in and around Areas 1, 2, and 3 (Figure 1). This is the second biannual groundwater monitoring event conducted after 1 year of quarterly monitoring, following the April 10, 2013 shutdown of the in-situ bioremediation treatment and closed loop hydraulic systems. This biannual monitoring event was conducted as part of a post-shutdown process control monitoring program.

The New York State Department of Environmental Conservation (NYSDEC) approved shutdown of the Operable Unit No. 2 (OU2) remedial system in a letter dated April 11, 2013 (NYSDEC 2013). The letter required implementation of a post-shutdown process control monitoring program to determine the continued effectiveness of the OU2 remedial action on the remaining contamination (NYSDEC 2013). The post-shutdown monitoring program is a continuation of the constituent of concern (COC) and hydraulic process control monitoring program that has been conducted at the Site since OU2 treatment activities commenced in 1998.

The main objective of this monitoring memorandum, consistent with the previous five memoranda for the quarterly and biannual monitoring events conducted since July 2013 (ARCADIS 2013a, 2014a, 2014b, 2014c, and 2015), is to provide timely updates of groundwater conditions for monitoring events performed at the Site. This monitoring memorandum provides information about the following:

- Goals of the post-shutdown process control monitoring program
- April 2015 post-shutdown process control monitoring activities
- April 2015 monitoring results
- Data evaluation and conclusions
- Proposed next steps

Goals of the Post-Shutdown Process Control Monitoring Program

The goals of the post-shutdown process control monitoring program are to determine the continued effectiveness of the OU2 remedial action and evaluate the need (if any) to restart remedial processes. As outlined in the October 2013 Periodic Review Report (PRR; ARCADIS 2013b), the remedial action will be considered to have "continued effectiveness" if COC concentrations meet the following conditions:

- Do not rebound substantially above the pre-shutdown COC concentrations based on an evaluation of the most up-to-date dataset.
- Continue to trend at asymptotic levels.
- Do not migrate beyond the Site boundary above NYSDEC Class GA Groundwater Quality Standards (NYSDEC 1998), as determined by sampling from the sentinel and downgradient perimeter monitoring wells/piezometers.

Additionally, the post-shutdown process control monitoring program provides an evaluation of groundwater flow conditions following the April 2013 shutdown of the closed loop hydraulic system.

April 2015 Post-Shutdown Process Control Monitoring Activities

The post-shutdown process control monitoring event consisted of hydraulic monitoring on March 30, 2015 and COC monitoring from March 31 through April 3, 2015. Table 1 identifies each of the hydraulic and COC monitoring locations, shown on Figure 1. Hydraulic monitoring was also conducted on May 14, 2015 to confirm field conditions; monitoring well MW-4S and piezometer PZ-4S were included in the April 2015 COC monitoring program, as this is the last groundwater monitoring event identified in the Site Management Plan (SMP; ARCADIS 2014d). In addition, the presence or absence of non-aqueous phase liquid (NAPL) was assessed in the monitoring wells and

piezometers included in the monitoring program, as well as the collection sump. During this monitoring event, NAPL was not observed in the monitoring wells, piezometers, or the collection sump.

Hydraulic Monitoring

During hydraulic monitoring, groundwater level measurements were obtained at monitoring wells and piezometers that are screened entirely within the sand layer of the shallow hydrogeologic unit and located in and around Areas 1, 2, and 3. Additionally, the Barge Canal surface-water elevation was obtained from measurements taken from a reference point on the Bear Street Bridge, which passes over the canal.

Constituent of Concern Monitoring

The groundwater COCs for the Site are acetone, benzene, toluene, ethylbenzene, xylenes (total), methanol, trichloroethene, aniline, N,N-dimethylaniline, and methylene chloride. TestAmerica Laboratories, Inc. (TestAmerica) in Edison, New Jersey analyzed the groundwater samples for COCs via U.S. Environmental Protection Agency (USEPA) Methods 8260C (volatile organic compounds) and 8270D (semivolatile organic compounds), and TestAmerica in Amherst, New York via Method USEPA 8015D (methanol). TestAmerica is accredited pursuant to the New York State Department of Health Environmental Laboratory Accreditation Program for these analyses. ARCADIS validated laboratory analytical results using the Tier III full validation process. Attachment A presents copies of the validated analytical laboratory reports associated with the April 2015 monitoring event.

April 2015 Monitoring Results

Hydraulic Monitoring Results

Table 2 presents groundwater level measurements obtained during the March 30 and May 14, 2015 hydraulic monitoring event, as well as those obtained since October 2006. Figure 2 depicts a potentiometric surface of the Site's shallow hydrogeologic unit using the March 30, 2015 dataset, which shows slight groundwater mounding in some areas caused by saturated conditions at the Site from recent snow melt. This groundwater mounding is not present on the May 14, 2015 potentiometric surface map (Figure 3). A comparison of the potentiometric surface maps generated during the six post-shutdown process control monitoring events demonstrates that hydraulic conditions have remained consistent following the April 2013 shutdown of the closed loop hydraulic system in Area 3.

When comparing recent (attached) potentiometric surface maps to those maps generated (and presented in previous PRRs and monitoring memoranda) using groundwater elevation data obtained prior to system shutdown, the following conclusions, as presented in the first monitoring memorandum (ARCADIS 2013a), remain true:

- The closed depression around the groundwater withdrawal trench is no longer present.

- The potentiometric surface of the shallow hydrogeologic unit sand layer following the April 2013 system shutdown is generally consistent with the potentiometric surface prior to the 1998 implementation of the closed loop hydraulic system in Area 3.

Constituent of Concern Monitoring Results

Table 3 summarizes COC groundwater analytical results (March 2009 through April 2015), which are shown on Figures 4 (Areas 1 and 2) and 5 (Area 3). A summary of historical groundwater monitoring data (March 1988 through August 2008) is provided in Attachment B. COC groundwater analytical results are compared to the NYSDEC Groundwater Quality Standards presented in the Technical and Operational Guidance Series 1.1.1 (NYSDEC 1998). The April 2015 COC results are consistent with those obtained following the April 2013 shutdown of the in-situ bioremediation treatment system, as well as those obtained prior to shutdown. Concentrations for most of the COCs were either not detected or were below their respective NYSDEC Class GA Groundwater Quality Standards in each area.

Analytical results for the April 2015 COC monitoring event are summarized below for each area (Areas 1, 2, and 3), as well as for sentinel and downgradient perimeter monitoring locations.

<u>Area 1</u>

At the five monitoring locations in Area 1 (MW-9S, MW-31, MW-32, MW-33, and TW-01), four COCs (benzene [MW-9S and MW-31 only], ethylbenzene [MW-9S only], xylenes [MW-9S and MW-31 only], and N,N-dimethylaniline) were detected at concentrations slightly exceeding their respective standards (Table 3 and Figure 4).

Area 2

At three out of the four monitoring locations in Area 2 (MW-34, TW-02RRR, and MW-36R), three COCs (benzene [MW-34 and TW-02RRR only], aniline [MW-36R and TW-02RRR only], and N,N-dimethylaniline) were detected at concentrations above their respective standards. At MW-35, all COCs were non-detect or below the NYSDEC groundwater quality standards (Table 3 and Figure 4).

Area 3

At four out of the five monitoring locations in Area 3 (MW-8SR, MW-27, MW-28, and MW-30), a maximum of four COCs (benzene [MW-8SR, MW-27, and MW-28 only], total xylenes [MW-8SR and MW-27 only], aniline [MW-27 only], and N,N-dimethylaniline [MW-8SR, MW-28, and MW-30 only]) were detected at concentrations that slightly exceeded their respective standards (Table 3 and Figure 5). At MW-29, all COCs were non-detect or below the NYSDEC groundwater quality standards, including acetone (12 parts per billion [ppb]), confirming that the elevated detection of acetone at this well during the October 2014 monitoring event was attributed to polyvinyl chloride primer/cleaner and cement that were used on June 26, 2014 to repair the stick-up damaged by a tree that fell during a summer storm.

Sentinel Wells

COCs were not detected at sentinel wells MW-3S or MW-4S, located downgradient of Area 1 (Table 3 and Figure 4).

Downgradient Perimeter Wells/Piezometers

COCs were not detected in the downgradient perimeter/monitoring locations (MW-17R, MW-18, MW-23I, MW-23S, PZ-4S, and PZ-4D; Table 3 and Figure 5).

Data Evaluation and Conclusions

To evaluate the continued effectiveness of the OU2 remedial action and the need (if any) to restart the remedial process, the April 2015 data were incorporated into the historical groundwater dataset (1998 through April 2015) for technical analyses. The technical analyses performed were the same as those detailed in the January 2013 PRR (ARCADIS 2013c) and described in Attachment C. The technical analyses consisted of the following:

- Change in annual total COC molar concentration (i.e., concentration normalized by its molecular weight) over time.

- Statistical analyses that included first order decay functions and regression analyses between time (year) and percent COC reduction fitted to each area's annual total COC molar concentration.

The data and results from these technical analyses, as presented in Attachment C, demonstrate that the OU2 remedial action has continued effectiveness, showing that the remedy continues to: (1) be protective of public health and the environment, (2) comply with the OU2 Record of Decision (NYSDEC 1997), and (3) meet remedial process closure requirements in Section 6.4 of Division of Environmental Remediation-10 (DER-10): Technical Guidance for Site Investigation and Remediation (NYSDEC 2010). The conclusions developed based on groundwater data obtained from 1998 through April 2015 are summarized below:

- COC concentrations detected in April 2015 did not rebound above pre-shutdown COC concentrations.

- COC concentrations were mostly not detected or below their respective NYSDEC Class GA Groundwater Quality Standard in each area during the April 2015 monitoring event.

- COC concentrations continue to trend at asymptotic levels for each area.

- COC concentrations have not migrated beyond the Site boundary above NYSDEC Groundwater Quality Standards. N,N-dimethylaniline has, however, been detected at concentrations slightly exceeding the NYSDEC Groundwater Quality Standard of 1 ppb in one (MW-30) of the two monitoring (MW-29 and MW-30) wells located in Area 3, between the downgradient perimeter wells and the groundwater withdrawal trench (Figure 5). The N,N-dimethylaniline concentrations detected in MW-30 (2 ppb or less) are similar to those detected elsewhere within Area 3, where the highest N,N-dimethylaniline concentration detected during the April 2015 sampling event was 2.7 ppb in the duplicate sample collected from MW-8SR. No other Site-related COCs have been detected at concentrations exceeding the NYSDEC Class GA Groundwater Quality Standards in the two monitoring wells (MW-29 and MW-30) located between the downgradient perimeter wells and the groundwater withdrawal trench. The concentrations in Area 3 continue to trend at asymptotic levels, as noted by the rapid decay rate and the high degree of COC removal within the last 6 years (greater than 99.9% removal since 1999).

- The remedy continues to achieve the bulk of reduction of groundwater contamination, as indicated by total COC molar concentrations exceeding 98.5% reduction in each area.

These conclusions confirm that groundwater quality conditions have not substantially changed since the shutdown of the in-situ bioremediation treatment and closed loop hydraulic systems and fully demonstrate the continued effectiveness of the OU2 remedial action. Accordingly, there is no need to restart the remedial processes.

As identified in the SMP (ARCADIS 2014d), the post-shutdown process control monitoring program was conducted for 2 years (2013 to 2015) to determine the continued effectiveness of the OU2 remedial action and evaluate the need (if any) to restart remedial processes. As the groundwater monitoring identified in the SMP has been completed and the goals of the post-shutdown process control monitoring program have been met, no further groundwater monitoring is needed and the OU2 remedial activities for Areas 1, 2, and 3 are considered complete.

Proposed Next Steps

As OU2 remedial and monitoring activities are considered complete, the proposed next steps focus on proceeding with site closeout and delisting of the Site from the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites, in accordance with the site closure guidelines outlined in DER-10 Section 6.4(a) (NYSDEC 2010) and 6 New York Codes, Rules, and Regulations (NYCRR) Part 375-2.7(e), respectively. The NYSDEC Record of Decision for OU-2 stated that the Site will be considered for delisting from the Registry upon completion of the remediation, as demonstrated by the monitoring programs (NYSDEC 1997).

As generally outlined in the January 2013 PRR (ARCADIS 2013c) and the SMP, the following steps are proposed for demobilization and site closeout:

- NYSDEC reclassifies the Site from Class 2 to Class 4, upon NYSDEC's approval of the SMP.

- Submit a formal proposal to the NYSDEC in the next PRR to closeout and delist the Site, including a request to remove the existing engineering controls identified in the SMP from the Site.

- Provide a deconstruction work plan with the next PRR that will describe the procedures and methods to dismantle and remove the treatment systems in Areas

1, 2, and 3, remove the existing abovegrade structures (e.g., sheds), properly decommission monitoring wells/piezometers, abandon above grade piping and the collection sump, and transport and dispose generated waste in accordance with applicable rules and regulations.

- Obtain a Certificate of Completion (or similar site closure document) from the NYSDEC.

- Record the notice of the Certificate of Completion (if issued) in the recording office for Onondaga County within 30 days of issuance by the NYSDEC.

- Petition NYSDEC in accordance with 6NYCRR Part 375-2.7(e) to delist the Site.

- NYSDEC delists the Site from the Registry of Inactive Hazardous Waste Disposal Sites. Upon delisting, the only institutional controls that will remain in effect are the land use restrictions and groundwater use restrictions, as stated in the Deed Restrictions (6NYCRR Part 375-2.7(e); NYSDEC 2006).

- Amend the NYSDEC-approved SMP to support the environmental easement-required land and groundwater use restrictions, with periodic certifications of these institutional controls. This is consistent with 6 NYCRR Part 375-2.7(e).

The next PRR is due to the NYSDEC on November 13, 2015 (NYSDEC 2014). Consistent with the SMP Monitoring Plan, no additional data beyond what is presented herein is anticipated to be presented in that PRR. ARCADIS, on behalf of McKesson Corporation, requests an earlier due date for the PRR (and accordingly, earlier receipt from NYSDEC of an updated certification form) to facilitate timely closure and future redevelopment of the Site.

As you may be aware, the Site is located within the heart of the Syracuse Inner Harbor area, which is currently undergoing significant redevelopment, as described in the selected news articles provided in Attachment D. Due to the high momentum for redevelopment in this area, including construction (to begin by fall 2015) of apartment buildings on Van Rensselaer Street near the Site (diagram included in Attachment D), McKesson would like to capitalize (to the extent possible) on opportunities afforded by the Inner Harbor redevelopment.

We appreciate the NYSDEC's efforts to move this project forward to completion and are glad to arrange a meeting to discuss next steps. I will call you in the next few weeks to follow-up and, as always, if you have any questions or require additional information, please do not hesitate to contact me at 315.671.9229.

Sincerely,

ARCADIS of New York, Inc.

Dawn E. Penniman, P.E.
Certified Project Manager I

AS/lar

Copies:
Ms. Susan Edwards, NYSDEC (w/out Attachment A)
Mr. Harry Warner, NYSDEC (w/out Attachment A)
Mr. Richard Jones, NYSDOH (w/out Attachment A)
Margaret A. Sheen, Esq., NYSDEC (w/out Attachment A)
Ms. Jean Mescher, McKesson Corporation (w/out Attachment A)
Mr. James Fleer, McKesson Corporation (w/out Attachment A)
Mr. Douglas Morrison, Bristol-Myers Squibb Company (w/out Attachment A)
Christopher Young, P.G., de maximis, inc. (w/out Attachment A)
Kevin Bernstein, Esq., Bond Schoeneck & King PLLC (w/out Attachment A)

Enclosures:

Tables

Table 1	Post-Shutdown Process Control Monitoring Wells and Piezometers
Table 2	Summary of Groundwater Level Measurements, October 2006 through May 2015
Table 3	Summary of Groundwater Monitoring Data, March 2009 through April 2015

Figures

Figure 1	Site Plan
Figure 2	Potentiometric Surface of the Shallow Hydrogeologic Unit Sand Layer March 30, 2015
Figure 3	Potentiometric Surface of the Shallow Hydrogeologic Unit Sand Layer May 14, 2015
Figure 4	Groundwater Monitoring Data Summary for October 2010 – April 2015 Areas 1 & 2
Figure 5	Groundwater Monitoring Data Summary for October 2010 – April 2015 Area 3

Attachments

Attachment A	Validated Analytical Laboratory Reports
Attachment B	Summary of Historical Groundwater Monitoring Data – March 1988 through August 2008
Attachment C	Statistical Analyses
Attachment D	Redevelopment in the Syracuse Inner Harbor

References

ARCADIS. 2013a. Monitoring Memorandum – July 2013 Monitoring Event. McKesson Envirosystems Former Bear Street Facility. October 18.

ARCADIS. 2013b. October 2013 Periodic Review Report. McKesson Envirosystems Former Bear Street Facility. October 1.

ARCADIS. 2013c. January 2013 Periodic Review Report. McKesson Envirosystems Former Bear Street Facility. January 15.

ARCADIS. 2014a. Monitoring Memorandum – October 2013 Monitoring Event. McKesson Envirosystems Former Bear Street Facility. January 3.

ARCADIS. 2014b. Monitoring Memorandum – January 2014 Monitoring Event. McKesson Envirosystems Site. April 11.

ARCADIS. 2014c. Monitoring Memorandum – April 2014 Monitoring Event. McKesson Envirosystems Site. September 11.

ARCADIS. 2014d. Site Management Plan. NYSDEC Site Number: 7-34-020. McKesson Envirosystems Site. July 31.

ARCADIS. 2015. Monitoring Memorandum – October 2014 Monitoring Event. McKesson Envirosystems Site. March 2.

NYSDEC. 1997. Record of Decision for McKesson Envirosystems Inactive Hazardous Waste Disposal Site, OU2. March 19.

NYSDEC. 1998. Technical Operational Guidance Series 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June. Available online at: http://www.dec.ny.gov/docs/water_pdf/togs111.pdf

NYSDEC. 2006. 6 NYCRR Part 375: Environmental Remediation Programs, Subparts 375-1 to 375-4 & 375-6. December 14. Available online at: http://www.dec.ny.gov/docs/remediation_hudson_pdf/part375.pdf

NYSDEC. 2010. Division of Environmental Remediation-10: Technical Guidance for Site Investigation and Remediation (DER-10). May 3. Available online at: http://www.dec.ny.gov/docs/remediation_hudson_pdf/der10.pdf

NYSDEC. 2013. Letter from Payson Long, NYSDEC, to Jean Mescher, McKesson Corporation. RE: Discontinuation of Remedial Processes. April 11.

NYSDEC. 2014. Letter from Payson Long, NYSDEC, to Jean Mescher, McKesson Corporation. RE: Site Management Periodic Review Report Response Letter. December 2.

NYSDEC. 2015. *Classifications for "Registry" Sites.* Website. Last accessed on May 22, 2015. Available online at: http://www.dec.ny.gov/chemical/8663.html.

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Tables

Table 1
Post-Shutdown Process Control Monitoring Wells and Piezometers
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Location	Purpose of Monitoring
Sentinel	
MW-3S*	C
MW-4S*	C
Area 1	
TW-01	C
MW-9S	C
MW-31	C
MW-32	C
MW-33*	C
PZ-F	H
PZ-G	H
PZ-HR	H
PZ-P	H
PZ-Q	H
PZ-R	H
PZ-S	H
Area 2	
TW-02RRR	C
MW-34	C
MW-35	C
MW-36R*	C
PZ-I	H
PZ-J	H
PZ-T	H
PZ-U	H
PZ-V	H
Area 3	
MW-8SR*	C
MW-11S	H
MW-27*	C
MW-28	C
MW-29*	C
MW-30*	C
PZ-A	H
PZ-B	H
PZ-C	H
PZ-D	H
PZ-E	H
PZ-K	H

See notes on page 2.

Table 1
Post-Shutdown Process Control Monitoring Wells and Piezometers
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Location	Purpose of Monitoring
Area 3 (cont'd)	
PZ-L	H
PZ-M	H
PZ-N	H
PZ-O	H
Downgradient Perimeter	
MW-17R	C
MW-18	C
MW-23I	C
MW-23S	C, H
MW-24SR	H
MW-25S	H
PZ-4S*	C
PZ-4D*	C, H
PZ-5D	H
Barge Canal	H

Notes:

1. The table lists monitoring wells and piezometers that are part of the constituent of concern (COC) and/or hydraulic post-shutdown process control monitoring program.
2. Hydraulic monitoring involves obtaining groundwater level measurements from monitoring wells/piezometers identified in the table and surface-water level measurements from the Barge Canal. The surface-water level of the Barge Canal is measured from a demarcated reference point on the Bear Street Bridge, which crosses over the canal. Groundwater elevation data are used to map potentiometric surface of the shallow hydrogeologic unit sand layer.
3. The COCs are acetone, benzene, toluene, ethylbenzene, xylenes (total), methanol, trichloroethene, aniline, N,N-dimethylaniline, and methylene chloride.
4. Monitoring well MW-4S and piezometer PZ-4S have been included in the COC monitoring program every third and second monitoring event, respectively; however, both were included in the April 2015 COC monitoring program (the last groundwater monitoring event identified in the July 31, 2014 Site Management Plan prepared by ARCADIS).

C = COC monitoring.
H = hydraulic monitoring.
* = New York State Department of Environmental Conservation-approved the elimination of methanol analysis from the COC groundwater monitoring program (NYSDEC. 2010. Letter from Payson Long, NYSDEC, to David Ulm, ARCADIS. RE: Requested Changes in Remedial Monitoring Program. September 23.).

Table 2
Summary of Groundwater Level Measurements, October 2006 through May 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Location	Reference Elevation (feet amsl)	10/30/06	6/6/07	11/12/07	3/24/08	8/25/08	3/23/09	9/14/09	4/26/10	10/11/10	4/4/11	10/24/11
Barge Canal[A]	393.39	364.29	362.99	362.06	364.34	363.21	363.54	362.89	362.97	363.49	362.07	363.71
Collection Sump[B]	372.81	363.18	362.26	361.86	363.81	362.14	362.20	362.18	362.18	360.72	359.90	361.33
MW-3S[B]	376.54	369.08	--	367.60	367.93	365.19	367.32	365.50	365.67	367.95	369.21	--
MW-11S	373.50	366.11	364.27	363.88	365.69	363.86	364.88	363.89	364.42	364.30	365.00	364.18
MW-18[B]	372.57	363.82	362.63	362.32	363.51	362.26	363.16	362.22	362.67	362.87	363.82	--
MW-23I[B]	372.77	366.43	365.02	364.74	366.12	364.64	365.69	364.67	365.19	365.38	366.57	--
MW-23S	372.61	365.28	362.98	362.56	364.81	362.62	363.50	362.63	362.99	362.71	364.57	362.66
MW-24SR	375.55	366.49	365.21	364.83	366.26	364.73	365.81	364.79	365.32	365.81	366.60	365.63
MW-25S	373.39	365.26	363.32	362.87	364.84	362.88	363.97	362.89	363.34	363.30	364.10	363.17
PZ-4D	376.11	366.64	365.29	364.98	366.39	364.90	365.96	364.94	365.49	366.02	366.74	365.78
PZ-5D	375.58	366.87	365.49	365.19	366.69	365.09	366.21	365.14	365.01	366.09	366.99	366.02
PZ-A	373.94	365.62	363.11	362.72	364.83	362.96	363.56	362.95	362.28	362.35	362.68	362.53
PZ-B	373.92	365.85	363.12	362.62	365.03	362.87	363.64	362.83	362.96	362.22	363.24	362.47
PZ-C	374.85	367.14	365.85	365.30	367.15	365.16	366.71	365.23	366.37	367.11	367.88	366.6
PZ-D	375.12	367.68	365.98	365.40	367.29	365.28	366.81	365.40	366.57	367.17	368.20	366.87
PZ-E	374.12	368.13	365.16	364.07	366.58	364.14	366.82	364.20	364.25	364.16	364.83	364.18
PZ-F	377.06	368.32	366.18	365.76	367.99	365.50	367.41	365.69	366.72	367.10	368.10[B]	367.04
PZ-G	377.16	368.64	366.28	365.82	368.14	365.94	367.29	367.22	367.32	367.36	368.12	367.17
PZ-HR	376.99	368.31	366.23	365.74	368.00	365.48	367.41	365.63	366.65	367.15	368.00[B]	367.04
PZ-I	375.15	369.00	366.49	365.92	368.55	365.50	367.97	365.71	367.04	367.49	368.60	367.47
PZ-J	374.89	367.96	366.16	365.82	367.69	365.55	367.20	365.70	366.55	367.05	367.81	366.94
PZ-K	373.19	365.58	363.36	362.91	364.96	363.08	363.80	363.04	363.33	363.34	361.94	362.97
PZ-L	374.62	365.23	362.94	362.63	364.64	362.79	363.39	362.80	363.80	362.36	362.52	362.54
PZ-M	374.35	365.60	363.54	363.11	365.13	363.30	364.00	363.31	363.62	363.04	363.47	363.22
PZ-N	376.94[C]	367.51	365.76	365.26	367.05	365.09	366.63	365.17	366.22	367.01	367.79	366.62
PZ-O	375.36	365.42	363.22	362.82	365.01	362.91	363.94	362.93	363.35	362.90	363.57	362.94
PZ-P	376.89	368.30	366.31	365.83	368.06	365.58	367.51	365.75	366.76	367.26	368.08	367.15
PZ-Q	377.61	368.61	366.33	365.83	368.23	365.57	367.61	365.77	366.78	367.26	368.13	367.21
PZ-R	377.05	368.51	366.19	365.79	368.20	365.55	367.57	365.73	366.74	367.24	368.10	367.15
PZ-S	378.13	372.48	366.51	365.81	368.21	365.55	367.60	365.74	366.76	367.13	369.67[B]	367.48
PZ-T	376.25	368.04	366.24	365.84	367.89	365.52	367.37	365.66	366.63	367.12	367.94	367.00
PZ-U	375.35	367.99	366.07	365.80	367.75	365.52	367.25	365.66	366.52	367.05	367.83	366.92
PZ-V	375.78	367.97	366.17	365.78	367.78	365.48	367.24	365.64	366.52	367.04	367.81	366.93

See notes on page 3.

Table 2
Summary of Groundwater Level Measurements, October 2006 through May 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Location	Reference Elevation (feet amsl)	4/9/2012	10/1/2012	4/1/2013	7/18/2013[D]	10/17/2013[D]	1/17/2014[D]	4/14/2014[D]	10/20/2014[D]	3/30/2015[D]	5/14/2015[D,F]
Barge Canal[A]	393.39	358.39	360.59	360.74	360.69	360.69	361.38	362.29	360.87	361.21	361.27
Collection Sump[B]	372.81	360.95	361.70	361.24	364.71	364.84	366.14	366.92	364.73	368.31[B]	--
MW-3S[B]	376.54	366.44	365.15	367.55	366.11	366.62	367.83	368.66	366.70	368.67	--
MW-11S	373.50	363.92	363.62	364.42	364.95	365.08	366.08	366.94	365.00	366.95	365.64
MW-18[B]	372.57	362.57	362.32	362.85	362.74	363.54	363.57	364.50	365.00	363.84	--
MW-23I[B]	372.77	364.99	364.73	365.29	365.23	365.33	366.02	366.86	365.32	359.26	--
MW-23S	372.61	362.23	362.29	362.88	364.20	364.37	365.30	366.06	364.14	366.95	364.91
MW-24SR	375.55	365.09	364.84	365.48	365.39	365.46	366.25	367.09	365.40[E]	366.48	366.07
MW-25S	373.39	362.81	362.61	363.48	364.08	364.23	365.14	365.89	364.22	366.09	364.42
PZ-4D	376.11	365.24	364.94	365.59	365.47	365.59	366.34	367.06	365.60	366.51	366.13
PZ-5D	375.58	365.48	365.16	365.84	365.67	365.81	366.57	367.42	365.78	366.78	366.33
PZ-A	373.94	363.24	362.54	362.68	364.78	364.92	366.08	366.87	364.84	367.79	365.39
PZ-B	373.92	362.14	362.35	362.64	364.77	364.88	366.08	366.86	364.79	368.01	365.32
PZ-C	374.85	366.10	365.41	366.76	365.75	365.84	366.65	367.50	365.78	367.16	366.26
PZ-D	375.12	366.39	365.65	367.07	365.87	365.97	366.82	367.66	365.90	367.31	366.39
PZ-E	374.12	363.67	363.35	364.38	365.12	365.22	366.44	367.22	365.21	368.66	365.64
PZ-F	377.06	366.46	365.44	366.91	366.52	366.57	367.61	368.66	366.51	368.33	366.96
PZ-G	377.16	366.53	365.48	367.04	366.67	366.70	367.74	368.74	366.54	368.39	366.99
PZ-HR	376.99	366.40	365.38	366.90	366.46	366.50	367.61	368.60	366.47	368.32	366.95
PZ-I	375.15	366.77	365.36	367.52	366.60	366.70	368.20	369.15	366.80	368.94	367.29
PZ-J	374.89	366.30	365.55	366.74	366.39	366.48	367.50	368.37	366.48	368.06	366.98
PZ-K	373.19	362.65	362.75	363.03	364.79	364.96	365.97	366.77	364.86	367.18	365.43
PZ-L	374.62	362.16	362.42	362.60	364.61	364.77	365.90	366.71	364.69	367.51	365.24
PZ-M	374.35	362.86	362.87	363.28	364.93	364.96	366.18	366.98	364.98	367.54	365.56
PZ-N	376.94[C]	366.06	365.33	366.72	365.67	365.81	366.57	367.46	365.73	367.14	366.20
PZ-O	375.36	362.61	362.52	363.14	364.50	364.64	365.72	366.48	364.56	366.56	365.16
PZ-P	376.89	366.49	365.45	366.93[B]	366.57	366.63	367.69	368.69	366.58	368.34	367.04
PZ-Q	377.61	366.52	365.44	367.04	366.59	366.65	367.76	368.80	366.56	368.46	367.04
PZ-R	377.05	366.48	365.45	367.03	366.54	366.59	367.74	368.75	366.55	368.43	367.02
PZ-S	378.13	366.51	365.45	367.34[B]	366.58	366.61	368.27	369.73	366.76	369.01	367.14
PZ-T	376.25	366.32	365.41	366.86	366.42	366.49	367.64	368.55	366.50	368.20	366.97
PZ-U	375.35	366.29	365.44	366.77	366.38	366.47	367.55	368.42	366.45	368.13	366.96
PZ-V	375.78	366.28	365.40	366.77	366.37	366.46	367.53	368.44	366.43	368.18	366.93

See notes on page 3.

Table 2
Summary of Groundwater Level Measurements, October 2006 through May 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Superscript Notes:

[A] = Surface-water level measurements are obtained from the Barge Canal. The surface-water level is measured from a demarcated reference point on the Bear Street Bridge, which crosses over the canal.

[B] = Data not used in potentiometric surface mapping of the shallow hydrogeologic unit sand layer.

[C] = The reference elevation for PZ-N was 376.02 feet amsl prior to November 16, 2000. The new reference elevation is 376.94 feet amsl.

[D] = Groundwater elevations reflect hydrogeologic conditions after the April 2013 shutdown of the in-situ bioremediation treatment and closed loop hydraulic systems.

[E] = Monitoring well MW-24SR was not accessible on October 20, 2014 and was monitored on October 21, 2014.

[F] = A second round of hydraulic gauging was performed on May 14, 2015 due to groundwater mounding observed in Area 3 during the March 30, 2015 gauging event. The groundwater mounding was caused by saturated conditions at the Site from recent snow melt.

Abbreviations:

-- = not measured

amsl = above mean sea level (National Geodetic Vertical Datum of 1929)

See notes on page 3.

Table 3
Summary of Groundwater Monitoring Data, March 2009 through April 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elevation (feet amsl) Top	Bottom	Acetone	Benzene	Ethylbenzene	Methylene Chloride	Toluene	Trichloroethene	Xylene[A]	Aniline	N,N-Dimethyl-aniline	Methanol
NYSDEC Groundwater Quality Standards (TOGS 1.1.1)				**50**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**50[G]**
MW-3S	3/09	365.1	350.1	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			<10	**0.17 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	4/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	10/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	4/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3 J	<1.1 J	NA
	10/11			<10	<1.0	<1.0	<1.0	0.35 J	<1.0	<3.0	<5.0	<1.0	NA
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	NA
	10/12			<10	**0.27 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.61 J	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	NA
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	NA
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	10/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
MW-4S	10/10	365.5	350.5	<10 [<10]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<3.0 [<3.0]	<5.0 [<5.0]	<1.0 [<1.0]	<500 J [<500 J]
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	NA
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	NA
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
MW-8SR[B]	3/09	362.7	352.7	**6.5 J [5.8 J]**	**6.8 [6.8]**	**66 [63]**	<1.0 [<1.0]	**10 [10]**	<1.0 [<1.0]	**140 [140]**	**2,200 [1,800]**	<12 [<12]	<500 [<500]
	6/09			NA	NA	NA	NA	NA	NA	NA	**7,000**	<50	NA
	9/09			**<10 [8.3 J]**	**8.5 J [7.9]**	**44 J [38]**	<1.0 [<1.0]	**6.8 J [6.5]**	<1.0 J [<1.0]	**81 J [71]**	**4,000 [3,400]**	<20 [<20]	<500 [<500]
	4/10			<10 [<10]	**4.2 [3.5]**	**23 J [18]**	<1.0 [<1.0]	**4.6 [3.7]**	<1.0 [<1.0]	**41 [33]**	**370 J [720 J]**	**1.0 J [<5.0]**	<500 [<500]
	10/10			<10	**2.7**	**16**	<1.0	**2.0**	<1.0	**31**	**220**	**1.6**	NA
	4/11			**5.9 J [4.3 J]**	**3.2 [3.2]**	**10 [8.8]**	<1.0 [<1.0]	**2.8 [2.6]**	<1.0 [<1.0]	**32 [31]**	**57 J [64]**	**1.5 [1.6]**	NA
	10/11			<10 [<10]	**1.9 [2.0]**	**2.0 [2.1]**	<1.0 [<1.0]	**1.3 [1.3]**	<1.0 [<1.0]	**14 [15]**	<5.0 [<5.0]	**2.6 [<1.0]**	NA
	4/12			**8.7 J [6.7 J]**	**1.2 [1.7]**	**2.3 [3.3]**	<0.18 [<0.18]	**0.76 J [1.2]**	<0.090 [<0.090]	**9.5 [15]**	<1.9 [<1.9]	**2.4 [2.6]**	NA
	10/12			<10 [<10]	**0.69 J [0.70]**	**0.16 J [0.14 J]**	<1.0 [<1.0]	**0.36 J [0.39 J]**	<1.0 [<1.0]	**1.4 J [1.2 J]**	<5.3 [<5.0]	**2.3 [2.7]**	NA
	4/13			<10 [<10]	**1.1 [1.1]**	**0.32 J [0.28 J]**	<1.0 [<1.0]	**0.67 J [0.68 J]**	<1.0 [<1.0]	**7.7 [8.0]**	<5.1 [<5.1]	**1.7 [1.4]**	NA
	7/13			**5.1 J [8.7 J]**	**1.9 [1.8]**	**0.17 J [0.18 J]**	<1.0 [<1.0]	**1.0 [0.96J]**	<1.0 [<1.0]	**11 [9.4]**	**2.5 [2.5]**	**0.89 J [0.96 J]**	<1,000 [<1,000]
	10/13			<10	**2.9**	**0.21 J**	<1.0	**1.3**	<1.0	**13**	**2.6 J**	**0.83 J**	NA
	1/14			<10 J [<10 J]	**2.4 [2.6]**	**0.19 J** [<1.0]	<1.0 [<1.0]	**0.94 J [1.1]**	<1.0 [<1.0]	**11 [13]**	**5.1 J** [<10]	**2.0 [1.7]**	NA
	4/14			<10 [<10]	**3.2 [3.3]**	**0.25 J [0.27 J]**	<1.0 [<1.0]	**1.2 [1.1]**	<1.0 [<1.0]	**13 [13]**	**3.9 J [5.6 J]**	**1.4 [1.9]**	NA
	10/14			**18 J [38 J]**	**1.7 [1.9]**	**0.16 J [0.18 J]**	**0.27 J** [<0.1]	**1.2 [1.3]**	<1.0 [<1.0]	**5.9 [6.4]**	**3.1 J [2.3 J]**	**1.8 [1.3]**	NA
	4/15			**15 [8.4 J]**	**3.5 [3.7]**	<1.0 **[0.36 J]**	<1.0 [<1.0]	**1.3 [1.2]**	<1.0 [<1.0]	**19 [18]**	**2.7 J [3.6 J]**	**2.6 [2.7]**	NA
MW-9[C]	3/09	365.6	356	<10	**1.2**	**27**	<1.0	**2.5**	<1.0	**65**	<5.0	**4.2**	<500
(Replaced by MW-9S)	9/09			<10	**1.7**	**20**	<1.0	**2.2**	<1.0	**70**	<5.0	**4.1**	**730**
	4/10			<10	**0.86 J**	**26**	<1.0	**2.1**	<1.0	**69**	<5.0	**6.5**	<500
	10/10			<10	**1.3**	**11**	<1.0	**1.9**	<1.0	**45**	<5.1	**7.5**	<500 J
	4/11			<10	**0.91 J**	**29**	<1.0	**2.6**	<1.0	**89**	<5.3	**5.4**	<500
	10/11			<10	**1.2**	**4.2**	<1.0	**1.8**	<1.0	**41 J**	<5.0	**7.6**	<500
	4/12			**7.5 J**	**1.1**	**18**	<0.18	**1.5**	<0.090	**67**	<1.9	**6.3**	<500
	10/12			<10	**1.9 J**	**4.7**	<1.0	**3.2**	<1.0	**84**	<5.0	**3.9**	NA
	4/13			**12 J**	**0.95 J**	**19**	<1.0	**1.6**	<1.0	**62**	<5.1	**5.9**	<1,000
	7/13			<10	**1.9**	**12**	<1.0	**2.0**	<1.0	**45**	<1.0	**2.0**	<1,000
	10/13			<5.0	**2.9**	**10**	<1.0	**2.6**	<1.0	**60**	<5.0	**5.2**	<500
	1/14			<10 J	**1.1**	**13**	<1.0	**1.6**	<1.0	**54**	<10	**7.2**	<500
	4/14			<10	**1.0**	**19**	<1.0	**2.2**	<1.0	**74**	<10	**5.7**	<500
	10/14			<10 J	**1.5**	**8.8**	<1.0	**2.2**	**0.82 J**	**72**	<10	**5.9**	<500
	4/15			<10	**1.4**	**22**	<1.0	**2.5**	<1.0	**79**	<11	**6.5**	<500

See Notes on Page 8.

Table 3
Summary of Groundwater Monitoring Data, March 2009 through April 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elevation (feet amsl) Top	Bottom	Acetone	Benzene	Ethylbenzene	Methylene Chloride	Toluene	Trichloroethene	Xylene[A]	Aniline	N,N-Dimethyl-aniline	Methanol
NYSDEC Groundwater Quality Standards (TOGS 1.1.1)				**50**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**50[G]**
MW-17[D]	3/09	365.7	356.1	<10	**2.3**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
(Replaced by MW-17R)	9/09			<10 J	**0.86 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	4/10			<10	**0.22 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	10/10			<10	**1.3**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.6	<1.1	<500 J
	4/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3 J	<1.1 J	<500
	10/11			<10	<1.0	<1.0	<1.0	**0.19 J**	<1.0	<3.0 J	<5.0	<1.0	<500
	4/12			<2.7	**0.22 J**	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	<500
	10/12			<10	**0.55 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	<1,000
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.2	<1.2	<1,000
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.4	<1.1	<500
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	**2,700**
	10/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
MW-18	3/09	325.15	316.15	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	4/10			<10	<1.0	<1.0	**33**	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	6/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	NA	NA	NA
	10/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	<500 J
	4/11			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	<500
	10/11			<10	<1.0	<1.0	<1.0	**0.23 J**	<1.0	<3.0 J	<5.0	<1.0	<500
	4/12			<2.7	<0.080	<0.10	<0.18	**0.27 J**	<0.090	<0.36	<1.8	<0.21	<500
	10/12			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	4/13			<10	<1.0	<1.0	<1.0	**0.60 J**	<1.0	<3.0	<4.8	<0.95	<1,000
	7/13			<10	<1.0	<1.0	<1.0	**0.25 J**	<1.0	<3.0	<1.0	<1.0	<1,000
	10/13			<10	<1.0	<1.0	<1.0	**0.19 J**	<1.0	<3.0	<5.4	<1.1	<500
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	10/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
MW-23S	3/09	364.1	354.1	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	4/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	10/10			**3.7 J**	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500 J
	4/11			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	<500
	10/11			<10	<1.0	<1.0	<1.0	**0.31 J**	<1.0	<3.0	<5.0	<1.0	<500
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	<500
	10/12			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	<1,000
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1,000
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	<500
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	10/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500 J
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500

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Table 3
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Monitoring Well	Sampling Date	Screen Elevation (feet amsl) Top	Bottom	Acetone	Benzene	Ethylbenzene	Methylene Chloride	Toluene	Trichloroethene	Xylene[A]	Aniline	N,N-Dimethyl-aniline	Methanol
NYSDEC Groundwater Quality Standards (TOGS 1.1.1)				**50**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**50[G]**
MW-23I	3/09	341.2	336.2	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	4/10			<10	<1.0	<1.0	**8.4**	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	6/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	NA	NA	NA
	10/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500 J
	4/11			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	<500
	10/11			<10	<1.0	<1.0	<1.0	**0.29 J**	<1.0	<3.0	<5.0	<1.0	<500
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	<500
	10/12			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.6	<1.1	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<4.8	<9.5	<1,000
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1,000
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	10/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
MW-27	3/09	362.5	354.5	**14 J**	**8.7**	**36**	<1.0	**9.4**	<1.0	**88**	**8,200 J**	<50 J	<500
	6/09			NA	NA	NA	NA	NA	NA	NA	**7,400**	<50	NA
	9/09			**10**	**6.2**	**5.9**	<1.0	**6.9**	<1.0	**23**	**2,100**	<10	<500
	4/10			<10	**4.5**	**6.1**	<1.0	**2.4**	<1.0	**10**	**1,300**	<10	<500
	10/10			<10	**2.7**	**1.4**	<1.0	**1.3**	<1.0	**3.4**	**220**	**2.5**	NA
	4/11			**3.9 J**	**3.1**	**5.1**	<1.0	**5.7**	<1.0	**9.1**	**1,000**	<11	NA
	10/11			<10	**2.1**	**2.2**	<1.0	**1.3**	<1.0	**3.1**	**36**	**2.7**	NA
	4/12			<2.7	**1.5**	**1.4**	<0.18	**0.45 J**	<0.090	**2.2 J**	<1.9	**2.7**	NA
	10/12			<10	**1.1**	<1.0	<1.0	**0.22 J**	<1.0	<3.0	<5.0	**2.2**	NA
	4/13			<10	**1.1**	**0.88 J**	<1.0	**0.34 J**	<1.0	**1.4 J**	11	**2.4**	NA
	7/13			<10	**2.0**	<1.0	<1.0	**0.60 J**	<1.0	<3.0	**1.5**	**1.1**	<1,000
	10/13			<10	**2.6**	<1.0	<1.0	**0.75 J**	<1.0	**3.9**	<5.0	**0.73 J**	NA
	1/14			<10 J	**0.89 J**	<1.0	<1.0	**0.33 J**	<1.0	**0.22 J**	<12	**0.75 J**	NA
	4/14			<10	**1.0**	<1.0	<1.0	**0.41 J**	<1.0	**0.92 J**	**0.60 J**	**0.48 J**	NA
	10/14			<10	**2.0**	**0.12 J**	<1.0	**1.2**	<1.0	**3.5**	**16**	**1.4**	NA
	4/15			<10	**2.4**	**0.98 J**	<1.0	**1.9**	<1.0	**9.5**	**20**	**1.0 J**	NA
MW-28	3/09	363.6	355.6	<10	**3.5**	**0.8 J**	<1.0	**0.3 J**	<1.0	**1.1 J**	**18**	<0.5	**851**
	9/09			<10	**3.1**	**0.32 J**	<1.0	**0.25 J**	<1.0	**0.48 J**	**6.7**	<1.0	<500
	4/10			<10	**2.8**	**0.60 J**	<1.0	**0.23 J**	<1.0	**0.46 J**	<5.0	**0.49 J**	<500
	10/10			<10	**1.8**	<1.0	<1.0	<1.0	<1.0	<3.0	**2.4 J**	**0.60 J**	<500 J
	4/11			**4.3 J**	**2.3**	<1.0	<1.0 B	**0.11 J**	<1.0	<3.0	**3.9 J**	**0.75 J**	<500
	10/11			<10	**1.8**	<1.0	<1.0	**0.38 J**	<1.0	<3.0	<5.0	<1.0	<500
	4/12			<2.7	**1.4**	<0.10	<0.18	**0.22 J**	<0.090	<0.36	<1.8	**0.48 J**	<500
	10/12			<10	**1.9**	<1.0	<1.0	**0.16 J**	<1.0	<3.0	<5.0	**0.62 J**	NA
	4/13			<10	**1.7**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	**0.32 J**	**410 J**
	7/13			<10	**1.7**	<1.0	<1.0	**0.22 J**	<1.0	<3.0	<1.0	**0.35 J**	<1,000
	10/13			<10	**1.7**	<1.0	<1.0	**0.49 J**	<1.0	**0.68 J**	<5.0	**0.70 J**	<500
	1/14			<10 J	**1.2**	<1.0	<1.0	**0.22 J**	<1.0	<3.0	<10	**0.75 J**	<500
	4/14			**13**	**1.7**	<1.0	<1.0	**0.29 J**	<1.0	<3.0	<10	**0.72 J**	<500
	10/14			**51**	**1.3**	<1.0	**0.41 J**	**1.1**	<1.0	**0.90 J**	**1.2 J**	**1.3**	<500
	4/15			**7.6 J**	**1.6**	<1.0	<1.0	**0.39 J**	<1.0	**0.75 J**	**1.2 J**	**1.3**	<500

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Monitoring Well	Sampling Date	Screen Elevation (feet amsl) Top	Bottom	Acetone	Benzene	Ethylbenzene	Methylene Chloride	Toluene	Trichloroethene	Xylene[A]	Aniline	N,N-Dimethyl-aniline	Methanol
NYSDEC Groundwater Quality Standards (TOGS 1.1.1)				**50**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**50[G]**
MW-29	3/09	362.9	345.9	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			<10	<1.0	<1.0	<1.0	**0.16 J**	<1.0	<3.0	<5.0	**0.29 J**	<500
	4/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	10/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	4/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3 J	<1.1 J	NA
	10/11			<10	<1.0	<1.0	<1.0	**0.22 J**	<1.0	<3.0 J	<5.0	**0.22 J**	NA
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	NA
	10/12			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	NA
	7/13			<10	**0.26 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	NA
	10/13			<10	**0.32 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<11	<1.1	NA
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	10/14[F]			**790,000 D**	<500 D	<500 D	<500 D	<500 D	<500 D	<1,500 D	<10	<1.0	NA
	12/14[F]			**370 J**	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	NA	NA	NA
	4/15			**12**	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<12	**0.66 J**	NA
MW-30	3/09	363.5	355.5	<10	**0.8 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			<10	**0.78 J**	<1.0	<1.0	**0.17 J**	<1.0	<3.0	**21**	<1.0	<500
	4/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	10/10			<10 J	**0.14 J**	<1.0	**37**	<1.0	<1.0	<3.0	<5.1	<1.0	NA
	4/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3 J	<1.1 J	NA
	10/11			<10	<1.0	<1.0	<1.0	**0.18 J**	<1.0	<3.0 J	<5.0	<1.0	NA
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	NA
	10/12			<10	**0.099 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	7/13			<10	**0.20 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	**0.30 J**	NA
	10/13			<10	**0.29 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	**0.85 J**	NA
	1/14			<10 J	**0.19 J**	<1.0	<1.0	<1.0	<1.0	**0.14 J**	<11	<1.1	NA
	4/14			<10	**0.37 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**0.43 J**	NA
	10/14			<10	**0.18 J**	<1.0	<1.0	<1.0	<1.0	**0.15 J**	<10	**1.5**	NA
	4/15			<10	**0.24 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<11	**2.0**	NA
MW-31	3/09	363.7	355.4	**9.4 J**	**8.3**	< 1.0	<1.0	**0.6 J**	<1.0	**0.8 J**	<5.0	**2.3**	<500
	9/09			<10	**10**	<1.0	<1.0	**0.49 J**	<1.0	**2.0 J**	<5.0	**2.5**	**730**
	4/10			<10	**4.8**	<1.0	<1.0	**0.40 J**	<1.0	**1.3 J**	<5.0	**2.3**	<500
	10/10			<10	**6.9**	<1.0	<1.0	**0.50 J**	<1.0	**1.5 J**	<5.3	**3.5**	<500 J
	4/11			<10	**8.3**	<1.0	<1.0	**0.77 J**	<1.0	**2.5 J**	<5.3	**2.3**	<500
	10/11			<10	**5.7**	<1.0	<1.0	**0.62 J**	<1.0	**1.5 J**	<5.0	**3.5**	<500
	4/12			**6.5 J**	**6.8**	**0.16 J**	<0.18	**0.65 J**	<0.090	**2.7 J**	<1.9	**2.1**	<500
	10/12			<10	**6.3 J**	**0.16 J**	<1.0	**0.44 J**	<1.0	**2.3 J**	<5.0	**0.90 J**	NA
	4/13			<10	**12**	**0.21 J**	<1.0	**1.3**	<1.0	**5.6**	<5.2	**1.1**	<1,000
	7/13			<10	**11**	<1.0	<1.0	**1.2**	<1.0	**5.1**	**0.72 J**	**1.6**	<1,000
	10/13			<10	**11**	**0.15 J**	<1.0	**1.4**	<1.0	**6.1**	<5.2	**2.2**	<500
	1/14			<10 J	**8.2**	<1.0	<1.0	**1.2**	<1.0	**6.3**	<10	**2.2**	NA
	4/14			<10	**7.5**	**0.22 J**	<1.0	**0.93 J**	<1.0	**4.6**	**0.75 J**	**1.9**	<500
	10/14			**7.1 J**	**6.5**	<1.0	<1.0	**1.4**	<1.0	**4.5**	**1.1 J**	**2.2**	<500
	3/15			<10 J	**9.1**	<1.0	<1.0	**1.3**	<1.0	**8.9**	**0.52 J**	**1.6**	<500

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NYSDEC Groundwater Quality Standards (TOGS 1.1.1)				**50**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**50[G]**
MW-32	3/09	364	356	<10	**0.5 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**1.1**	**1,200**
	4/10			<10	**0.23 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**0.89 J**	<500
	10/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	**0.87 J**	<500 J
	4/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	<500
	10/11			<10	<1.0	<1.0	<1.0	**0.19 J**	<1.0	<3.0 J	<5.0	**1.5**	<500
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	**1.1**	<500
	10/12			<10	<1.0 J	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	**2.2**	NA
	4/13			<10	**0.098 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	**0.91 J**	<1,000
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	**0.82 J**	<1,000
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**1.2**	<500
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**0.85 J**	<500
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**1.1**	<500
	10/14			<10 J	**0.10 J**	<1.0	<1.0	**0.20 J**	<1.0	<3.0	<10	**1.5**	<500
	3/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<11	**1.1**	<500
MW-33	3/09	344.1	356.1	<10	**3.2**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**2.4**	<500
	9/09			<10	**2.6**	<1.0	<1.0	**0.20 J**	<1.0	<3.0	<5.0	<1.0	<500
	4/10			<10	**1.6**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**2.0**	<500
	10/10			<10	**1.7**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	**2.7**	NA
	4/11			<10	**0.79 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	**1.9**	NA
	10/11			<10	**0.58 J**	<1.0	<1.0	**0.12 J**	<1.0	<3.0	<5.3	**1.9**	NA
	4/12			<2.7	**0.11 J**	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	**1.3**	NA
	10/12			<10	**0.33 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	**2.1**	NA
	4/13			<10	**1.1**	<1.0	<1.0	<1.0	<1.0	<3.0	<4.8 J	**2.1 J**	NA
	7/13			<10	**0.46 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	**0.96 J**	<1,000
	10/13			<10	**1.1**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**0.69 J**	NA
	1/14			<10 J	**0.69 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**1.7**	NA
	4/14			<10	**1.1**	<1.0	<1.0	<1.0	<1.0	<3.0	**0.32 J**	**2.3**	NA
	10/14			<10 J	**0.45 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**1.3**	NA
	4/15			<10	**0.57 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<11	**2.2**	NA
MW-34	3/09	362.7	354.7	**14**	**1.4**	<1.0	<1.0	**0.7 J**	<1.0	**1.5 J**	**12**	**2.0**	<500
	9/09			**24**	<1.0	<1.0	<1.0	**0.64 J**	<1.0	**1.7 J**	<5.0	**2.5**	**1,000**
	4/10			**50 J**	**0.82 J**	<1.0	<1.0	**0.42 J**	<1.0	**1.4 J**	<5.0	**2.4**	<500
	10/10			**20**	**1.0**	<1.0	<1.0	**0.44 J**	<1.0	**1.3 J**	**1.8 J**	**2.9**	<500 J
	4/11			**16**	**1.7**	<1.0	<1.0	**0.74 J**	<1.0	**2.0 J**	**10**	**2.7**	<500
	10/11			**350**	**1.2**	<1.0	<1.0	**0.71 J**	<1.0	**0.90 J**	<5.6	**2.5**	<500
	4/12			**37 J**	**1.3**	<0.10	<0.18	**0.59 J**	<0.090	**1.4 J**	**2.1 J**	**2.4**	<500
	10/12			**61**	**1.6**	<1.0	<1.0	**0.78 J**	<1.0	**2.2 J**	<5.2	**2.7**	NA
	4/13			**26 J**	**1.3**	<1.0	<1.0	**0.60 J**	<1.0	**2.3 J**	<4.8	**1.7**	<1,000
	7/13			**32**	**1.3**	<1.0	<1.0	**0.66 J**	<1.0	**2.0 J**	**0.56 J**	**0.92 J**	NA
	10/13			**15**	**1.2**	<1	<1.0	**0.69 J**	**0.13 J**	**2.2 J**	<5.0	**1.3**	<500
	1/14			**15 J**	**0.91 J**	<1.0	<1.0	**0.44 J**	<1.0	**1.3 J**	<10	**1.9**	<500
	4/14			**57**	**1.4**	**0.11 J**	<1.0	**0.62 J**	<1.0	**3.6**	**2.6 J**	**1.6**	<500
	10/14			**31 J**	**1.4**	<1.0	<1.0	**0.75 J**	<1.0	**1.9 J**	**0.77 J**	**1.9**	<500
	3/15			**32**	**1.5**	<1.0	<1.0	**0.94 J**	<1.0	**3.3**	<10	**2.7**	<500

See Notes on Page 8.

Table 3
Summary of Groundwater Monitoring Data, March 2009 through April 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elevation (feet amsl) Top	Bottom	Acetone	Benzene	Ethylbenzene	Methylene Chloride	Toluene	Trichloroethene	Xylene[A]	Aniline	N,N-Dimethyl-aniline	Methanol
NYSDEC Groundwater Quality Standards (TOGS 1.1.1)				**50**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**50[G]**
MW-35	3/09	363	355	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	9/09			**6.5 J**	<1.0	<1.0	<1.0	**0.16 J**	<1.0	<3.0	<5.0	<1.0	**1,100**
	4/10			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	10/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	<500 J
	4/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.6	<1.1	<500
	10/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	<500
	4/12			**14 J**	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	<500
	10/12			<36 B	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.1	<1.0	**470 J**
	7/13			**4.2 J**	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0 J	<1.0	<1,000
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2 J	<1.0	<500
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**1.6**	<500
	10/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	<500
	4/15			<10	<1.0	<1.0	<1.0	**0.44 J**	<1.0	<3.0	<10	<1.0	<500
MW-36[E]	3/09	363.6	355.6	**28**	**2.4**	<1.0	<1.0	**0.8 J**	<1.0	**2.8 J**	**150**	**2.8**	<500
(Replaced by MW-36R)	6/09			NA	NA	NA	NA	NA	NA	NA	**460**	<5.0	NA
	9/09			**21**	**3.1**	<1.0	<1.0	**0.96 J**	<1.0	**3.2**	**390**	**3.1**	<500
	4/10			<10 J	**3.3**	**0.26 J**	<1.0	**1.1**	<1.0	**5.4**	**77**	**2.6**	<500
	10/10			**12**	**3.9**	**0.28 J**	<1.0	**1.2**	<1.0	**4.8**	**620**	<5.0	<500 J
	4/11			<10	**4.3**	<1.0	<1.0	**0.95 J**	<1.0	**4.4**	**310**	**4.0**	NA
	10/11			<10	**1.8**	<1.0	<1.0	**0.66 J**	<1.0	**1.4 J**	**92**	**3.6**	NA
	12/11			NA	NA	NA	NA	NA	NA	NA	**120**	NA	NA
	4/12			**6.3 J**	**1.6**	**0.16 J**	<0.18	**0.45 J**	<0.090	**1.9 J**	**150**	**4.1**	NA
	10/12			<10	**1.5 J**	<1.0	<1.0	**0.54 J**	<1.0	**2.2 J**	**10**	**3.1**	NA
	4/13			<10	**1.8**	**0.14 J**	<1.0	**0.53 J**	<1.0	**2.9 J**	**150**	**4.0**	NA
	7/13			<10	**1.4**	**0.11 J**	<1.0	**0.46 J**	<1.0	**1.7 J**	**97**	**2.0**	<1,000
	10/13			<10	**1.3**	<1.0	<1.0	**0.45 J**	<1.0	**1.7 J**	**110**	**1.9**	NA
	1/14			<10 J	**1.2**	<1.0	<1.0	**0.42 J**	<1.0	**1.4 J**	**180**	**4.1**	NA
	4/14			**5.5 J**	**1.1**	**0.12 J**	<1.0	**0.42 J**	<1.0	**1.6 J**	**140**	**3.4**	NA
	10/14			<10 J	**0.62 J**	<1.0	<1.0	**0.32 J**	<1.0	**0.60 J**	**74**	**3.3**	NA
	3/15			<10	**0.85 J**	<1.0	<1.0	**0.42 J**	<1.0	**0.88 J**	**25**	**3.8**	NA
TW-01	3/09	365.1	355.4	<10	**1.9**	<1.0	<1.0	<1.0	<1.0	**0.6 J**	<5.0	<0.5	**22,300**
	9/09			**2.9 J**	<1.0	<1.0	<1.0	**0.11 J**	<1.0	<3.0	<5.0	**1.1**	**970**
	4/10			<10	**0.32 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**1.0**	<500
	10/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	**1.3**	<500 J
	4/11			<10	**0.21 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	<500
	10/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0 J	<5.6	**1.6**	<500
	4/12			<2.7	**0.11 J**	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	**1.7**	<500
	10/12			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	**1.9**	NA
	4/13			<10	**0.090 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	**0.98 J**	<1,000
	7/13			<10	**0.11 J**	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	**1.0**	<1,000
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	**1.1**	<500
	1/14			**<10 J**	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**0.98 J**	<500
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	**1.3**	<500
	10/14			**<10 J**	<1.0	<1.0	<1.0	<1.0	<1.0	**0.19 J**	<10	**1.4**	<500
	3/15			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<11	**1.1**	<500

See Notes on Page 8.

Table 3
Summary of Groundwater Monitoring Data, March 2009 through April 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elevation (feet amsl) Top	Bottom	Acetone	Benzene	Ethylbenzene	Methylene Chloride	Toluene	Trichloroethene	Xylene[A]	Aniline	N,N-Dimethyl-aniline	Methanol
NYSDEC Groundwater Quality Standards (TOGS 1.1.1)				**50**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**50[G]**
TW-02RR[B,E]	3/09	363.3	353.3	<10 [<10]	**5.0 [4.6]**	**1.5 [1.6]**	<1.0 [<1.0]	**1.0 [1.0 J]**	<1.0 [<1.0]	**4.2 [4.1]**	**2,000 [1,600]**	<10 [<10]	<500 [<500]
(Replaced by TW-02RRR)	6/09			NA	NA	NA	NA	NA	NA	NA	**2,800**	<20	NA
	9/09			<10 [<10]	**4.3 [4.2]**	**1.2 [1.3]**	<1.0 [<1.0]	**0.79 J [0.81 J]**	<1.0 [<1.0]	**3.5 [3.6]**	**1,600 [1,500]**	<10 [<10]	**1,000 [1,200]**
	4/10			**9.5 J [12 J]**	**4.1 [4.0]**	**1.2 [1.2]**	<1.0 [<1.0]	**0.78 J [0.75 J]**	<1.0 [<1.0]	**4.2 [4.0]**	**2,800 J [3,100 J]**	<20 J [<20 J]	<500 [<500]
	10/10			<10 [<10]	**3.3 [3.0]**	**1.0 [0.91 J]**	<1.0 [<1.0]	**0.82 J [0.76 J]**	<1.0 [<1.0]	**3.6 [3.6]**	**760 [810]**	**<5.0 [2.2 J]**	<500 J [<500 J]
	4/11			<10 [<10]	**2.1 [2.0]**	**1.2 [1.3]**	<1.0 [<1.0]	**0.74 J [0.75 J]**	<1.0 [<1.0]	**5.2 [5.3]**	**1.9 J [2.1 J]**	**3.4 [3.3]**	<500 [<500]
	10/11			<10 [<10]	**1.2 [1.1]**	**0.67 J [0.69 J]**	<1.0 [<1.0]	**0.53 J [0.48 J]**	<1.0 [<1.0]	**1.5 J [1.4 J]**	**1,300 D [1,500 D]**	**5.5 [6.2]**	<500 [<500]
	12/11			NA	NA	NA	NA	NA	NA	NA	**1,400**	NA	NA
	4/12			**15 J [13 J]**	**1.6 [1.5]**	**0.73 J [0.76 J]**	<0.18 [<0.18]	**0.51 J [0.48 J]**	<0.090 [<0.090]	**1.6 J [1.6 J]**	**1,400 J [1,600 J]**	<2.2 J [<2.2 J]	<500 [<500]
	10/12			<10 [<10]	**1.1 J [0.98 J]**	**0.29 J [0.27 J]**	<1.0 [<1.0]	**0.26 J [0.27 J]**	<1.0 [<1.0]	**0.91 J [0.89 J]**	<5.2 **[3.2 J]**	**2.2 [1.9]**	NA
	4/13			<10 [<10]	**1.4 [1.3]**	**0.60 J [0.64 J]**	<1.0 [<1.0]	**0.36 J [0.38 J]**	<1.0 [<1.0]	**1.5 J [1.5 J]**	**620 [700]**	**3.5 J [3.4 J]**	<1,000 [<1,000]
	7/13			<10 [<10]	**0.91 J [0.91 J]**	**0.25 J [0.26 J]**	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 J [**14 J**]	**0.72 J [0.70 J]**	**150 [170]**	**1.7 [1.8]**	<1,000 [<1,000]
	10/13			<10 [<10]	**0.60 J [0.60 J]**	<1.0 **[0.15 J]**	<1.0 [<1.0]	**0.20 J [0.17 J]**	**0.15 J [0.11 J]**	<3.0 [<3.0]	**90 [72]**	**2.1 [1.4]**	<500 [<500]
	1/14			<10 J [<10 J]	**1.1 [1.1]**	**0.27 J [0.33 J]**	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	0.69 J [0.77 J]	**660 [750 D]**	**1.8 J [3.7]**	<500 [<500]
	4/14			**8.0 J [10]**	**1.2 [1.2]**	**0.51 J [0.44 J]**	<1.0 [<1.0]	**0.18 J [0.17 J]**	<1.0 [<1.0]	**1.0 J [0.96 J]**	**1,300 J [1,700 J]**	**2.8 J [3.5 J]**	<500 [<500]
	10/14			<10 J [<10 J]	**1.3 [0.88 J]**	**0.18 J [0.12 J]**	<1.0 [<1.0]	**0.42 J [0.26 J]**	<1.0 [<1.0]	**1.2 J [0.46 J]**	**3.8 J [3.1 J]**	**2.8 [2.4]**	<500 [<500]
	3/15			<10 [<10]	**1.1 [0.99 J]**	**0.31 J [0.43 J]**	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	**0.81 J [0.75 J]**	**170 [150]**	**2.2 [1.7]**	<500 [<500]
PZ-4D	3/09	350.8	345.9	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	4/10			<10	<1.0	<1.0	**5.3 J**	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	6/10			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	NA	NA	NA
	4/11			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	NA
	4/12			<2.7	<0.080	<0.10	<0.18	**0.23 J**	<0.090	<0.36	<1.8	<0.21	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<4.8	<0.95	NA
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	NA
	10/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	4/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	10/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
PZ-4S	3/09	362.79	357.88	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.0	<0.5	<500
	4/10			<10	<1.0	<1.0	**17**	<1.0	<1.0	<3.0	<5.0	<1.0	<500
	6/10			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	NA	NA	NA
	4/11			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.3	<1.1	NA
	4/12			<2.7	<0.080	<0.10	<0.18	<0.15	<0.090	<0.36	<1.8	<0.21	NA
	4/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<5.2	<1.0	NA
	7/13			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	NA
	1/14			<10 J	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10	<1.0	NA
	10/14			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<11	<1.1	NA
	4/15			<10	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<10 J	<1.0 J	NA

See Notes on Page 8.

Table 3
Summary of Groundwater Monitoring Data, March 2009 through April 2015
Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

General Notes:

1. Concentrations are presented in micrograms per liter, which is equivalent to parts per billion (ppb).
2. Compounds detected are indicated by bold-faced type.
3. Detections exceeding NYSDEC Groundwater Standards (TOGS 1.1.1; NYSDEC 1998) are indicated by shading.
4. Duplicate sample results are presented in brackets (e.g., [14]).
5. The sampling event in June 2010 was an interim sampling event to check for the presence of methylene chloride.
6. Results following the April 2013 sampling event reflect groundwater quality conditions after the shutdown of the in-situ bioremediation treatment and closed loop hydraulic systems.

Superscript Notes:

[A] = Data presented is total xylenes (m- and p-xylenes and o-xylenes).
[B] = Wells MW-8S and TW-02R were abandoned in August 2004 and replacement wells MW-8SR and TW-02RR were installed in August 2004.
[C] = Well MW-9 was abandoned during Operable Unit No. 1 soil remediation activities (1994).
[D] = Well/piezometer MW-17 was abandoned from November 1997 through January 1998.
[E] = Wells/piezometers MW-36, PZ-5S, PZ-W, and TW-02RR were abandoned in November 2010. Replacement wells TW-02RRR (replaced TW-02RR) and MW-36R (replaced MW-36 and PZ-W) were installed in November 2010.
[F] = Detections of acetone at well MW-29 since the October 2014 sampling event are attributed to the repair of the PVC stick-up on June 26, 2014, and are not site-related.
[G] = Methanol has a New York State Department of Health drinking water standard of 50 ppb. This standard (i.e., maximum contaminant level) is for an "unspecified organic contaminant" (NYCRR Title 10, Part 5, Subpart 5-1).

Abbreviations:

amsl = above mean sea level (National Geodetic Vertical Datum of 1929)
NA = compound was not analyzed for in the sample
NYCRR = New York State Codes, Rules, and Regulations
NYSDEC = New York State Department of Environmental Conservation
PVC = polyvinyl chloride
TOGS = Technical and Operational Guidance Series

Analytical Qualifiers:

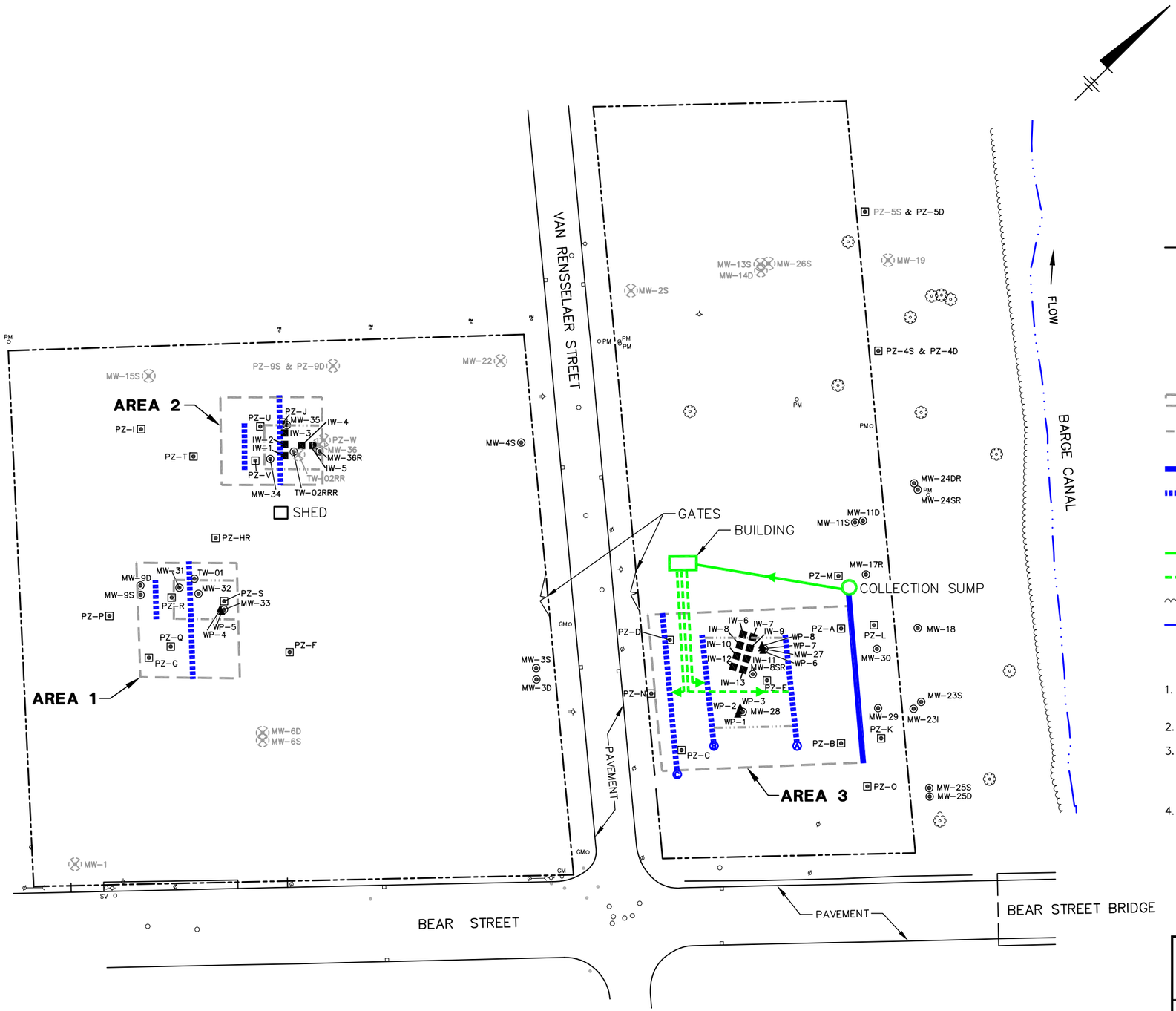
B = The compound was found in associated method blank.
D = Concentration is based on a diluted sample analysis.
J = The compound was positively identified; however, the numerical value is an estimated concentration only.
< = Compound was not detected at the listed quantitation limit.

Reference:

NYSDEC. 1998. Technical Operational Guidance Series 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June. Available online at: http://www.dec.ny.gov/docs/water_pdf/togs111.pdf

ARCADIS

Figures



LEGEND:

- UTILITY POLE
- CATCH BASIN
- PETROLEUM PIPELINE MARKER
- GAS LINE MARKER
- SEWER VENT
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- MW-19 GROUNDWATER MONITORING WELL
- PZ-A PIEZOMETER
- PZ-W REMOVED/DECOMMISSIONED WELL/PIEZOMETER
- WP-8 WELL POINT
- IW-3 OXYGEN INFUSION WELL
- APPROXIMATE BOUNDARY OF OPERABLE UNIT 2 TREATMENT AREA
- AREA OF HISTORICALLY RELATIVELY HIGHER CONCENTRATIONS OF CONSTITUENTS OF CONCERN
- GROUNDWATER WITHDRAWAL TRENCH
- GROUNDWATER INFILTRATION TRENCH
- A AREA 3 GROUNDWATER INFILTRATION TRENCH IDENTIFICATION
- PIPING TO BUILDING
- PIPING FROM BUILDING
- TREE LINE
- EDGE OF BARGE CANAL

NOTES:

1. REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
2. LOCATIONS ARE APPROXIMATE.
3. STANDPIPES ARE LOCATED IN AREAS 1 AND 2, SCREENED WITHIN THE INFILTRATION TRENCHES. ADDITIONAL STANDPIPES ARE LOCATED IN AREA 2 OUTSIDE OF THE INFILTRATION TRENCHES. STANDPIPE LOCATIONS ARE NOT SHOWN ON THE FIGURE.
4. DURING HYDRAULIC MONITORING EVENTS, BARGE CANAL SURFACE-WATER LEVELS ARE MEASURED FROM A DEMARCATED REFERENCE POINT AT THE CENTER OF THE BEAR STREET BRIDGE (LOCATION NOT SHOWN ON THIS FIGURE).

0 100' 200'

GRAPHIC SCALE

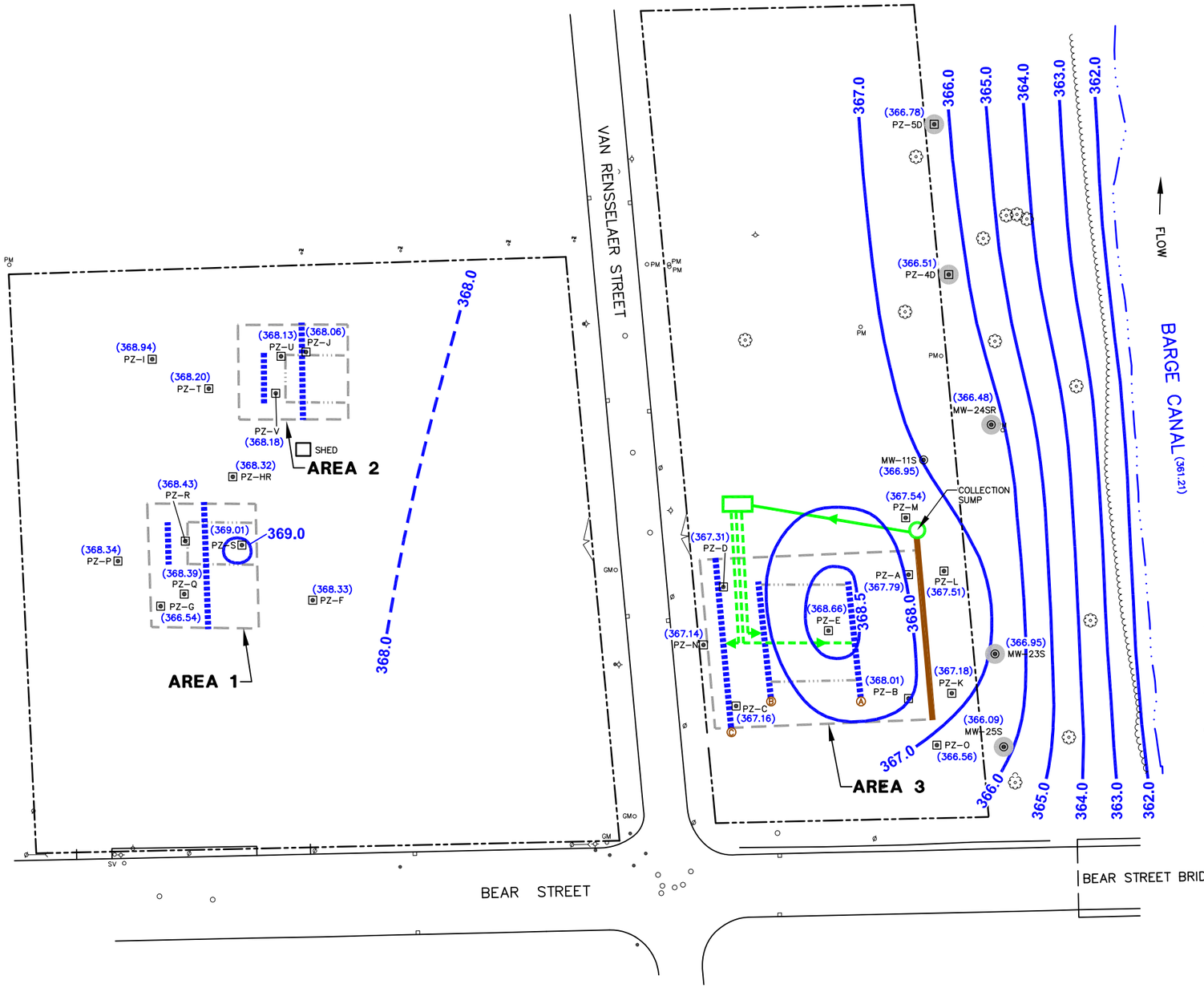
McKESSON ENVIROSYSTEMS SITE
SYRACUSE, NEW YORK
MONITORING MEMORANDUM

SITE PLAN

ARCADIS

FIGURE 1

CITY: SYRACUS, NY DIV/GROUP: ENV/IM-DV DB: LAF, GMS, K.SARTORI, R.ALLEN LD: PIC: PM: B.BYRNES TM: LYR:ON=*;OFF=*REF; |AREA-HIGHER, |TREE
G:\ENV\CAD\SYRACUSE\ACTIB\00260032014\001900\DWG\MONITOR-MEMO\26003B13.DWG LAYOUT: 1 SAVED: 2/10/2015 10:16 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/10/2015 10:16 AM BY: ALLEN, ROYCE
XREFS: 26003X01
26003XBL
IMAGES: PROJECTNAME: —



LEGEND:

- UTILITY POLE
- CATCH BASIN
- PETROLEUM PIPELINE MARKER
- GAS LINE MARKER
- SEWER VENT
- HYDRANT
- WATER VALVE
- MANHOLE
- EDGE OF BARGE CANAL
- PROPERTY LINE
- MW-11S — GROUNDWATER MONITORING WELL
- OR — DOWNGRADIENT PERIMETER GROUNDWATER MONITORING LOCATION
- PZ-A — PIEZOMETER
- APPROXIMATE BOUNDARY OF AREA
- AREA OF HISTORICALLY RELATIVELY HIGHER CONCENTRATIONS OF CONSTITUENTS OF CONCERN
- GROUNDWATER WITHDRAWAL TRENCH
- A — GROUNDWATER INFILTRATION TRENCH AND IDENTIFICATION
- PIPING TO BUILDING
- PIPING FROM BUILDING
- (366.48) — GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL)
- 366.0 — GROUNDWATER ELEVATION CONTOUR (FEET AMSL) DASHED WHERE INFERRED

NOTES:

1. GROUNDWATER ELEVATIONS REFLECT HYDROGEOLOGIC CONDITIONS AFTER THE APRIL 2013 SHUTDOWN OF THE IN-SITU BIOREMEDIATION TREATMENT AND CLOSED LOOP HYDRAULIC SYSTEMS.
2. ONLY THE HYDRAULIC MONITORING LOCATIONS USED TO DRAW THIS MAP ARE SHOWN.
3. REPLACED MONITORING WELLS AND PIEZOMETERS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
4. ELEVATIONS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
5. THE BARGE CANAL ELEVATION WAS MEASURED FROM A MARKED POINT ON THE BEAR STREET BRIDGE.
6. CONTOUR INTERVAL = 1.0 FOOT.

0 100' 200'

GRAPHIC SCALE

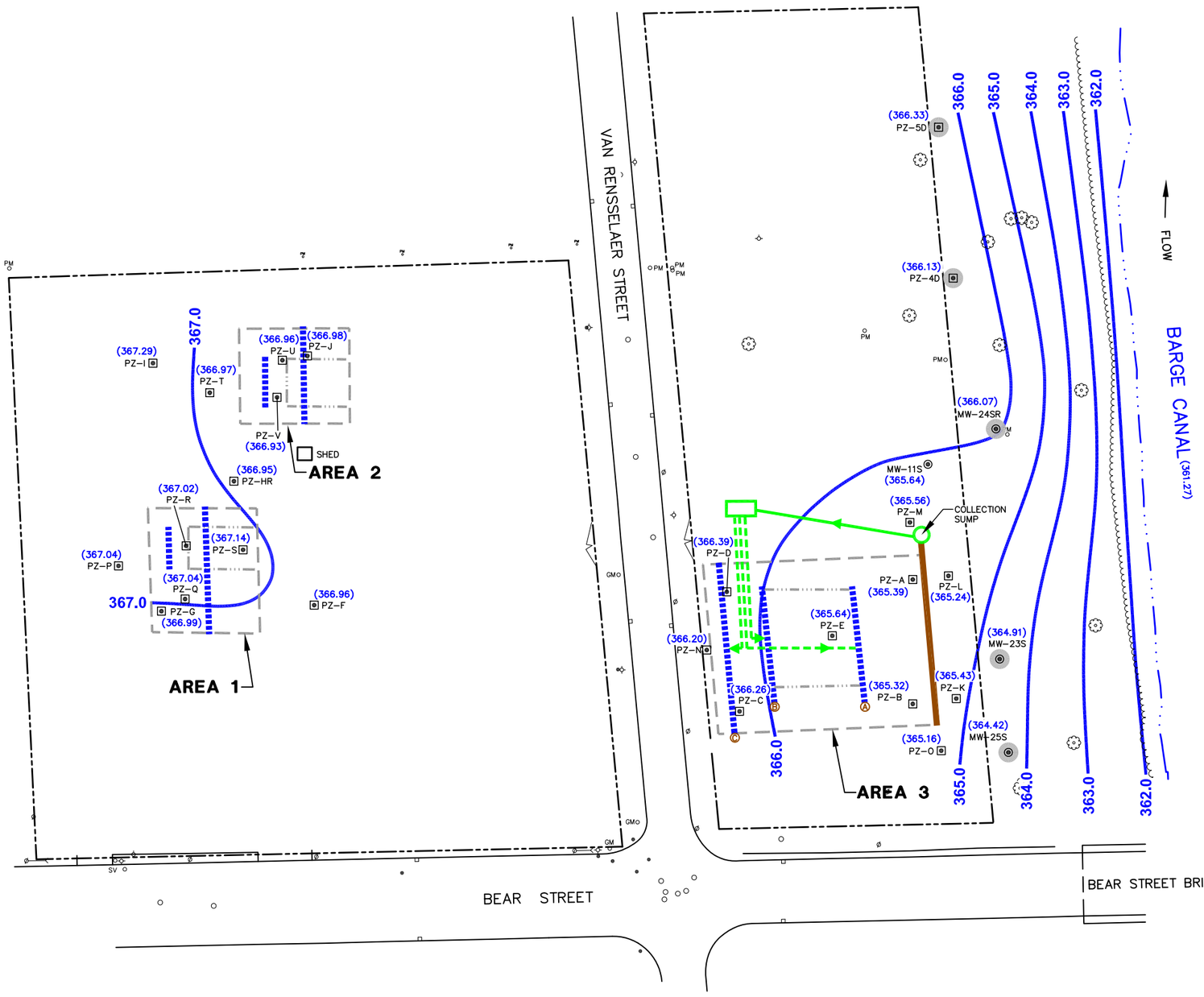
McKESSON ENVIROSYSTEMS SITE
SYRACUSE, NEW YORK
MONITORING MEMORANDUM

POTENTIOMETRIC SURFACE OF THE SHALLOW HYDROGEOLOGIC UNIT SAND LAYER MARCH 30, 2015

ARCADIS

FIGURE **2**

CITY: SYRACUSE, N.Y. DIV/GROUP: ENV/IM-DV DB: N. SMITHGALL, R. BASSETT, R. ALLEN PM/TM: D. PENNIMAN TR: C. SOBOL LYR: ON=*;OFF=*REF
G:\ENV\CAD\SYRACUSE\ACTIB\0026003\2015\001900\MONITOR-MEMO\26003W09.DWG LAYOUT: 2 SAVED: 5/26/2015 3:29 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/26/2015 3:30 PM BY: ALLEN, ROYCE
XREFS: 26003X01 26003XBL IMAGES: PROJECTNAME: ---



LEGEND:

- UTILITY POLE
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- PETROLEUM PIPELINE MARKER
- GAS LINE MARKER
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- APPROXIMATE BOUNDARY OF AREA
- AREA OF HISTORICALLY RELATIVELY HIGHER CONCENTRATIONS OF CONSTITUENTS OF CONCERN
- GROUNDWATER WITHDRAWAL TRENCH
- A — GROUNDWATER INFILTRATION TRENCH AND IDENTIFICATION
- PIPING TO BUILDING
- PIPING FROM BUILDING
- (364.91) — GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL)
- 365.0 — GROUNDWATER ELEVATION CONTOUR (FEET AMSL) DASHED WHERE INFERRED

NOTES:

1. GROUNDWATER ELEVATIONS REFLECT HYDROGEOLOGIC CONDITIONS AFTER THE APRIL 2013 SHUTDOWN OF THE IN-SITU BIOREMEDIATION TREATMENT AND CLOSED LOOP HYDRAULIC SYSTEMS.
2. ONLY THE HYDRAULIC MONITORING LOCATIONS USED TO DRAW THIS MAP ARE SHOWN.
3. REPLACED MONITORING WELLS AND PIEZOMETERS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
4. ELEVATIONS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
5. THE BARGE CANAL ELEVATION WAS MEASURED FROM A MARKED POINT ON THE BEAR STREET BRIDGE.
6. CONTOUR INTERVAL = 1.0 FOOT.

0 100' 200'

GRAPHIC SCALE

McKESSON ENVIROSYSTEMS SITE
SYRACUSE, NEW YORK
MONITORING MEMORANDUM

POTENTIOMETRIC SURFACE OF THE SHALLOW HYDROGEOLOGIC UNIT SAND LAYER MAY 14, 2015

ARCADIS

FIGURE 3

CITY: SYRACUSE, N.Y. DIV/GROUP: ENV/IM-DIV DB: N. SMITHGALL, R. BASSETT, R. ALLEN PM/TM: D. PENNIMAN TR: C. SOBOL LYR: ON=*;OFF=*REF
G:\ENVCAD\SYRACUSE\ACTIB\0026003\2015\00190\MONITOR-MEMO\26003W10.DWG LAYOUT: 3 SAVED: 5/21/2015 11:46 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/21/2015 11:46 AM BY: ALLEN, ROYCE
XREFS: 26003X01 26003XBL IMAGES: PROJECTNAME: ---

TW-02RRR

Date	10/14/2010	4/5/2011	10/27/2011	12/15/2011	4/12/2012	10/5/2012	4/8/2013	7/25/2013	10/24/13	1/24/2014	4/17/2014	10/21/2014	3/31/2015
Acetone	<10 [<10]	<10 [<10]	<10 [<10]	NA	15 J [13 J]	<10 [<10]	<10 [<10]	<10 [<10]	<10 [<10]	<10 J [<10 J]	8.0 J [10]	<10 J [<10 J]	<10 [<10]
Benzene	3.3 [3.0]	2.1 [2.0]	1.2 [1.1]	NA	1.6 [1.5]	1.1 J [0.98 J]	1.4 [1.3]	0.91 J [0.91 J]	0.60 J [0.60 J]	1.1 [1.1]	1.2 [1.2]	1.3 [0.88 J]	1.1 [0.99 J]
Ethylbenzene	1.0 [0.91 J]	1.2 [1.3]	0.67 J [0.69 J]	NA	0.73 J [0.76 J]	0.29 J [0.27 J]	0.60 J [0.64 J]	0.25 J [0.26 J]	<1.0 [0.15 J]	0.27 J [0.33 J]	0.51 J [0.44 J]	0.18 J [0.12 J]	0.31 J [0.43 J]
Methylene Chloride	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	NA	<0.18 [<0.18]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]
Toluene	0.82 J [0.76 J]	0.74 J [0.75 J]	0.53 J [0.48 J]	NA	0.51 J [0.48 J]	0.26 J [0.27 J]	0.36 J [0.38 J]	<1.0 [<1.0]	0.20 J [0.17 J]	<1.0 [<1.0]	0.18 J [0.17 J]	0.42 J [0.26 J]	<1.0 [<1.0]
Trichloroethene	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	NA	<0.090 [<0.090]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	0.15 J [0.11 J]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]
Xylenes (total)	3.6 [3.6]	5.2 [5.3]	1.5 J [1.4 J]	NA	1.6 J [1.6 J]	0.91 J [0.89 J]	1.5 J [1.5 J]	0.72 J [0.70 J]	<3.0 [<3.0]	0.69 J [0.77 J]	1.0 J [0.96 J]	1.2 J [0.46 J]	0.81 J [0.75 J]
Aniline	760 [810]	1.9 J [2.1 J]	1300 D [1500 D]	1400	1400 J [1600 J]	<5.2 [3.2 J]	620 [700]	150 [170]	90 [72]	660 [750 D]	1300 J [1700 J]	3.8 J [3.1 J]	170 [150]
N,N-Dimethylaniline	<5.0 [2.2 J]	3.4 [3.3]	5.5 [6.2]	NA	<2.2 J [<2.2 J]	2.2 [1.9]	3.5 J [3.4 J]	1.7 [1.8]	2.1 [1.4]	1.8 J [3.7]	2.8 J [3.5 J]	2.8 [2.4]	2.2 [1.7]
Methanol	<500 J [<500 J]	<500 [<500]	<500 [<500]	NA	<500 [<500]	NA	<1000 [<1000]	<1000 [<1000]	<500 [<500]	<500 [<500]	<500 [<500]	<500 [<500]	<500 [<500]

MW-35

Date	10/14/2010	4/5/2011	10/26/2011	4/11/2012	10/4/2012	4/4/2013	7/24/2013	10/23/13	1/23/2014	4/16/2014	10/21/2014	4/1/2015
Acetone	<10	<10	<10	14 J	<36 B	<10	4.2 J	<10	<10 J	<10 J	<10 J	<10
Benzene	<1.0	<1.0	<1.0	<0.080	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.44 J
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	<5.0	<5.6	<5.1	<1.8	<5.0	<5.1	<1.0 J	<5.2 J	<10	<10	<10	<10
N,N-Dimethylaniline	<1.0	<1.1	<1.0	<0.21	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0
Methanol	<500 J	<500	<500	<500	NA	470 J	<1000	<500	<500	<500	<500	<500

MW-34

Date	10/14/2010	4/5/2011	10/26/2011	4/12/2012	10/4/2012	4/8/2013	7/26/2013	10/24/13	1/24/2014	4/17/2014	10/21/2014	3/31/2015
Acetone	20	16	350	37 J	61	26 J	32	15	15 J	57	31 J	32
Benzene	1	1.7	1.2	1.3	1.6	1.3	1.3	1.2	0.91 J	1.4	1.4	1.5
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	0.11 J	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	0.44 J	0.74 J	0.71 J	0.59 J	0.78 J	0.60 J	0.66 J	0.69 J	0.44 J	0.62 J	0.75 J	0.94 J
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	0.13 J	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	1.3 J	2.0 J	0.90 J	1.4 J	2.2 J	2.3 J	2.0 J	2.2 J	1.3 J	3.6	1.9 J	3.3
Aniline	1.8 J	10	<5.6	2.1 J	<5.2	<4.8	0.56 J	<5.0	<10	2.6 J	0.77 J	<10
N,N-Dimethylaniline	2.9	2.7	2.5	2.4	2.7	1.7	0.92 J	1.3	1.9	1.6	1.9	2.7
Methanol	<500 J	<500	<500	<500	NA	<1000	NA	<500	<500	<500	<500	<500

MW-36R

Date	10/14/2010	4/5/2011	10/26/2011	12/15/2011	4/12/2012	10/5/2012	4/8/2013	7/26/2013	10/24/13	1/24/14	4/17/2014	10/21/2014	3/31/2015
Acetone	12	<10	<10	NA	6.3 J	<10	<10	<10	<10	<10 J	5.5 J	<10 J	<10
Benzene	3.9	4.3	1.8	NA	1.6	1.5 J	1.8	1.4	1.3	1.2	1.1	0.62 J	0.85 J
Ethylbenzene	0.28 J	<1.0	<1.0	NA	0.16 J	<1.0	0.14 J	0.11 J	<1.0	<1.0	0.12 J	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	NA	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	1.2	0.95 J	0.66 J	NA	0.45 J	0.54 J	0.53 J	0.46 J	0.45 J	0.42 J	0.42 J	0.32 J	0.42 J
Trichloroethene	<1.0	<1.0	<1.0	NA	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	4.8	4.4	1.4 J	NA	1.9 J	2.2 J	2.9 J	1.7 J	1.7 J	1.4 J	1.6 J	0.60 J	0.88 J
Aniline	620	310	92	120	150	10	150	97	110	180	140	74	25
N,N-Dimethylaniline	<5.0	4.0	3.6	NA	4.1	3.1	4.0	2.0	1.9	4.1	3.4	3.3	3.8
Methanol	<500 J	NA	NA	NA	NA	NA	NA	<1000	NA	NA	NA	NA	NA

MW-4S

Date	4/11/2012	7/24/2013	4/16/2014	4/1/2015
Acetone	<2.7	<10	<10	<10
Benzene	<0.080	<1.0	<1.0	<1.0
Ethylbenzene	<0.10	<1.0	<1.0	<1.0
Methylene Chloride	<0.18	<1.0	<1.0	<1.0
Toluene	<0.15	<1.0	<1.0	<1.0
Trichloroethene	<0.090	<1.0	<1.0	<1.0
Xylenes (total)	<0.36	<3.0	<3.0	<3.0
Aniline	<1.8	<1.0	<10	<10
N,N-Dimethylaniline	<0.21	<1.0	<1.0	<1.0
Methanol	NA	NA	NA	NA

TW-01

Date	10/12/2010	4/4/2011	10/25/2011	4/11/2012	10/4/2012	4/4/2013	7/25/2013	10/23/13	1/23/14	4/17/2014	10/22/2014	3/31/2015
Acetone	<10	<10	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10 J	<10 J
Benzene	<1.0	0.21 J	<1.0	0.11 J	<1.0	0.090 J	0.11 J	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0 J	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	0.19 J	<3.0
Aniline	<5.3	<5.3	<5.6	<1.8	<5.2	<5.2	<1.0	<5.0	<10	<10	<10	<11
N,N-Dimethylaniline	1.3	<1.1	1.6	1.7	1.9	0.98 J	1.0	1.1	0.98 J	1.3	1.4	1.1
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	<500	<500	<500	<500

MW-3S

Date	10/12/2010	4/6/2011	10/27/2011	4/11/2012	10/4/2012	4/4/2013	7/24/2013	10/23/13	1/22/14	4/15/2014	10/21/2014	4/2/2015
Acetone	<10	<10	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10 J	<10
Benzene	<1.0	<1.0	<1.0	<0.080	0.27 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.35 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	<5.2	<5.3 J	<5.0	<1.8	<5.0	<5.2	<1.0	<5.0	<10	<10	<10	<10
N,N-Dimethylaniline	<1.0	<1.1 J	<1.0	<0.21	<0.61 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

MW-33

Date	10/12/2010	4/5/2011	10/26/2011	4/11/2012	10/5/2012	4/4/2013	7/24/2013	10/23/13	1/23/14	4/17/2014	10/22/2014	4/1/2015
Acetone	<10	<10	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10 J	<10
Benzene	1.7	0.79 J	0.58 J	0.11 J	0.33 J	1.1	0.46 J	1.1	0.69 J	1.1	0.45 J	0.57 J
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.12 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	<5.1	<5.3	<5.3	<1.8	<5.1	<4.8 J	<1.0	<5.0	<10	0.32 J	<10	<11
N,N-Dimethylaniline	2.7	1.9	1.9	1.3	2.1 J	2.1 J	0.96 J	0.69 J	1.7	2.3	1.3	2.2
Methanol	NA	NA	NA	NA	NA	NA	<1000	NA	NA	NA	NA	NA

MW-9S

Date	10/13/2010	4/5/2011	10/25/2011	4/12/2012	10/5/2012	4/8/2013	7/26/2013	10/25/2013	1/24/14	4/18/2014	10/22/2014	4/1/2015
Acetone	<10	<10	<10	7.5 J	<10	12 J	<10	<5.0	<10 J	<10	<10 J	<10
Benzene	1.3	0.91 J	1.2	1.1	1.9 J	0.95 J	1.9	2.9	1.1	1.0	1.5	1.4
Ethylbenzene	11	29	4.2	18	4.7	19	12	10	13	19	8.8	22
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	1.9	2.6	1.8	1.5	3.2	1.6	2.0	2.6	1.6	2.2	2.2	2.5
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.82 J	<1.0
Xylenes (total)	45	89	41 J	67	84	62	45	60	54	74	72	79
Aniline	<5.1	<5.3	<5.0	<1.9	<5.0	<5.1	<1.0	<5.0	<10	<10	<10	<11
N,N-Dimethylaniline	7.5	5.4	7.6	6.3	3.9	5.9	2.0	5.2	7.2	5.7	5.9	6.5
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	<500	<500	<500	<500

MW-32

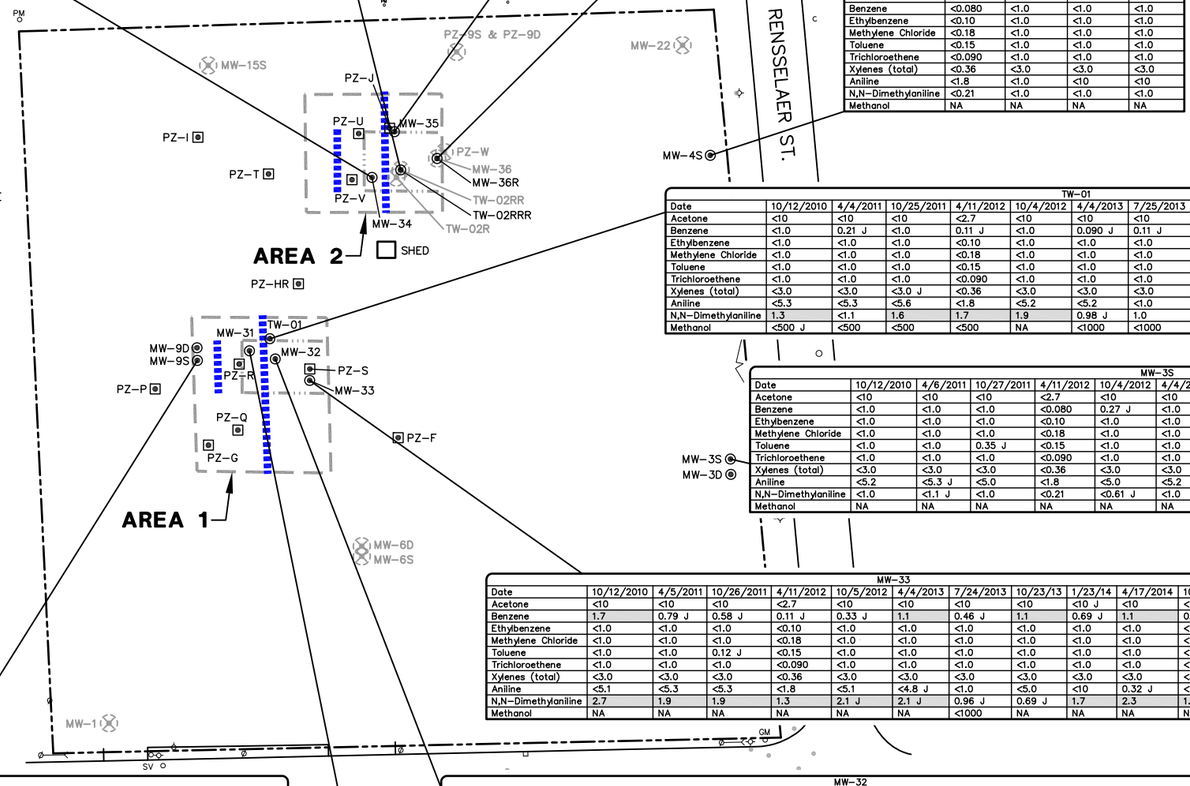
Date	10/12/2010	4/4/2011	10/25/2011	4/11/2012	10/5/2012	4/5/2013	7/25/2013	10/23/13	1/23/14	4/17/2014	10/21/2014	3/31/2015
Acetone	<10	<10	<10	<2.7	<10	0.098 J	<10	<10	<10 J	<10	<10 J	<10
Benzene	<1.0	<1.0	<1.0	<0.080	<1.0 J	<1.0	<1.0	<1.0	<1.0	<1.0	0.10 J	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.19 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.20 J	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0 J	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	<5.2	<5.3	<5.0	<1.8	<5.1	<5.1	<1.0	<5.0	<10	<10	<10	<11
N,N-Dimethylaniline	0.87 J	<1.1	1.5	1.1	2.2	0.91 J	0.82 J	1.2	0.85 J	1.1	1.5	1.1
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	<500	<500	<500	<500

MW-31

Date	10/13/2010	4/5/2011	10/25/2011	4/12/2012	10/5/2012	4/5/2013	7/25/2013	10/24/13	1/24/14	4/17/2014	10/23/2014	3/31/2015
Acetone	<10	<10	<10	6.5 J	<10	<10	<10	<10	<10 J	<10	7.1 J	<10 J
Benzene	6.9	8.3	5.7	6.8	6.3 J	12	11	11	8.2	7.5	6.5	9.1
Ethylbenzene	<1.0	<1.0	<1.0	0.16 J	0.16 J	0.21 J	<1.0	0.15 J	<1.0	0.22 J	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	0.50 J	0.77 J	0.62 J	0.65 J	0.44 J	1.3	1.2	1.4	1.2	0.93 J	1.4	1.3
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	1.5 J	2.5 J	1.5 J	2.7 J	2.3 J	5.6	5.1	6.1	6.3	4.6	4.5	8.9
Aniline	<5.3	<5.3	<5.0	<1.9	<5.0	<5.2	0.72 J	<5.2	<10	0.75 J	1.1 J	0.52 J
N,N-Dimethylaniline	3.5	2.3	3.5	2.1	0.90 J	1.1	1.6	2.2	2.2	1.9	2.2	1.6
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	NA	<500	<500	<500

NOTES:

1. REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (E.G., MW-24DR).
2. TRENCH LOCATIONS ARE APPROXIMATE.
3. MONITORING LOCATIONS ARE APPROXIMATE.
4. FIGURE ONLY SHOWS CONSTITUENT OF CONCERN (COC) CONCENTRATIONS AT MONITORING LOCATIONS WITHIN THE IMPACTED AREAS AND THE COC PROCESS CONTROL MONITORING LOCATIONS.
5. ONLY COCS WITH CURRENT OR PAST DETECTIONS ARE PRESENTED ON THIS FIGURE.
6. < = COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
7. NA = COMPOUND WAS NOT ANALYZED FOR IN THE SAMPLE.
8. J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
9. D = CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS.
10. B = COMPOUND FOUND IN ASSOCIATED METHOD BLANK.
11. SAMPLE DATA ARE COMPARED TO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) GROUNDWATER QUALITY STANDARDS (GQS) (TECHNICAL AND OPERATIONAL GUIDANCE SERIES 1.1.1).
12. NS = GQS NOT AVAILABLE.
13. RESULTS FOR DUPLICATE SAMPLES ARE SHOWN IN BRACKETS NEXT TO PARENT SAMPLE RESULTS.
14. PPB = PARTS PER BILLION.
15. RESULTS FOLLOWING THE APRIL 2013 SAMPLING EVENT REFLECT GROUNDWATER QUALITY CONDITIONS AFTER SHUTDOWN OF THE IN-SITU BIOREMEDIATION TREATMENT AND CLOSED LOOP HYDRAULIC SYSTEMS.
16. * = NEW YORK STATE DEPARTMENT OF HEALTH DRINKING WATER STANDARD (i.e., MAXIMUM CONTAMINANT LEVEL) FOR AN "UNSPECIFIED ORGANIC CONTAMINANT" (NYCRR TITLE 10, PART 5, SUBPART 5-1).



LEGEND:

- UTILITY POLE
- CATCH BASIN
- PM PETROLEUM PIPELINE MARKER
- GM GAS LINE MARKER
- SV SEWER VENT
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- TW-02RRR GROUNDWATER MONITORING WELL
- PZ-A PIEZOMETER
- TW-02R REMOVED/DECOMMISSIONED GROUNDWATER MONITORING WELL/PIEZOMETER
- APPROXIMATE BOUNDARY OF AREA
- GROUNDWATER INFILTRATION TRENCH
- AREA OF HISTORICALLY RELATIVELY HIGHER CONCENTRATION OF COCs

SAMPLE IDENTIFICATION

DETECTIONS EXCEEDING NYSDEC GQS ARE INDICATED BY SHADING.

MW-##		
Date	Sep-06	Nov-06 / Jun-07
Acetone	NA	130 J / 33
Benzene	NA	3.6 / 4.6
Ethylbenzene	NA	<4.0 / 0.80 J
Methylene Chloride	NA	<3.0 / <3.0
Toluene	NA	1.2 J / 1.4 J
Trichloroethene	NA	<1.0 / <1.0
Xylenes (total)	NA	1.1 J / 5
Aniline	3.5	420 / 1300
N,N-Dimethylaniline	1.2	1.7 J / <10
Methanol	NA	<500 / <500

NYSDEC GQS (ppb)	
Acetone	50
Benzene	1
Ethylbenzene	5
Methylene Chloride	5
Toluene	5
Trichloroethene	5
Xylenes (total)	5
Aniline	5
N,N-dimethylaniline	1
Methanol	50*

CONCENTRATION (ppb)

0 100' 200'

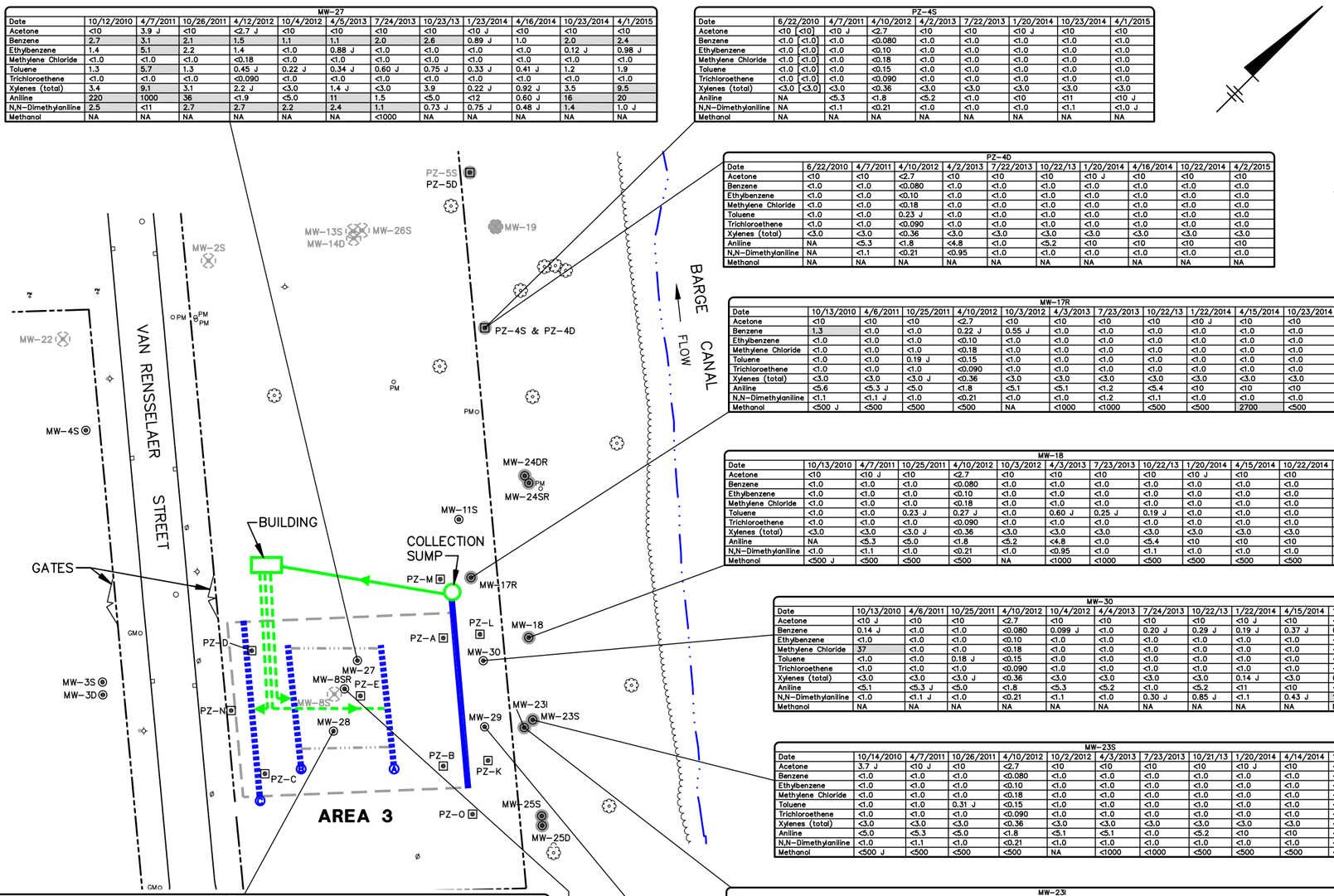
GRAPHIC SCALE

McKESSON ENVIROSYSTEMS SITE
SYRACUSE, NEW YORK
MONITORING MEMORANDUM

GROUNDWATER MONITORING DATA SUMMARY FOR OCTOBER 2010 - APRIL 2015 AREAS 1 & 2

ARCADIS

FIGURE
4



MW-27

Date	10/12/2010	4/7/2011	10/26/2011	4/12/2012	10/4/2012	4/5/2013	7/24/2013	10/23/13	1/23/2014	4/16/2014	10/23/2014	4/1/2015
Acetone	<10	3.9 J	<10	<2.7 J	<10	<10	<10	<10	<10 J	<10	<10	<10
Benzene	2.7	3.1	2.1	1.5	1.1	1.1	2.0	2.6	0.89 J	1.0	2.0	2.4
Ethylbenzene	1.4	5.1	2.2	1.4	<1.0	0.88 J	<1.0	<1.0	<1.0	<1.0	0.12 J	0.98 J
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	1.3	5.7	1.3	0.45 J	0.22 J	0.34 J	0.60 J	0.75 J	0.33 J	0.41 J	1.2	1.9
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	3.4	9.1	3.1	2.2 J	<3.0	1.4 J	<3.0	3.9	0.22 J	0.92 J	3.5	9.5
Aniline	220	1000	36	<1.9	<5.0	11	1.5	<5.0	<12	0.60 J	16	20
N,N-Dimethylaniline	2.5	<11	2.7	2.7	2.2	2.4	1.1	0.73 J	0.75 J	0.48 J	1.4	1.0 J
Methanol	NA	NA	NA	NA	NA	NA	<1000	NA	NA	NA	NA	NA

PZ-4S

Date	6/22/2010	4/7/2011	4/10/2012	4/2/2013	7/22/2013	1/20/2014	10/23/2014	4/1/2015
Acetone	<10 [<10]	<10 J	<2.7	<10	<10	<10 J	<10	<10
Benzene	<1.0 [<1.0]	<1.0	<0.080	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0 [<1.0]	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0 [<1.0]	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0 [<1.0]	<1.0	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0 [<1.0]	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0 [<3.0]	<3.0	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	NA	<5.3	<1.8	<5.2	<1.0	<10	<11	<10 J
N,N-Dimethylaniline	NA	<1.1	<0.21	<1.0	<1.0	<1.0	<1.1	<1.0 J
Methanol	NA	NA	NA	NA	NA	NA	NA	NA

PZ-4D

Date	6/22/2010	4/7/2011	4/10/2012	4/2/2013	7/22/2013	10/22/13	1/20/2014	4/16/2014	10/22/2014	4/2/2015
Acetone	<10	<10	<2.7	<10	<10	<10	<10 J	<10	<10	<10
Benzene	<1.0	<1.0	<0.080	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.23 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	NA	<5.3	<1.8	<4.8	<1.0	<5.2	<10	<10	<10	<10
N,N-Dimethylaniline	NA	<1.1	<0.21	<0.95	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

MW-17R

Date	10/13/2010	4/6/2011	10/25/2011	4/10/2012	10/3/2012	4/3/2013	7/23/2013	10/22/13	1/22/2014	4/15/2014	10/23/2014	4/2/2015
Acetone	<10	<10	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10	<10
Benzene	1.3	<1.0	<1.0	0.22 J	0.55 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.19 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0 J	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	<5.6	<5.3 J	<5.0	<1.8	<5.1	<5.1	<1.2	<5.4	<10	<10	<10	<10
N,N-Dimethylaniline	<1.1	<1.1 J	<1.0	<0.21	<1.0	<1.0	<1.2	<1.1	<1.0	<1.0	<1.0	<1.0
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	<500	2700	<500	<500

MW-18

Date	10/13/2010	4/7/2011	10/25/2011	4/10/2012	10/3/2012	4/3/2013	7/23/2013	10/22/13	1/20/2014	4/15/2014	10/22/2014	4/3/2015
Acetone	<10	<10 J	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10	<10
Benzene	<1.0	<1.0	<1.0	<0.080	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.23 J	0.27 J	<1.0	0.60 J	0.25 J	0.19 J	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0 J	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	NA	<5.3	<5.0	<1.8	<5.2	<4.8	<1.0	<5.4	<10	<10	<10	<10
N,N-Dimethylaniline	<1.0	<1.1	<1.0	<0.21	<1.0	<0.95	<1.0	<1.1	<1.0	<1.0	<1.0	<1.0
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	<500	<500	<500	<500

MW-30

Date	10/13/2010	4/6/2011	10/25/2011	4/10/2012	10/4/2012	4/4/2013	7/24/2013	10/22/13	1/22/2014	4/15/2014	10/23/2014	4/2/2015
Acetone	<10 J	<10	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10	<10
Benzene	0.14 J	<1.0	<1.0	<0.080	0.099 J	<1.0	0.20 J	0.29 J	0.19 J	0.37 J	0.18 J	0.24 J
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	37	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.18 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0 J	<0.36	<3.0	<3.0	<3.0	<3.0	0.14 J	<3.0	0.15 J	<3.0
Aniline	<5.1	<5.3 J	<5.0	<1.8	<5.3	<5.2	<1.0	<5.2	<11	<10	<10	<11
N,N-Dimethylaniline	<1.0	<1.1 J	<1.0	<0.21	<1.1	<1.0	0.30 J	0.85 J	<1.1	0.43 J	1.5	2.0
Methanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

MW-23S

Date	10/14/2010	4/7/2011	10/26/2011	4/10/2012	10/2/2012	4/3/2013	7/23/2013	10/21/13	1/20/2014	4/14/2014	10/22/2014	4/3/2015
Acetone	3.7 J	<10 J	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10	<10
Benzene	<1.0	<1.0	<1.0	<0.080	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.31 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	<5.0	<5.3	<5.0	<1.8	<5.1	<5.1	<1.0	<5.2	<10	<10	<10	<10
N,N-Dimethylaniline	<1.0	<1.1	<1.0	<0.21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	<500	<500	<500 J	<500

MW-23I

Date	10/14/2010	4/7/2011	10/26/2011	4/10/2012	10/2/2012	4/3/2013	7/23/2013	10/21/13	1/20/2014	4/14/2014	10/22/2014	4/3/2015
Acetone	<10	<10 J	<10	<2.7	<10	<10	<10	<10	<10 J	<10	<10	<10
Benzene	<1.0	<1.0	<1.0	<0.080	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	0.29 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Aniline	NA	<5.3	<5.0	<1.8	<5.6	<4.8	<1.0	<5.0	<10	<10	<10	<10
N,N-Dimethylaniline	<1.0	<1.1	<1.0	<0.21	<1.1	<0.95	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methanol	<500 J	<500	<500	<500	NA	<1000	<1000	<500	<500	<500	<500	<500

MW-28

Date	10/12/2010	4/7/2011	10/26/2011	4/11/2012	10/4/2012	4/5/2013	7/24/2013	10/23/13	1/23/2014	4/16/2014	10/23/2014	4/2/2015
Acetone	<10	4.3 J	<10	<2.7	<10	<10	<10	<10	<10 J	51	51	7.6 J
Benzene	1.8	2.3	1.8	1.4	1.9	1.7	1.7	1.7	1.2	1.7	1.3	1.6
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0 B	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.41 J	<1.0
Toluene	<1.0	0.11 J	0.38 J	0.22 J	0.16 J	<1.0	0.22 J	0.49 J	0.22 J	0.29 J	1.1	0.39 J
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0	<0.36	<3.0	<3.0	<3.0	0.68 J	<3.0	<3.0	0.90 J	0.75 J
Aniline	2.4 J	3.9 J	<5.0	<1.8	<5.0	<5.2	<1.0	<5.0	<10	<10	1.2 J	1.2 J
N,N-Dimethylaniline	0.60 J	0.75 J	<1.0	0.48 J	0.62 J	0.32 J	0.35 J	0.70 J	0.75 J	0.72 J	1.3	1.3
Methanol	<500 J	<500	<500	<500	NA	410 J	<1000	<500	<500	<500	<500	<500

MW-8SR

Date	10/12/2010	4/7/2011	10/26/2011	4/12/2012	10/4/2012	4/5/2013	7/25/2013	10/24/13	1/24/2014	4/16/2014	10/23/2014	4/2/2015
Acetone	<10	5.9 J [4.3 J]	<10 [<10]	8.7 J [6.7 J]	<10 [<10]	<10 [<10]	5.1 J [8.7 J]	<10	<10 J [<10 J]	<10 [<10]	18 J [38 J]	15 [8.4 J]
Benzene	2.7	3.2 [3.2]	1.9 [2.0]	1.2 [1.7]	0.69 J [0.70 J]	1.1 [1.1]	1.9 [1.8]	2.9	2.4 [2.6]	3.2 [3.3]	1.7 [1.9]	3.5 [3.7]
Ethylbenzene	16	10 [8.8]	2.0 [2.1]	2.3 [3.3]	0.16 J [0.14 J]	0.32 J [0.28 J]	0.17 J [0.18 J]	0.21 J	0.19 J [<1.0]	0.25 J [0.27 J]	0.16 J [0.18 J]	<1.0 [0.36 J]
Methylene Chloride	<1.0	<1.0 [<1.0]	<1.0 [<1.0]	<0.18 [<0.18]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0	<1.0 [<1.0]	<1.0 [<1.0]	0.27 J [<1.0]	<1.0 [<1.0]
Toluene	2.0	2.8 [2.6]	1.3 [1.3]	0.76 J [1.2]	0.36 J [0.39 J]	0.67 J [0.68 J]	1.0 [0.96 J]	1.3	0.94 J [1.1]	1.2 [1.1]	1.2 [1.3]	1.3 [1.2]
Trichloroethene	<1.0	<1.0 [<1.0]	<1.0 [<1.0]	<0.090 [<0.090]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]	<1.0 [<1.0]
Xylenes (total)	31	32 [31]	14 [15]	9.5 [15]	1.4 J [1.2 J]	7.7 [8.0]	11 [9.4]	13	11 [13]	13 [13]	5.9 [6.4]	19 [18]
Aniline	220	57 J [64]	<5.0 [<5.0]	<1.9 [<1.9]	<5.3 [<5.0]	<5.1 [<5.1]	2.5 [2.5]	2.6 J	5.1 J [<10]	3.9 J [5.6 J]	3.1 J [2.3 J]	2.7 J [3.6 J]
N,N-Dimethylaniline	1.6	1.5 [1.6]	2.6 [<1.0]	2.4 [2.6]	2.3 [2.7]	1.7 [1.4]	0.89 J [0.96 J]	0.83 J	2.0 [1.7]	1.4 [1.9]	1.8 [1.3]	2.6 [2.7]
Methanol	NA	NA	NA	NA	NA	NA	<1000 [<1000]	NA	NA	NA	NA	NA

MW-29

Date	10/12/2010	4/6/2011	10/25/2011	4/11/2012	10/3/2012	4/5/2013	7/23/2013	10/22/13	1/22/2014	4/15/2014	10/23/2014	12/3/2014	4/2/2015
Acetone	<10	<10	<10	<2.7	<10	<10	<10	<10	<10	<10	790000 D	370 J	12
Benzene	<1.0	<1.0	<1.0	<0.080	<1.0	<1.0	<1.0	0.26 J	0.32 J	<1.0	<500 D	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<500 D	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<500 D	<1.0	<1.0
Toluene	<1.0	<1.0	0.22 J	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<500 D	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<0.090	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<500 D	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0 J	<0.36	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<1500 D	<3.0	<3.0
Aniline	<5.2	<5.3 J	<5.0	<1.8	<5.1	<5.1	<1.0	<5.2	<11	<10	<10	NA	<12
N,N-Dimethylaniline	<1.0	<1.1 J	0.22 J	<0.21	<1.0	<1.0	<1.0	<1.0	<1.1	<1.0	<1.0	NA	0.66 J
Methanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

LEGEND:

- UTILITY POLE
- CATCH BASIN
- PETROLEUM PIPELINE MARKER
- GAS LINE MARKER
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY
- LINE EDGE OF WATER
- EDGE OF TREELINE
- TREE
- MW-19 GROUNDWATER MONITORING WELL
- PZ-A PIEZOMETER
- DOWNGRADIENT PERIMETER GROUNDWATER MONITORING LOCATION
- MW-8S REMOVED/DECOMMISSIONED GROUNDWATER MONITORING WELL/PIEZOMETER
- APPROXIMATE BOUNDARY OF AREA
- GROUNDWATER WITHDRAWAL TRENCH
- GROUNDWATER INFILTRATION TRENCH AND IDENTIFICATION
- PIPING TO BUILDING
- PIPING FROM BUILDING
- AREA OF HISTORICALLY RELATIVELY HIGHER CONCENTRATION OF COCs

NOTES:

1. REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
2. TRENCH LOCATIONS ARE APPROXIMATE.
3. MONITORING LOCATIONS ARE APPROXIMATE.
4. FIGURE ONLY SHOWS CONSTITUENT OF CONCERN (COC) CONCENTRATIONS AT MONITORING LOCATIONS WITHIN THE IMPACTED AREAS AND THE COC PROCESS CONTROL MONITORING LOCATIONS.
5. ONLY COCs WITH CURRENT OR PAST DETECTIONS ARE PRESENTED ON THIS FIGURE.
6. < = COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
7. NA = COMPOUND WAS NOT ANALYZED FOR IN THE SAMPLE.
8. J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
9. B = COMPOUND WAS FOUND IN ASSOCIATED METHOD BLANK.
10. D = CONCENTRATION IS BASED ON A DILUTED SAMPLE ANALYSIS.
11. THE 6/22/10 SAMPLING EVENT WAS AN INTERIM SAMPLING EVENT ANALYZING FOR VOLATILE ORGANIC COMPOUNDS ONLY.
12. SAMPLE DATA ARE COMPARED TO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) GROUNDWATER QUALITY STANDARDS (GQS) (TECHNICAL AND OPERATIONAL GUIDANCE SERIES 1.1.1).
13. NS = GQS NOT AVAILABLE.
14. RESULTS FOR DUPLICATE SAMPLES ARE SHOWN IN BRACKETS NEXT TO PARENT SAMPLE RESULTS.
15. ppb = PARTS PER BILLION.
16. RESULTS FOLLOWING THE APRIL 2013 SAMPLING EVENT REFLECT GROUNDWATER QUALITY CONDITIONS AFTER SHUTDOWN OF THE IN-SITU BIOREMEDIATION TREATMENT AND CLOSED LOOP HYDRAULIC SYSTEMS.
17. THE DETECTIONS OF ACETONE AT WELL MW-29 SINCE THE OCTOBER 2014 SAMPLING EVENT ARE ATTRIBUTED TO THE REPAIR OF THE PVC STICK-UP ON JUNE 26, 2014, AND ARE NOT SITE RELATED.
18. * = NEW YORK STATE DEPARTMENT OF HEALTH DRINKING WATER STANDARD (i.e., MAXIMUM CONTAMINANT LEVEL) FOR AN "UNSPECIFIED ORGANIC CONTAMINANT" (NYCRR TITLE 10, PART 5, SUBPART 5-1).

SAMPLE IDENTIFICATION

DETECTIONS EXCEEDING NYSDEC GQS ARE INDICATED BY SHADING.

PZ-#

Date	Jun-06	Jun-07	Mar-08	Mar-09	Apr-10	Jun-10	Apr-11
Acetone	<5.0	<5.0	<5.0	<10	<10	<10	<10
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<4.0	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<3.0	<3.0	<3.0	<1.0	5.3 J	<1.0	<1.0
Toluene	0.50 J	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<5.0	<5.0	<5.0	<3.0	<3.0	<3.0	<3.0
Aniline	<1.0	<5.5	<5.0	<5.0	<5.0	NA	<5.3
N,N-Dimethylaniline	<1.0	<1.1	<0.50	<0.50	<1.0	NA	<1.1
Methanol	<1000	<500	NA	NA	<500	NA	NA

NYSDEC GQS (ppb)	
Acetone	50
Benzene	1
Ethylbenzene	5
Methylene Chloride	5
Toluene	5
Trichloroethene	5
Xylenes (total)	5
Aniline	5
N,N-dimethylaniline	1
Methanol	50*

CONCENTRATION (ppb)

0 100' 200'

GRAPHIC SCALE

McKESSON ENVIROSYSTEMS SITE
SYRACUSE, NEW YORK
MONITORING MEMORANDUM

GROUNDWATER MONITORING DATA SUMMARY FOR OCTOBER 2010 - APRIL 2015 AREA 3

ARCADIS

FIGURE **5**

CITY:SYRACUSE, N.Y. DIV/GROUP:ENV/IM-DV DB:N. SMITHGALL, P. LISTER, R. ALLEN PM/TM:D. PENNIMAN TR:C. SOBOL LYR:ON=*;OFF=REF. (FRZ)
G:\ENVCAD\SYRACUSE\ACTIB\00260030\2015\001901\MONITOR-MEMO\26003C28.DWG LAYOUT:1 SAVED:5/26/2015 2:06 PM ACADVER:19.1S (LMS TECH) PAGESETUP:--- PLOTSTYLETABLE:PLTFULL.CTB PLOTTED:5/26/2015 2:06 PM BY:ALLEN, ROYCE
PROJECTNAME:---
IMAGES:
XREFS:
26003X01
26003XBL

Attachment A

Validated Analytical Laboratory Reports

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

McKesson Bear Street

Data Usability Summary Report (DUSR)

SYRACUSE, NEW YORK

Volatile Organic Compounds (VOC), Semi-volatile Organic Compounds (SVOC), and Non-halogenated Organic Compound Analysis

SDG #s460-92569-1 and 460-92731-1

Analyses Performed By:
TestAmerica Laboratories
Edison, New Jersey

Report #23481R
Review Level: Tier III
Project: B0026003.2015.00010

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) #460-92569-1 and 460-92731-1 for samples collected in association with the McKesson Bear Street site in Syracuse, New York. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PCB	METH	MISC
460-92569-1	460-92569-1	MW-31	Water	3/31/2015		X	X		X	
	460-92569-2	TW-01	Water	3/31/2015		X	X		X	
	460-92569-3	MW-32	Water	3/31/2015		X	X		X	
	460-92569-4	DUP-033115	Water	3/31/2015	TW-02RRR	X	X		X	
	460-92569-5	TRIP BLANK	Water	3/31/2015		X				
	460-92569-6	MW-34	Water	3/31/2015		X	X		X	
	460-92569-7	TW-02RRR	Water	3/31/2015		X	X		X	
	460-92569-8	MW-36R	Water	3/31/2015		X	X		X	
460-92731-1	460-92731-1	MW-27	Water	4/1/2015		X	X			
	460-92731-2	MW-4S	Water	4/1/2015		X	X			
	460-92731-3	MW-35	Water	4/1/2015		X	X		X	
	460-92731-4	MW-33	Water	4/1/2015		X	X			
	460-92731-5	MW-9S	Water	4/1/2015		X	X		X	
	460-92731-6	TRIP-BLANK	Water	4/1/2015		X				

Notes:

1. The matrix spike /matrix spike duplicate (MS/MSD) analysis was performed on sample location MW-31, for VOC analysis, and on sample location MW-35, for parameters.
2. Note: Sample MW-36R was cancelled, by the client, for Methanol analysis. An unpreserved VOA vial was not provided to the Laboratory.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260C, 8270D, and 8015D as referenced in NYSDEC-ASP. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 and USEPA Region II SOPs associated with USEPA SW-846 Validating Volatile Organic Compounds by GC/MS SW-846 Method 8260B (SOP HW-24 Revision 2, October 2006).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99, and a RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

SDG	Sample Locations	Initial/Continuing	Compound	Criteria
460-92569-1	MW-31 TW-01 TRIP BLANK	CCV %D	Acetone	-21.8%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within the control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC analysis exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD exhibited acceptable recoveries and RPD recoveries within the control limits.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analyses exhibited recoveries within the control limits.

9. Field Duplicate Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit for the difference between the results of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

SDG	Sample ID/ Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
460-92569-1	TW-02RRR/ DUP-033115	Benzene	1.1	0.99 J	AC
		Ethylbenzene	0.31 J	0.43 J	AC
		Xylenes (total)	0.81 J	0.75 J	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment/Field blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS) Accuracy (%R)		X		X	
Laboratory Control Sample Duplicate (LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision RPD		X		X	
Field Duplicate RPD		X		X	
Surrogate Spike %R		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculations acceptable		X		X	
E. Reporting limits adjusted for sample dilutions		X		X	

%R Percent recovery
RPD Relative percent difference
%RSD Relative standard deviation
%D Percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD recoveries within the control limits.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit for the difference between the results of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

SDG	Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
460-92569-1	TW-02RRR/ DUP-033115	Aniline	170	150	12.5%
		n,n"-Dimethylaniline	2.2	1.7	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Quantitation transcriptions/calculations		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

NON-HALOGENATED ORGANIC COMPOUND (METHANOL) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Non-halogenated Organic Compound (Methanol) SW-846 8015	Water	14 days from collection to analysis	Cool to <6 °C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. System Performance

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

A maximum RSD of 20% or a correlation coefficient of greater than 0.99 is allowed.

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%).

All calibration criteria were within the control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

8. Field Duplicate Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit for the difference between the results of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

SDG	Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
460-92569-1	TW-02RRR/ DUP-033115	Methanol	500 U	500 U	AC

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

9. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows.

All identified compounds met the specified criteria.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR METHANOL (N-HOC)

Methanol: SW-846 8015	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
Initial calibration %RSDs		X		X	
Continuing calibration %Ds		X		X	
System performance and column resolution		X		X	

Methanol: SW-846 8015	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Compound identification and quantitation					
A. Quantitation Reports		X		X	
B. RT of sample compounds within the established RT windows		X		X	
C. Pattern identification		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	METH	MISC	
460-92569-1	460-92569-1	SW846	MW-31	Water	No	Yes	--	Yes	--	CCV %D
	460-92569-2	SW846	TW-01	Water	No	Yes	--	Yes	--	CCV %D
	460-92569-3	SW846	MW-32	Water	Yes	Yes	--	Yes	--	
	460-92569-4	SW846	DUP-033115	Water	Yes	Yes	--	Yes	--	
	460-92569-5	SW846	TRIP BLANK	Water	No	---	--	---	--	CCV %D
	460-92569-6	SW846	MW-34	Water	Yes	Yes	--	Yes	--	
	460-92569-7	SW846	TW-02RRR	Water	Yes	Yes	--	Yes	--	
	460-92569-8	SW846	MW-36R	Water	Yes	Yes	--	Yes	--	
460-92731-1	460-92731-1	SW846	MW-27	Water	Yes	Yes	--	---	--	
	460-92731-2	SW846	MW-4S	Water	Yes	Yes	--	---	--	
	460-92731-3	SW846	MW-35	Water	Yes	Yes	--	Yes	--	
	460-92731-4	SW846	MW-33	Water	Yes	Yes	--	---	--	
	460-92731-5	SW846	MW-9S	Water	Yes	Yes	--	Yes	--	
	460-92731-6	SW846	TRIP-BLANK	Water	Yes	---	--	---	--	

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Jennifer Chandler

SIGNATURE: 

DATE: May 4, 2015

PEER REVIEW: Todd Church

DATE: May 12, 2015

CHAIN OF CUSTODY/LABORAOTRY QUALIFIER DEFINITIONS/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

460-92569 Chain of Custody

92569

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
ARCADIS	DAWN PENNINGTON	3/31/15	231166
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
6723 TOWPATH RD.	315-671-9226		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
SYRACUSE / NY / 13214	Nathan Smith	GRACE CHANG	
Project Name and Location (State)	**Carrier/Waybill Number**		
McKesson 6500 ST SYRACUSE NY			
Contract/Purchase Order/Quote No.			
60026003 2015 00010			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: VOC (Method 8260B)	SVOC (Method 8270C)	MW Metals	Special Instructions/ Conditions of Receipt
MW-31	3/31/15	1400		X			5			3			X	X	X	-1
TW-01	3/31/15	1320		X			5			3			X	X	X	-2
MW-32	3/31/15	1125		X			5			3			X	X	X	-3
DUP-033115	3/31/15	—		X			5			3			X	X	X	-4
TRIP BLANK	3/31/15	—		X						3			X			-5
MW-34	3/31/15	1450 1445		X			5			3			X	X	X	-6
TW-02RR	3/31/15	1330		X			5			3			X	X	X	-7
MW-36R	3/31/15	1120		X			8			3			X	X	X	-8

SUB Work

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Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STANDARD TAT

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	Nathan P. Smith	3/31/15	1621	Alexander Rey SYR.	3/31/15	1621
2.	Alexander Rey	3/31/15	1900			
3.	Fed Ex	4/1/15	930	Adam Lyon TA Edison	4/1/15	930

Comments

COOLER Present 2.3/4.3 °C IR#5

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

DATA REPORTING QUALIFIERS

Client: ARCADIS U.S. Inc Job Number: 460-92569-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC VOA		
	U	Indicates the analyte was analyzed for but not detected.

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-31**

Lab Sample ID: 460-92569-1
Client Matrix: Water

Date Sampled: 03/31/2015 1450
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290074	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J24997.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/03/2015 1642			Final Weight/Volume:	5 mL
Prep Date:	04/03/2015 1642				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	UJ	1.1	10
Benzene	9.1		0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.3		0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	8.9		0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		70 - 130
Bromofluorobenzene	93		64 - 135
Dibromofluoromethane (Surr)	108		72 - 137
Toluene-d8 (Surr)	99		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **TW-01**

Lab Sample ID: 460-92569-2
Client Matrix: Water

Date Sampled: 03/31/2015 1320
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290074	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J24998.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/03/2015 1707			Final Weight/Volume:	5 mL
Prep Date:	04/03/2015 1707				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	UJ	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		70 - 130
Bromofluorobenzene	92		64 - 135
Dibromofluoromethane (Surr)	106		72 - 137
Toluene-d8 (Surr)	101		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-32**

Lab Sample ID: 460-92569-3
Client Matrix: Water

Date Sampled: 03/31/2015 1125
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290231	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25024.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/04/2015 0416			Final Weight/Volume:	5 mL
Prep Date:	04/04/2015 0416				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		70 - 130
Bromofluorobenzene	93		64 - 135
Dibromofluoromethane (Surr)	110		72 - 137
Toluene-d8 (Surr)	101		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **DUP-033115**

Lab Sample ID: 460-92569-4
Client Matrix: Water

Date Sampled: 03/31/2015 0000
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290231	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25025.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/04/2015 0442			Final Weight/Volume:	5 mL
Prep Date:	04/04/2015 0442				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	0.99	J	0.19	1.0
Ethylbenzene	0.43	J	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	0.75	J	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 130
Bromofluorobenzene	94		64 - 135
Dibromofluoromethane (Surr)	110		72 - 137
Toluene-d8 (Surr)	101		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 460-92569-5TB
Client Matrix: Water

Date Sampled: 03/31/2015 0000
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290074	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J24996.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/03/2015 1616			Final Weight/Volume:	5 mL
Prep Date:	04/03/2015 1616				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	UJ	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108		70 - 130
Bromofluorobenzene	95		64 - 135
Dibromofluoromethane (Surr)	111		72 - 137
Toluene-d8 (Surr)	102		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-34**

Lab Sample ID: 460-92569-6
Client Matrix: Water

Date Sampled: 03/31/2015 1450
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290231	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25026.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/04/2015 0508			Final Weight/Volume:	5 mL
Prep Date:	04/04/2015 0508				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	32		1.1	10
Benzene	1.5		0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	0.94	J	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.3		0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 130
Bromofluorobenzene	93		64 - 135
Dibromofluoromethane (Surr)	107		72 - 137
Toluene-d8 (Surr)	102		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **TW-02RRR**

Lab Sample ID: 460-92569-7
Client Matrix: Water

Date Sampled: 03/31/2015 1330
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290231	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25027.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/04/2015 0534			Final Weight/Volume:	5 mL
Prep Date:	04/04/2015 0534				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.1		0.19	1.0
Ethylbenzene	0.31	J	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	0.81	J	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 130
Bromofluorobenzene	94		64 - 135
Dibromofluoromethane (Surr)	108		72 - 137
Toluene-d8 (Surr)	100		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-36R**

Lab Sample ID: 460-92569-8
Client Matrix: Water

Date Sampled: 03/31/2015 1120
Date Received: 04/01/2015 0930

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290231	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25028.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/04/2015 0600			Final Weight/Volume:	5 mL
Prep Date:	04/04/2015 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	0.85	J	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	0.42	J	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	0.88	J	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 130
Bromofluorobenzene	95		64 - 135
Dibromofluoromethane (Surr)	110		72 - 137
Toluene-d8 (Surr)	102		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-31**

Lab Sample ID: 460-92569-1
Client Matrix: Water

Date Sampled: 03/31/2015 1450
Date Received: 04/01/2015 0930

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290514	Instrument ID:	CBNAMS14
Prep Method:	3510C	Prep Batch:	460-290176	Lab File ID:	N4510.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/07/2015 0155			Final Weight/Volume:	2 mL
Prep Date:	04/03/2015 1343			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	0.52	J	0.20	10
n,n'-Dimethylaniline	1.6		0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	87		50 - 120
Nitrobenzene-d5 (Surr)	84		60 - 114
Terphenyl-d14 (Surr)	111		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **TW-01**

Lab Sample ID: 460-92569-2
Client Matrix: Water

Date Sampled: 03/31/2015 1320
Date Received: 04/01/2015 0930

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290784	Instrument ID:	CBNAMS13
Prep Method:	3510C	Prep Batch:	460-290176	Lab File ID:	C15075.D
Dilution:	1.0			Initial Weight/Volume:	220 mL
Analysis Date:	04/07/2015 2017			Final Weight/Volume:	2 mL
Prep Date:	04/03/2015 1343			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	11	U	0.22	11
n,n'-Dimethylaniline	1.1		0.19	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	98		50 - 120
Nitrobenzene-d5 (Surr)	89		60 - 114
Terphenyl-d14 (Surr)	102		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-32**

Lab Sample ID: 460-92569-3
Client Matrix: Water

Date Sampled: 03/31/2015 1125
Date Received: 04/01/2015 0930

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290784	Instrument ID:	CBNAMS13
Prep Method:	3510C	Prep Batch:	460-290176	Lab File ID:	C15076.D
Dilution:	1.0			Initial Weight/Volume:	220 mL
Analysis Date:	04/07/2015 2041			Final Weight/Volume:	2 mL
Prep Date:	04/03/2015 1343			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	11	U	0.22	11
n,n'-Dimethylaniline	1.1		0.19	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	83		50 - 120
Nitrobenzene-d5 (Surr)	77		60 - 114
Terphenyl-d14 (Surr)	93		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **DUP-033115**

Lab Sample ID: 460-92569-4
Client Matrix: Water

Date Sampled: 03/31/2015 0000
Date Received: 04/01/2015 0930

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290784	Instrument ID:	CBNAMS13
Prep Method:	3510C	Prep Batch:	460-290176	Lab File ID:	C15077.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/07/2015 2105			Final Weight/Volume:	2 mL
Prep Date:	04/03/2015 1343			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	150		0.20	10
n,n'-Dimethylaniline	1.7		0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	89		50 - 120
Nitrobenzene-d5 (Surr)	84		60 - 114
Terphenyl-d14 (Surr)	106		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-34**

Lab Sample ID: 460-92569-6
Client Matrix: Water

Date Sampled: 03/31/2015 1450
Date Received: 04/01/2015 0930

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290793	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290176	Lab File ID:	M91839.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/07/2015 2110			Final Weight/Volume:	2 mL
Prep Date:	04/03/2015 1343			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.20	10
n,n'-Dimethylaniline	2.7		0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	86		50 - 120
Nitrobenzene-d5 (Surr)	100		60 - 114
Terphenyl-d14 (Surr)	92		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **TW-02RRR**

Lab Sample ID: 460-92569-7
Client Matrix: Water

Date Sampled: 03/31/2015 1330
Date Received: 04/01/2015 0930

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290793	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290176	Lab File ID:	M91840.D
Dilution:	1.0			Initial Weight/Volume:	250 mL
Analysis Date:	04/07/2015 2132			Final Weight/Volume:	2 mL
Prep Date:	04/03/2015 1343			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	170		0.19	10
n,n'-Dimethylaniline	2.2		0.17	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	87		50 - 120
Nitrobenzene-d5 (Surr)	98		60 - 114
Terphenyl-d14 (Surr)	99		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-36R**

Lab Sample ID: 460-92569-8
Client Matrix: Water

Date Sampled: 03/31/2015 1120
Date Received: 04/01/2015 0930

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290793	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290176	Lab File ID:	M91841.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/07/2015 2154			Final Weight/Volume:	2 mL
Prep Date:	04/03/2015 1343			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	25		0.20	10
n,n'-Dimethylaniline	3.8		0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	84		50 - 120
Nitrobenzene-d5 (Surr)	93		60 - 114
Terphenyl-d14 (Surr)	95		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-31**

Lab Sample ID: 460-92569-1
Client Matrix: Water

Date Sampled: 03/31/2015 1450
Date Received: 04/01/2015 0930

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1602			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	89		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **TW-01**

Lab Sample ID: 460-92569-2
Client Matrix: Water

Date Sampled: 03/31/2015 1320
Date Received: 04/01/2015 0930

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1610			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	102		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-32**

Lab Sample ID: 460-92569-3
Client Matrix: Water

Date Sampled: 03/31/2015 1125
Date Received: 04/01/2015 0930

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1617			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	95		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **DUP-033115**

Lab Sample ID: 460-92569-4
Client Matrix: Water

Date Sampled: 03/31/2015 0000
Date Received: 04/01/2015 0930

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1625			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	95		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **MW-34**

Lab Sample ID: 460-92569-6
Client Matrix: Water

Date Sampled: 03/31/2015 1450
Date Received: 04/01/2015 0930

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1633			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	86		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92569-1

Client Sample ID: **TW-02RRR**

Lab Sample ID: 460-92569-7
Client Matrix: Water

Date Sampled: 03/31/2015 1330
Date Received: 04/01/2015 0930

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1641			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	95		62 - 129

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIR

460-92731 Chain of Custody

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
ARCADIS	DAWN KENNAMAN	4/1/15	231167
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
6723 TOWPATH RD.	315-671-9229		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	**Analysis (Attach list if more space is needed)**
SYRACUSE / NY / 13214	Nathan Smith	GRACE CHANG	
Project Name and Location (State)	**Carrier/Waybill Number**		
MARCELLUS BEAM STREET NY			
Contract/Purchase Order/Quote No.			
B002600S.2015.00010			

92731

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	SVOC	MeOH Rinsate	VOC	MS/MSD											Special Instructions/ Conditions of Receipt	
MW-27	4/1/15	1525		X			2			3			X		X													1
MW-45		1545		X			2			3			X		X													2
MW-35		1200		X			15			9			X	X	X	X											MS/MSD	3
MW-33		1135		X			2			3			X		X													4
MW-95		1340		X			5			3			X	X	X													5
TRIP BLANK ~~4012015~~		~~0000~~		X			1								X													6
																												7

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Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STANDARD

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	Alicia Schaffer	4/1/15	17:08	SXR	4/1/15	1700
2.		4/1/15	1900			
3.					4/2/15	09:08

Comments: Client Custody Seal — 2.3/5.3° R5

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

DATA REPORTING QUALIFIERS

Client: ARCADIS U.S. Inc Job Number: 460-92731-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC VOA		
	U	Indicates the analyte was analyzed for but not detected.

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-27**

Lab Sample ID: 460-92731-1
Client Matrix: Water

Date Sampled: 04/01/2015 1525
Date Received: 04/02/2015 0958

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290857	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25160.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0155			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0155				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	2.4		0.19	1.0
Ethylbenzene	0.98	J	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.9		0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	9.5		0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	111		70 - 130
Bromofluorobenzene	98		64 - 135
Dibromofluoromethane (Surr)	115		72 - 137
Toluene-d8 (Surr)	104		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-4S**

Lab Sample ID: 460-92731-2
Client Matrix: Water

Date Sampled: 04/01/2015 1545
Date Received: 04/02/2015 0958

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290857	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25161.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0221			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0221				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 130
Bromofluorobenzene	93		64 - 135
Dibromofluoromethane (Surr)	114		72 - 137
Toluene-d8 (Surr)	102		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-35**

Lab Sample ID: 460-92731-3
Client Matrix: Water

Date Sampled: 04/01/2015 1200
Date Received: 04/02/2015 0958

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290857	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25159.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0129			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0129				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	0.44	J	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 130
Bromofluorobenzene	97		64 - 135
Dibromofluoromethane (Surr)	112		72 - 137
Toluene-d8 (Surr)	103		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-33**

Lab Sample ID: 460-92731-4
Client Matrix: Water

Date Sampled: 04/01/2015 1135
Date Received: 04/02/2015 0958

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290857	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25162.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0247			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0247				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	0.57	J	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 130
Bromofluorobenzene	94		64 - 135
Dibromofluoromethane (Surr)	111		72 - 137
Toluene-d8 (Surr)	103		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-9S**

Lab Sample ID: 460-92731-5
Client Matrix: Water

Date Sampled: 04/01/2015 1340
Date Received: 04/02/2015 0958

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290857	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25163.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0312			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0312				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.4		0.19	1.0
Ethylbenzene	22		0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	2.5		0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	79		0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108		70 - 130
Bromofluorobenzene	94		64 - 135
Dibromofluoromethane (Surr)	102		72 - 137
Toluene-d8 (Surr)	103		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **TRIP-BLANK**

Lab Sample ID: 460-92731-6TB
Client Matrix: Water

Date Sampled: 04/01/2015 0000
Date Received: 04/02/2015 0958

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290857	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25158.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0103			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0103				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 130
Bromofluorobenzene	95		64 - 135
Dibromofluoromethane (Surr)	111		72 - 137
Toluene-d8 (Surr)	103		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-27**

Lab Sample ID: 460-92731-1
Client Matrix: Water

Date Sampled: 04/01/2015 1525
Date Received: 04/02/2015 0958

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290667	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290307	Lab File ID:	M91804.D
Dilution:	1.0			Initial Weight/Volume:	230 mL
Analysis Date:	04/07/2015 0516			Final Weight/Volume:	2 mL
Prep Date:	04/04/2015 1008			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	20		0.21	11
n,n'-Dimethylaniline	1.0	J	0.18	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	87		50 - 120
Nitrobenzene-d5 (Surr)	96		60 - 114
Terphenyl-d14 (Surr)	93		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-4S**

Lab Sample ID: 460-92731-2
Client Matrix: Water

Date Sampled: 04/01/2015 1545
Date Received: 04/02/2015 0958

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290667	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290307	Lab File ID:	M91805.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/07/2015 0539			Final Weight/Volume:	2 mL
Prep Date:	04/04/2015 1008			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.20	10
n,n'-Dimethylaniline	1.0	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	85		50 - 120
Nitrobenzene-d5 (Surr)	96		60 - 114
Terphenyl-d14 (Surr)	91		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-35**

Lab Sample ID: 460-92731-3
Client Matrix: Water

Date Sampled: 04/01/2015 1200
Date Received: 04/02/2015 0958

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290667	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290307	Lab File ID:	M91798.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/07/2015 0303			Final Weight/Volume:	2 mL
Prep Date:	04/04/2015 1008			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.20	10
n,n'-Dimethylaniline	1.0	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	89		50 - 120
Nitrobenzene-d5 (Surr)	97		60 - 114
Terphenyl-d14 (Surr)	97		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-33**

Lab Sample ID: 460-92731-4
Client Matrix: Water

Date Sampled: 04/01/2015 1135
Date Received: 04/02/2015 0958

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290667	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290307	Lab File ID:	M91806.D
Dilution:	1.0			Initial Weight/Volume:	220 mL
Analysis Date:	04/07/2015 0601			Final Weight/Volume:	2 mL
Prep Date:	04/04/2015 1008			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	11	U	0.22	11
n,n'-Dimethylaniline	2.2		0.19	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	91		50 - 120
Nitrobenzene-d5 (Surr)	96		60 - 114
Terphenyl-d14 (Surr)	97		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-9S**

Lab Sample ID: 460-92731-5
Client Matrix: Water

Date Sampled: 04/01/2015 1340
Date Received: 04/02/2015 0958

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290667	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290307	Lab File ID:	M91807.D
Dilution:	1.0			Initial Weight/Volume:	220 mL
Analysis Date:	04/07/2015 0623			Final Weight/Volume:	2 mL
Prep Date:	04/04/2015 1008			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	11	U	0.22	11
n,n'-Dimethylaniline	6.5		0.19	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	85		50 - 120
Nitrobenzene-d5 (Surr)	87		60 - 114
Terphenyl-d14 (Surr)	93		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-35**

Lab Sample ID: 460-92731-3
Client Matrix: Water

Date Sampled: 04/01/2015 1200
Date Received: 04/02/2015 0958

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1530			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	103		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92731-1

Client Sample ID: **MW-9S**

Lab Sample ID: 460-92731-5
Client Matrix: Water

Date Sampled: 04/01/2015 1340
Date Received: 04/02/2015 0958

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-234872	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/08/2015 1709			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	115		62 - 129

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Data Usability Summary Report (DUSR)

SYRACUSE, NEW YORK

Volatile Organic Compounds (VOC), Semi-volatile Organic Compounds (SVOC), and Non-halogenated Organic Compound Analysis

SDGs #460-92783-1 and 460-92794-1

Analyses Performed By:
TestAmerica Laboratories
Edison, New Jersey

Report #23482R
Review Level: Tier III
Project: B0026003.2015.00010

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) #460-92783-1 and 460-92794-1 for samples collected in association with the McKesson Bear Street site in Syracuse, New York. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PCB	METH	MISC
460-92783-1	MW-30	460-92783-1	Water	4/2/2015		X	X			
	MW-28	460-92783-2	Water	4/2/2015			X		X	
	MW-29	460-92783-3	Water	4/2/2015		X	X			
	MW-8SR	460-92783-4	Water	4/2/2015		X	X			
	DUP-040215	460-92783-5	Water	4/2/2015		X	X			
	MW-17R	460-92783-6	Water	4/2/2015		X	X		X	
	MW-3S	460-92783-7	Water	4/2/2015		X	X			
	PZ-4D	460-92783-8	Water	4/2/2015		X	X			
	TRIP BLANK	460-92783-9	Water	4/2/2015		X				
460-92794-1	MW-1B	460-92794-1	Water	4/3/2015		X	X		X	
	MW-23I	460-92794-2	Water	4/3/2015		X	X		X	
	MW-23S	460-92794-3	Water	4/3/2015		X	X		X	
	TRIP BLANK	460-92794-4	Water	4/3/2015		X				

Notes:

1. The matrix spike /matrix spike duplicate (MS/MSD) analysis was performed on sample location MW-1B for all parameters.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260C, 8270D, and 8015D as referenced in NYSDEC-ASP. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 and USEPA Region II SOPs associated with USEPA SW-846 Validating Volatile Organic Compounds by GC/MS SW-846 Method 8260B (SOP HW-24 Revision 2, October 2006).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99, and a RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within the control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC analysis exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD exhibited acceptable recoveries and RPD recoveries within the control limits.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit for the difference between the results of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

SDG	Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
460-92783-1	MW-8SR/ DUP-040215	Acetone	15	8.4 J	AC
		Benzene	3.5	3.7	AC
		Toluene	1.3	1.2	AC
		Xylenes (total)	19	18	5.4%

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment/Field blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS) Accuracy (%R)		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision RPD		X		X	
Field Duplicate RPD		X		X	
Surrogate Spike %R		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculations acceptable		X		X	
E. Reporting limits adjusted for sample dilutions		X		X	

%R Percent recovery
RPD Relative percent difference
%RSD Relative standard deviation
%D Percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD recoveries within the control limits.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit for the difference between the results of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

SDG	Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
460-92783-1	MW-8SR/ DUP-040215	Aniline	2.7 J	3.6 J	AC
		n,n"-Dimethylaniline	2.6	2.7	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Quantitation transcriptions/calculations		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

NON-HALOGENATED ORGANIC COMPOUND (METHANOL) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Non-halogenated Organic Compound (Methanol) SW-846 8015	Water	14 days from collection to analysis	Cool to <6 °C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. System Performance

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

A maximum RSD of 20% or a correlation coefficient of greater than 0.99 is allowed.

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%).

All calibration criteria were within the control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

8. Field Duplicate Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit for the difference between the results of two times the RL is applied for water matrices.

Field Duplicate analysis was not performed on a sample location within this SDG.

9. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows.

All identified compounds met the specified criteria.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR METHANOL (N-HOC)

Methanol: SW-846 8015	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
Initial calibration %RSDs		X		X	
Continuing calibration %Ds		X		X	
System performance and column resolution		X		X	

Methanol: SW-846 8015	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Compound identification and quantitation					
A. Quantitation Reports		X		X	
B. RT of sample compounds within the established RT windows		X		X	
C. Pattern identification		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	METH	MISC	
460-92783-1	MW-30	SW846	MW-30	Water	Yes	Yes	--	---	--	
	MW-28	SW846	MW-28	Water	Yes	Yes	--	Yes	--	
	MW-29	SW846	MW-29	Water	Yes	Yes	--	---	--	
	MW-8SR	SW846	MW-8SR	Water	Yes	Yes	---	---	--	
	DUP-040215	SW846	DUP-040215	Water	Yes	Yes	--	---	--	
	MW-17R	SW846	MW-17R	Water	Yes	Yes	--	Yes	--	
	MW-3S	SW846	MW-3S	Water	Yes	Yes	--	---	--	
	PZ-4D	SW846	PZ-4D	Water	Yes	Yes	--	---	--	
	TRIP BLANK	SW846	TRIP BLANK	Water	Yes	---	---	---	---	
460-92794-1	MW-1B	SW846	MW-1B	Water	Yes	Yes	--	Yes	--	
	MW-23I	SW846	MW-23I	Water	Yes	Yes	--	Yes	--	
	MW-23S	SW846	MW-23S	Water	Yes	Yes	--	Yes	--	
	TRIP BLANK	SW846	TRIP BLANK	Water	Yes	---	--	---	--	

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Jennifer Chandler

SIGNATURE: 

DATE: May 4, 2015

PEER REVIEW: Todd Church

DATE: May 12, 2015

CHAIN OF CUSTODY/LABORAOTRY QUALIFIER DEFINITIONS/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

460-92783 Chain of Custody

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
ARCADIS	DAWN PENNIMAN	4/2/15	231175
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
6723 TOWPATH R.D.	315-671-9229		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
SYRACUSE NY 13214	Nathan Smith	GRACE CHANG	
Project Name and Location (State)	**Carrier/Waybill Number**		
MCKESSON CLARK ST. SYRACUSE NY			
Contract/Purchase Order/Quote No.			
B002600320150000			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: VOCs	SVOCs	Me Hg	Special Instructions/ Conditions of Receipt
																92783
MW-30	4/2/15	1545		X			2			3			X	X		1
MW-28		0955		X			5			3			X	X	X	2
MW-29		1155		X			2			3			X	X		3
MW-8SR		1400		X			2			3			X	X		4
DUP-040215		—		X			2			3			X	X		5
MW-17R		1410		X			5			3			X	X	X	6
MW-35		1100		X			2			3			X	X		7
MW-4D		1340		X			2			3			X	X		8
TRIP BLANK		0900		X						1			X			9
																10

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STANDARD

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1	[signature]	4/2/15	17:09	[signature] SGR	4-2-15	17:09
2	[signature]	4-2-15	19:00	2. Received By	Date	Time
3	FED EX	4/3/15	920	3. Received By [signature] TA Edison	4/3/15	920

Comments

05 present

1.6 / 3.6 OC IR #5

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

DATA REPORTING QUALIFIERS

Client: ARCADIS U.S. Inc Job Number: 460-92783-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
	F1	MS and/or MSD Recovery exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC VOA		
	U	Indicates the analyte was analyzed for but not detected.

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-30**

Lab Sample ID: 460-92783-1
Client Matrix: Water

Date Sampled: 04/02/2015 1545
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25189.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1535			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1535				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	0.24	J	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	105		70 - 130
Bromofluorobenzene	94		64 - 135
Dibromofluoromethane (Surr)	112		72 - 137
Toluene-d8 (Surr)	99		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-28**

Lab Sample ID: 460-92783-2
Client Matrix: Water

Date Sampled: 04/02/2015 0955
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25190.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1601			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1601				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	7.6	J	1.1	10
Benzene	1.6		0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	0.39	J	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	0.75	J	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 130
Bromofluorobenzene	96		64 - 135
Dibromofluoromethane (Surr)	110		72 - 137
Toluene-d8 (Surr)	102		70 - 130

Client: ARCADIS U.S. Inc | Job Number: 460-92783-1

Client Sample ID: **MW-29**

Lab Sample ID: 460-92783-3 | Date Sampled: 04/02/2015 1155
Client Matrix: Water | Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-291216	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25210.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/09/2015 1143			Final Weight/Volume:	5 mL
Prep Date:	04/09/2015 1143				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	12		1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 130
Bromofluorobenzene	94		64 - 135
Dibromofluoromethane (Surr)	111		72 - 137
Toluene-d8 (Surr)	105		70 - 130

Client: ARCADIS U.S. Inc | Job Number: 460-92783-1

Client Sample ID: **MW-8SR**

Lab Sample ID: 460-92783-4 | Date Sampled: 04/02/2015 1400
Client Matrix: Water | Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25191.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1627			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1627				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	15		1.1	10
Benzene	3.5		0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.3		0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	19		0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 130
Bromofluorobenzene	95		64 - 135
Dibromofluoromethane (Surr)	111		72 - 137
Toluene-d8 (Surr)	102		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **DUP-040215**

Lab Sample ID: 460-92783-5
Client Matrix: Water

Date Sampled: 04/02/2015 0000
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25192.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1652			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1652				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	8.4	J	1.1	10
Benzene	3.7		0.19	1.0
Ethylbenzene	0.36	J	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.2		0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	18		0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108		70 - 130
Bromofluorobenzene	96		64 - 135
Dibromofluoromethane (Surr)	110		72 - 137
Toluene-d8 (Surr)	103		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-17R**

Lab Sample ID: 460-92783-6
Client Matrix: Water

Date Sampled: 04/02/2015 1410
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25193.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1718			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1718				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	114		70 - 130
Bromofluorobenzene	92		64 - 135
Dibromofluoromethane (Surr)	111		72 - 137
Toluene-d8 (Surr)	101		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-3S**

Lab Sample ID: 460-92783-7
Client Matrix: Water

Date Sampled: 04/02/2015 1100
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25194.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1744			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1744				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	112		70 - 130
Bromofluorobenzene	99		64 - 135
Dibromofluoromethane (Surr)	114		72 - 137
Toluene-d8 (Surr)	102		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **PZ-4D**

Lab Sample ID: 460-92783-8
Client Matrix: Water

Date Sampled: 04/02/2015 1340
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25195.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1846			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1846				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108		70 - 130
Bromofluorobenzene	99		64 - 135
Dibromofluoromethane (Surr)	113		72 - 137
Toluene-d8 (Surr)	100		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 460-92783-9TB
Client Matrix: Water

Date Sampled: 04/02/2015 0800
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290980	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25181.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 1210			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 1210				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 130
Bromofluorobenzene	94		64 - 135
Dibromofluoromethane (Surr)	111		72 - 137
Toluene-d8 (Surr)	100		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-30**

Lab Sample ID: 460-92783-1
Client Matrix: Water

Date Sampled: 04/02/2015 1545
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91866.D
Dilution:	1.0			Initial Weight/Volume:	230 mL
Analysis Date:	04/08/2015 0730			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	11	U	0.21	11
n,n'-Dimethylaniline	2.0		0.18	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
Nitrobenzene-d5 (Surr)	91		60 - 114
Terphenyl-d14 (Surr)	87		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-28**

Lab Sample ID: 460-92783-2
Client Matrix: Water

Date Sampled: 04/02/2015 0955
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91867.D
Dilution:	1.0			Initial Weight/Volume:	210 mL
Analysis Date:	04/08/2015 0752			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	1.2	J	0.23	12
n,n'-Dimethylaniline	1.3		0.20	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	84		50 - 120
Nitrobenzene-d5 (Surr)	87		60 - 114
Terphenyl-d14 (Surr)	86		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-29**

Lab Sample ID: 460-92783-3
Client Matrix: Water

Date Sampled: 04/02/2015 1155
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91868.D
Dilution:	1.0			Initial Weight/Volume:	210 mL
Analysis Date:	04/08/2015 0815			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	12	U	0.23	12
n,n'-Dimethylaniline	0.66	J	0.20	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	85		50 - 120
Nitrobenzene-d5 (Surr)	90		60 - 114
Terphenyl-d14 (Surr)	87		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-8SR**

Lab Sample ID: 460-92783-4
Client Matrix: Water

Date Sampled: 04/02/2015 1400
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91869.D
Dilution:	1.0			Initial Weight/Volume:	210 mL
Analysis Date:	04/08/2015 0837			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	2.7	J	0.23	12
n,n'-Dimethylaniline	2.6		0.20	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	89		50 - 120
Nitrobenzene-d5 (Surr)	94		60 - 114
Terphenyl-d14 (Surr)	89		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **DUP-040215**

Lab Sample ID: 460-92783-5
Client Matrix: Water

Date Sampled: 04/02/2015 0000
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91870.D
Dilution:	1.0			Initial Weight/Volume:	210 mL
Analysis Date:	04/08/2015 0859			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	3.6	J	0.23	12
n,n'-Dimethylaniline	2.7		0.20	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	88		50 - 120
Nitrobenzene-d5 (Surr)	86		60 - 114
Terphenyl-d14 (Surr)	90		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-17R**

Lab Sample ID: 460-92783-6
Client Matrix: Water

Date Sampled: 04/02/2015 1410
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91871.D
Dilution:	1.0			Initial Weight/Volume:	250 mL
Analysis Date:	04/08/2015 0921			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.19	10
n,n'-Dimethylaniline	1.0	U	0.17	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	91		50 - 120
Nitrobenzene-d5 (Surr)	92		60 - 114
Terphenyl-d14 (Surr)	88		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-3S**

Lab Sample ID: 460-92783-7
Client Matrix: Water

Date Sampled: 04/02/2015 1100
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91872.D
Dilution:	1.0			Initial Weight/Volume:	250 mL
Analysis Date:	04/08/2015 0943			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.19	10
n,n'-Dimethylaniline	1.0	U	0.17	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	91		50 - 120
Nitrobenzene-d5 (Surr)	96		60 - 114
Terphenyl-d14 (Surr)	95		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **PZ-4D**

Lab Sample ID: 460-92783-8
Client Matrix: Water

Date Sampled: 04/02/2015 1340
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290814	Lab File ID:	M91873.D
Dilution:	1.0			Initial Weight/Volume:	250 mL
Analysis Date:	04/08/2015 1005			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1358			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.19	10
n,n'-Dimethylaniline	1.0	U	0.17	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	83		50 - 120
Nitrobenzene-d5 (Surr)	86		60 - 114
Terphenyl-d14 (Surr)	89		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-28**

Lab Sample ID: 460-92783-2
Client Matrix: Water

Date Sampled: 04/02/2015 0955
Date Received: 04/03/2015 0920

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-235016	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/09/2015 0946			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	108		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92783-1

Client Sample ID: **MW-17R**

Lab Sample ID: 460-92783-6
Client Matrix: Water

Date Sampled: 04/02/2015 1410
Date Received: 04/03/2015 0920

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-235016	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/09/2015 0954			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	100		62 - 129

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

460-92794 Chain of Custody

TESTING

04/15/2015

TAL-4124 (1007)

Client	Project Manager		Chain of Custody Number
ARCADIS	DAWN DENNIMAN	4/3/15	231174
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
6723 TOWPATH RD	315-671-9229		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
SYRACUSE / NY / 13214	Nathan Smith	Grace Chang	
Project Name and Location (State)	**Carrier/Waybill Number**		
McKesson Bear St. Syracuse N.Y.			
Contract/Purchase Order/Quote No.			
B0026003.2015-00010			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: VOCs	SVOCs	Methane	MS/MSD	Special Instructions/ Conditions of Receipt
MW-18	4/3/15	1120		X			15			9			X	X	X	X	MS/MSD 1
~~MW-23I~~ MW-23I	4/3/15	1200		X			5			3			X	X	Y		2
MW-23S	4/3/15	1040		X			5			3			X	X	Y		3
TRIP BLANK																	4

92794

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Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Alison Schaefer	4/3/15	13:15	1. Received By: Fedex SYR	4/3/15	13:15
2. Relinquished By: R. Reigliga, Syr	4-3-15	19:00	2. Received By: Tim Turner (Fedex)	4/4/15	11:00
3. Relinquished By			3. Received By		

Comments

Custody seal present

RS 2.9/4.9°C

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

DATA REPORTING QUALIFIERS

Client: ARCADIS U.S. Inc Job Number: 460-92794-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
GC VOA		
	U	Indicates the analyte was analyzed for but not detected.

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-1B**

Lab Sample ID: 460-92794-1
Client Matrix: Water

Date Sampled: 04/03/2015 1120
Date Received: 04/04/2015 1100

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290968	Instrument ID:	CVOAMS13
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	P97614.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0954			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0954				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	102		70 - 130
Bromofluorobenzene	111		64 - 135
Dibromofluoromethane (Surr)	113		72 - 137
Toluene-d8 (Surr)	91		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-23I**

Lab Sample ID: 460-92794-2
Client Matrix: Water

Date Sampled: 04/03/2015 1200
Date Received: 04/04/2015 1100

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290889	Instrument ID:	CVOAMS13
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	P97590.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/07/2015 2344			Final Weight/Volume:	5 mL
Prep Date:	04/07/2015 2344				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	94		70 - 130
Bromofluorobenzene	110		64 - 135
Dibromofluoromethane (Surr)	109		72 - 137
Toluene-d8 (Surr)	89		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-23S**

Lab Sample ID: 460-92794-3
Client Matrix: Water

Date Sampled: 04/03/2015 1040
Date Received: 04/04/2015 1100

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290889	Instrument ID:	CVOAMS13
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	P97591.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/08/2015 0009			Final Weight/Volume:	5 mL
Prep Date:	04/08/2015 0009				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95		70 - 130
Bromofluorobenzene	110		64 - 135
Dibromofluoromethane (Surr)	109		72 - 137
Toluene-d8 (Surr)	90		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 460-92794-4TB
Client Matrix: Water

Date Sampled: 04/03/2015 0000
Date Received: 04/04/2015 1100

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-290889	Instrument ID:	CVOAMS13
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	P97588.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/07/2015 2254			Final Weight/Volume:	5 mL
Prep Date:	04/07/2015 2254				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95		70 - 130
Bromofluorobenzene	111		64 - 135
Dibromofluoromethane (Surr)	110		72 - 137
Toluene-d8 (Surr)	91		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-1B**

Lab Sample ID: 460-92794-1
Client Matrix: Water

Date Sampled: 04/03/2015 1120
Date Received: 04/04/2015 1100

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290775	Lab File ID:	M91880.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/08/2015 1240			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1049			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.20	10
n,n'-Dimethylaniline	1.0	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	74		50 - 120
Nitrobenzene-d5 (Surr)	80		60 - 114
Terphenyl-d14 (Surr)	79		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-23I**

Lab Sample ID: 460-92794-2
Client Matrix: Water

Date Sampled: 04/03/2015 1200
Date Received: 04/04/2015 1100

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290775	Lab File ID:	M91881.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/08/2015 1302			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1049			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.20	10
n,n'-Dimethylaniline	1.0	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	69		50 - 120
Nitrobenzene-d5 (Surr)	77		60 - 114
Terphenyl-d14 (Surr)	79		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-23S**

Lab Sample ID: 460-92794-3
Client Matrix: Water

Date Sampled: 04/03/2015 1040
Date Received: 04/04/2015 1100

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-290909	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-290775	Lab File ID:	M91882.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/08/2015 1324			Final Weight/Volume:	2 mL
Prep Date:	04/07/2015 1049			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	U	0.20	10
n,n'-Dimethylaniline	1.0	U	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	76		50 - 120
Nitrobenzene-d5 (Surr)	78		60 - 114
Terphenyl-d14 (Surr)	82		72 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-1B**

Lab Sample ID: 460-92794-1
Client Matrix: Water

Date Sampled: 04/03/2015 1120
Date Received: 04/04/2015 1100

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-235016	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/09/2015 0827			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	63		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-23I**

Lab Sample ID: 460-92794-2
Client Matrix: Water

Date Sampled: 04/03/2015 1200
Date Received: 04/04/2015 1100

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-235016	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/09/2015 0851			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	101		62 - 129

Client: ARCADIS U.S. Inc

Job Number: 460-92794-1

Client Sample ID: **MW-23S**

Lab Sample ID: 460-92794-3
Client Matrix: Water

Date Sampled: 04/03/2015 1040
Date Received: 04/04/2015 1100

8015D Nonhalogenated Organic Compounds - Direct Injection (GC)

Analysis Method:	8015D	Analysis Batch:	480-235016	Instrument ID:	HP5890-4
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	
Analysis Date:	04/09/2015 0859			Injection Volume:	1 mL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Methanol	500	U	410	500

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Hexanone	101		62 - 129

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

McKesson Bear Street

Data Usability Summary Report (DUSR)

SYRACUSE, NEW YORK

Volatile Organic Compounds (VOC) and Semi-volatile Organic Compounds (SVOC) analysis

SDG #460-92783-2

Analyses Performed By:
TestAmerica Laboratories
Edison, New Jersey

Report #: 23589R
Review Level: Tier III
Project: B0026003.2015.00010

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #460-92783-2 for samples collected in association with the McKesson Bear Street site in Syracuse, New York. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	METH	MISC
PZ-4S	460-92783-10	Water	04/02/2015		X	X			

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

Note: The Client ID was incorrect on the COC, and after contact with the project team, the lab corrected the ID on the report.

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260C and 8270D as referenced in NYSDEC-ASP. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 and USEPA Region II SOPs associated with USEPA SW-846 Validating Volatile Organic Compounds by GC/MS SW-846 Method 8260B (SOP HW-24 Revision 2, October 2006).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99, and a RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within the control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC analysis exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD analysis was not performed on a sample location within this SDG.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit for the difference between the results of two times the RL is applied for water matrices.

Field Duplicate analysis was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment/Field blanks					X
C. Trip blanks					X
Laboratory Control Sample (LCS) Accuracy (%R)		X		X	
Laboratory Control Sample Duplicate (LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate (MSD) %R					X
MS/MSD Precision RPD					X
Field Duplicate RPD					X
Surrogate Spike %R		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculations acceptable		X		X	
E. Reporting limits adjusted for sample dilutions		X		X	

%R Percent recovery
RPD Relative percent difference
%RSD Relative standard deviation
%D Percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

The analyses that exceeded the holding are presented in the following table.

Sample Locations	Holding Time	Criteria
PZ-4S	13 days from collection to extraction and 40 days from extraction to analysis	<7 Days from collection to extraction and 40 days from extraction to analysis

Sample results associated with sample locations analyzed by analytical method SW-846 8270 were qualified, as specified in the table below. All other holding times were met.

Criteria	Qualification	
	Detected Analytes	Non-detect Analytes
Analysis completed less than two times holding time	J	UJ

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PZ-4S	2-Fluorobiphenyl	AC
	Nitrobenzene-d5	> UL
	Terphenyl-d14	

UL Upper control limit
AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J

Control Limit	Sample Result	Qualification
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	J[1]
	Detect	

[1] A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

MS/MSD analysis was not performed on a sample location within this SDG.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Field Duplicate analysis was not performed on a sample location within this SDG.

10. Compound Identification

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X	X		
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)					X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Quantitation transcriptions/calculations		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	METH	MISC	
460-92783-2	MW-30	SW846	PZ-4S	Water	Yes	No	--	---	--	SVOC: Holding Time

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Jennifer Chandler

SIGNATURE: 

DATE: May 4, 2015

PEER REVIEW: Todd Church

DATE: May 19, 2015

CHAIN OF CUSTODY/LABORAOTRY QUALIFIER DEFINITIONS/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

Chain of Custody Record

460-92783 Chain of Custody

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
ARCADIS	DAWN PENNIMAN	4/2/15	231175
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
6723 TOWPATH R.D.	315-671-9229		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
SYRACUSE / NY / 13214	Nathan Smith	GRACE CHANG	
Project Name and Location (State)	**Carrier/Waybill Number**		
MCKESSON CLARK ST. SYRACUSE NY			
Contract/Purchase Order/Quote No.			
B002600320150000			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: VOCs	SVOCs	Methane		Special Instructions/ Conditions of Receipt
																	92783
MW-30	4/2/15	1545		X			2			3			X	X			1
MW-28		0955		X			5			3			X	X	X		2
MW-29		1155		X			2			3			X	X			3
MW-8SR		1400		X			2			3			X	X			4
DUP-040215		—		X			2			3			X	X			5
MW-17R		1410		X			5			3			X	X	X		6
MW-35		1100		X			2			3			X	X			7
MW-4D		1340		X			2			3			X	X			8
TRIP BLANK		0900		X						1			X				9
																	10

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STANDARD

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1	Allison C Schaffer	4/2/15	17:09	RELINQUISHED SYR	4-2-15	17:09
2	RELINQUISHED	4-2-15	19:00			
3	FED EX	4/3/15	920	Diane Lyon TA Edison	4/3/15	920

Comments

05 present.

6.6 / 3.6 OC IR #5

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

04/29/2015

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DATA REPORTING QUALIFIERS

Client: ARCADIS U.S. Inc Job Number: 460-92783-2

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates the analyte was analyzed for but not detected.
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	F1	MS and/or MSD Recovery is outside acceptance limits.
	H	Sample was prepped or analyzed beyond the specified holding time
	X	Surrogate is outside control limits

Client: ARCADIS U.S. Inc

Job Number: 460-92783-2

Client Sample ID: **PZ-4S**

Lab Sample ID: 460-92783-10
Client Matrix: Water

Date Sampled: 04/02/2015 1430
Date Received: 04/03/2015 0920

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-292754	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J25499.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	04/16/2015 1601			Final Weight/Volume:	5 mL
Prep Date:	04/16/2015 1601				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.1	10
Benzene	1.0	U	0.19	1.0
Ethylbenzene	1.0	U	0.30	1.0
Methylene Chloride	1.0	U	0.21	1.0
Toluene	1.0	U	0.25	1.0
Trichloroethene	1.0	U	0.22	1.0
Xylenes, Total	3.0	U	0.28	3.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 130
Bromofluorobenzene	106		64 - 135
Dibromofluoromethane (Surr)	102		72 - 137
Toluene-d8 (Surr)	93		70 - 130

Client: ARCADIS U.S. Inc

Job Number: 460-92783-2

Client Sample ID: **PZ-4S**

Lab Sample ID: 460-92783-10
Client Matrix: Water

Date Sampled: 04/02/2015 1430
Date Received: 04/03/2015 0920

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-295014	Instrument ID:	CBNAMS6
Prep Method:	3510C	Prep Batch:	460-292544	Lab File ID:	M92562.D
Dilution:	1.0			Initial Weight/Volume:	240 mL
Analysis Date:	04/28/2015 0547			Final Weight/Volume:	2 mL
Prep Date:	04/15/2015 1153			Injection Volume:	5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aniline	10	~~U H~~ UJ	0.20	10
n,n'-Dimethylaniline	1.0	~~U H~~ UJ	0.18	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	119		50 - 120
Nitrobenzene-d5 (Surr)	124	X	60 - 114
Terphenyl-d14 (Surr)	139	X	72 - 130

ARCADIS

Attachment B

Summary of Historical
Groundwater Monitoring Data –
March 1988 through August 2008

Attachment B
Summary of Historical Groundwater Monitoring Data, March 1988 through August 2008

Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-1[K]	3/88	370.3	355.3	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			**0.7 JN**	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			**8 J**	<10 J	**3 J**	<10 J	**5.0 J**	<1,000	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	**10**
	9/01			<10	<10	<10	<10	<10	<1,000 J	<10	<10	<10	<10
	4/02			<12	<5.0	<5.0	<5.0	<10	**990 J**	<5	<5	<5	<5
	10/02			<25	<10	<10	<10	<20	<1,000	<10	<5	R	<10
	5/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**2 J**	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	**0.2 J**	<1.0	<3.0
	11/05			<1.3 J	<0.3	<0.4	<0.5	<0.5	<1,000	<0.4	<1.0	<1.0 J	<0.5
	6/06			<5.0 J	<1.0 J	<5.0 J	<4.0 J	<5.0 J	<1,000 J	<1.0 J	<1.0 J	<1.0 J	<3.0 J
	11/06			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0	<3.0
	6/07			<5	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500 J	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0 J	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			**7.4**	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.6	<0.6	<3.0
MW-2S	3/88	368.1	353.1	<1,000	**1,900**	**110**	**610**	**2,800**	<1,000	<10	<10	<10	<10
	1/89			<1,000	**2,000**	**65**	**330**	**1,200**	<1,000	<10	<11	<11	<10
	11/89			<1,000	**1,800**	<100	**360**	**810**	**38,000**	<100	<100	<100	<100
MW-3S	3/88	365.1	350.1	<100	<1	<1	<1	<1	<1,000	**50**	<10	<10	**110**
	1/89			<10,000	<100	**120**	<100	<100	<1,000	**1,100**	<11	**5,570**	**4,700**
	11/89			<10,000	<100	<100	<100	<100	<1,000	**100**	<52	**440**	**2,700**
	11/91			**2,900**	**10**	**10**	**4.0**	**31**	<1,000	<10	**790**	**170**	<10
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5.0	**15**	**2.0 J**	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			<10	**1 J**	**0.7 J**	<10	<10	<1,000	<10	**9 J**	<10	<10
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10	<10	<10
	9/00			<10 J	**1 J**	**2 J**	<10 J	<10 J	<1,000	<10 J	**2 J**	**1 J**	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	**3 J**	**8 J**	**1 J**	**2 J**	<1,000 J	<10	**690 D (69)**[B]	**4 J**	<10
	4/02			<12	<5	<5	<5	<10	**370 J**	<5.0	**1.7 J**	<5	<5

See Notes on Page 19.

Attachment B
Summary of Historical Groundwater Monitoring Data, March 1988 through August 2008

Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-3S	10/02			<25	<10	<10	<10	<20	<1,000	<10	<5	R	<10
(cont'd)	5/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**4 J**	<5	<5
	6/04			**6.0 J**	<10	<10	<10	<20	<1,000	<10	**0.8 J**	<6	<10
	11/04			<25	<10	<10	<10	<20	**150 J**	<10	**4 J**	<5.0	<10
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	**15**	<1.0	<3.0
	11/05			<1.3 J	<0.3	<0.4	<0.5	<0.4	<1,000	<0.4	<1.0	<1.0 J	<0.5
	6/06			<5.0	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/06			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500 J	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.6	<0.6	<3.0
MW-3D	8/95	343.8	339	<1,000	<25 D	<25 D	<25 D	<25 D	<1,000	<25 D	**1 J**	**5 J**	**200 D**
MW-4S	3/88	365.5	350.5	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	<11	**19**	**280**
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-5[C]	3/88	363.3	348.3	<100	<1	<1	<1	<1	<1,000	<1	**230**	**130**	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	**34**	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	**17**	<10	<1
MW-6[D]	1/89	365.5	355.9	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
(Replaced by MW-6S)	11/89			<10	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
MW-7[D]	1/89	367	357.4	<100	<1	<1	<1	**2**	<1,000	<1	<11	<11	**100**
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-8[D]	1/89	364.7	355.1	<1,000,000	<10,000	<10,000	<10,000	<10,000	**430,000**	<10,000	**2,900**	**24,000**	**3,200,000**
(Replaced by MW-8S)[E]	11/89			**470,000**	<10,000	<10,000	<10,000	<10,000	**300,000**	<10,000	**8,500**	**52,000**	**2,800,000**
	11/91			<1,000,000	<10,000	<10,000	<10,000	<30,000	**150,000**	<10,000	**8,000**	**33,000**	**1,600,000**
	8/95			<1,000	<250,000D	<250,000D	<250,000D	<250,000D	**22,000**	**60,000 JD**	<25,000D	**380,000 D**	**7,700,000 D**
	9/98			<10,000 J	<10,000	<10,000	<10,000	<10,000	**7,900**	**3,300 J**	**1,200 J**	**26,000 D**	**140,000**
	2/99			<20,000	<20,000	<20,000	<20,000	<20,000	**16,000JN**	**11,000 J**	**30,000 D**	**120,000 D**	**650,000 DB**
	7/99			**10 J**	**22 J**	**240 J**	**58 J**	**220 J**	**17,000**	**11,000 J**	**24,000**	**77,000**	**450,000 D**
	3/00			<100,000	<100,000	<100,000	<100,000	<100,000	**30,000 J**	<100,000	**62,000**	**270,000 D**	**1,300,000**
	9/00			<50,000 J	<50,000 J	<50,000 J	<50,000 J	<50,000 J	**14,000 J**	**9,200 J**	**42,000 J**	**59,000**	**540,000 BJ**
	3/01			<50,000	<50,000	<50,000	<50,000	<50,000	**53,000**	**11,000 J**	**90,000 D**	**120,000 D**	**990,000**
	9/01			<400	<400	**430**	**170 J**	**680**	**8,900 J**	**18,000 JD**	**21,000**	**29,000**	**440,000 BD**
	4/02			**2,100**	**50 J**	**410**	**100 J**	**400**	<1,000	**9,600 J**	**793,000 D**	**773,000 D**	**660,000 D**
	10/02			**120 J**	**23**	**310**	**73**	**267**	<1,000	**3,100**	**80,000**	**21,000 J**	**320,000**
	5/03			<12	**20 J**	**600 D**	**81**	**300**	<1,000	**6,700 D**	**79,000 D**	**29 J**	**910,000 D**
	10/03			**21**	**25**	**330 D**	**93**	**360**	**1,200 J**	**3,100 D**	**67,000 D**	**24,000 D**	**400,000 D**
	6/04			<25	**40**	**330 EJ**	**110**	**400**	<1,000	**5,900 D**	**56,000**	**51,000**	**1,200,000 D**

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Attachment B
Summary of Historical Groundwater Monitoring Data, March 1988 through August 2008

Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-8SR[B]	11/04	362.7	352.7	<1,200	<500	**100 DJ**	<500	**164 DJ**	<1,000	<500	**35,000 D**	**5,300 D**	**10,000 D**
	6/05			**81 J**	**13**	**100**	**53**	**180**	<1,000	<1.0	**30,000**	<200	<3.0
	11/05			**15 J**	**13**	**130**	**66**	**260**	<1,000	<1.0	**32,000**	<260 J	<3.0
	6/06			**48**	**15**	**120**	**79**	**260**	<1,000	<1.0	**23,000**	<200	<3.0
	9/06			NA	NA	NA	NA	NA	NA	NA	**52,000 [51,000]**	<520 [<520]	NA
	11/06			**28**	**16**	**100**	**84**	**270**	<500	<1.0	**28,000**	<200	<3.0
	6/07			**58**	**14**	**110**	**83**	**250**	<500	<2.0	**2,700**	<22	<6.0
	8/07			NA	NA	NA	NA	NA	NA	NA	**17,000**	<100	NA
	11/07			<5.0 J	**12**	**22**	**73**	**210**	<500	<1.0	**22,000 J**	<100 J	<3.0
	3/08			**<10 [9.6 J]**	**5.5 [5.7]**	**22 [22]**	**70 [68]**	**160 [160]**	<500 [<500]	<2.0 [<2.0]	**5,800 [5,200]**	<25 [<50]	<6.0 [<6.0]
	8/08			**8.2 J [<10]**	**11 [11]**	**24 [22]**	**70 [70]**	**190 [190]**	<500 [<500]	<2.0 [<2.0]	**32,000 [25,000]**	<250 [<250]	<6.0 [<6.0]
MW-9[D]	1/89	365.6	356	**1,600**	NA	**64**	**130**	**270**	<1,000	<10	**660**	**1,200**	**1,500**
(Replaced by MW-9S)	11/89			<1,000	**48**	**25**	**60**	**60**	<1,000	<10	**670**	**150**	<10
	11/91			<100	<10	**9**	**19**	**30**	<1,000	<1.0	**95**	**18**	<1
	8/95			<1,000	**11 JD**	**26 JD**	**69 D**	**226 JD**	<1,000	<50	**50**	**28**	**110 D**
	7/99			<10	**4 J**	**2 J**	**9 J**	**18**	<1,000	<10	<10	**5.0 J**	<10
	3/00			<10	**2 J**	**2 J**	**11**	**21**	<1,000 J	<10	**2.0 J**	**9.0 J**	<10
	9/00			<10 J	**11 J**	**2 J**	**6.0 J**	**18 J**	<1,000	<10 J	**1.0 J**	**6.0 J**	<10 J
	3/01			<10	**1 J**	**3 J**	**17**	**61**	<1,000	<10	**2.0 J**	**11**	<10
	9/01			<10	**10**	**3 J**	**7.0 J**	**35**	<1,000 J	<10	<10	**10**	<10
	4/02			<23	**10**	**2 J**	**6**	**17 J**	**370 J**	<5	**9**	**43**	<5
	10/02			**16 J**	**38**	**40**	**2 J**	**15 J**	<1,000	<10	<5.0	**2.0 J**	<10
	5/03			<12	**11**	**<5**	**7**	**18**	<1,000	<5.0	**0.9 J**	**3.0 J**	<5
	10/03			<12	**2 J**	<5	**5**	**19**	<1,000	<5.0	**1.0 J**	<5.0	<5
	6/04			**14 J**	**6 J**	**2.0 J**	**8 J**	**19 J**	<1,000	<10	<5.0	<5.0	<10
	11/04			<25	**4 J**	**2 J**	**9 J**	**30 J**	<1,000	<10	<5.0	<5.0	<10
	6/05			**44 J**	**1.9**	**3.2 J**	**24**	**64**	<1,000	<1.0	**2.6**	**1.9**	<3.0
	11/05			<1.3 J	**3.5**	**3.8**	**11**	**33**	<1,000	<0.4	**1.4**	**6.1 J**	<0.5
	6/06			<5.0 J	**1.1 J**	**2.3 J**	**25 J**	**60 J**	<1,000 J	<1.0 J	<1.1 J	**3.8 J**	<3.0 J
	11/06			<5.0	**1.4**	**3.5 J**	**23**	**63**	<500	<1.0	**0.5 J**	**3.3 J**	<3.0
	6/07			<5.0	**1.4**	**3.3 J**	**42**	**110**	<500	<1.0	<5.0	**4.1**	<3.0
	11/07			<5.0	**0.9 J**	**2.0 J**	**11**	**58**	<500 J	<1.0	**1.7 J**	**8.6**	<3.0
	3/08			<5.0 J	**1.1**	**3.0 J**	**37**	**73**	<500	**1.2**	**0.7 J**	**6.8**	<3.0
	8/08			**24**	**3.7**	**3.3 J**	**21**	**72**	<500	<1.0	<5.5	**5.1**	<3.0
MW-10[D]	1/89	355.5	345.9	<1,000,000	<10,000	<10,000	<10,000	<10,000	**210,000**	<10,000	**720**	**9,400**	**520,000**
(Replaced by MW-9D)	11/89			<100,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	**900**	**2,400**	**28,000**
	11/91			<100	<1	**3.0**	**2.0**	<3.0	<1,000	<1	**230**	<10	**41**
	8/95			<1,000	<25 UD	<25 UD	<25 UD	<25 UD	<1,000	<25 UD	<5.0	<10	**350 D**
MW-11[D]	1/89	355.1	345.5	<100	<1	<1	<1	<1	**8,400**	<1	<12	<12	**1**
(Replaced MW-6D)	11/89			<100	<1	<1	<1	<1	<1,000	<1	**230**	<52	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10

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Syracuse, New York

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-11S	12/94	359.9	354.9	<380	<10	<10	<10	<10	**880**	<10	<5	<10	<10
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<26
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
MW-11D	12/94	349.8	344.8	<310	<5	<5	<5	<5	**2,100**	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
MW-12D[D]	1/89	354.8	345.2	<100,000	<1,000	<1,000	<1,000	<1,000	**12,000**	<1,000	**67**	**410**	**120,000**
(Replaced MW-8D)[E]	11/89			**69,000**	<1,000	<1,000	<1,000	<1,000	**39,000**	<1,000	<1,000	**4,900**	**360,000**
	11/91			<1,000,000	<10,000	<10,000	<10,000	<30,000	<10,000	<10,000	**750**	**5,800**	**220,000**
	8/95			<1,000	**450 JD**	**430 JD**	**430 JD**	**1,250 JD**	<1,000	<1,300 D	**30 D**	**230 D**	<13,000 D
	8/96			**13**	<10	<10	<10	<10	<1,000	**2.0 J**	<5	<10	**40**
MW-13S	11/89	368.7	359.1	<100	**3**	<1	<1	<1	<1,000	<1.0	<52	<52	<1.0
	11/90			<100	<1	<1	<1	<3	<1,000	<1.0	<10	<10	<1.0
	11/91			<100	<1	<1	<1	<3	<1,000	<1.0	<10	<10	<1.0
	11/92			<100	<1	<1	<1	<3	<1,000	<1.0	<10	<10	<1.0
MW-14D[C]	1/89	359	349.4	<100	<1	<1	<1	<1	<1,000	<1.0	<11	<11	<1.0
	11/89			<100	<1	<1	<1	<1	<1,000	<1.0	<10	<10	<1.0
MW-15S	1/89	370	360.25	<100	<1	<1	<1	<1	<1,000	<1.0	<11	<11	<1.0
	11/89			<100	<1	<1	<1	<1	<1,000	<1.0	<52	<52	<1.0
MW-16D[C]	1/89	350.8	341.2	<100	<1	<1	<1	<1	<1,000	<1.0	<11	<11	<1.0
	11/89			<100	<1	<1	<1	<1	<1,000	<1.0	<10	<10	<1.0
MW-17[C]	11/90	365.7	356.1	<100	<1	<1	<1	<3	<1,000	<1.0	<10	<10	<1.0
(Replaced by MW-17R)	11/91			<100	<1	<1	<1	<3	<1,000	<1.0	<10	<10	<1.0
	11/92			<100	<1	<1	<1	<3	<1,000	<1.0	<10	<10	<1.0
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<11
	10/95			NA	<5	<5	<5	<5	NA	**2 J**	NA	NA	<5
	8/96			**11**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	**1 J**	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	**8 J**	<10	<10	<10	<1,000 J	<10	<5.0	<10	<10
	9/00			<10 J	**15 J**	<10 J	<10 J	<10 J	<1,000 J	<10 J	**24 J**	**4 J**	**1 J**
	3/01			<10	**8 J**	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	**5 J**	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	**6**	<5	<5	<10	**620 J**	<5	**150** (<5)[F]	**110** (<5)[F]	<5
	10/02			<25 J	**14**	<10	<10	<20	<1,000	<10	<5[G]	<5[G]	<10
	5/03			<12	**8**	<5	<5	<5	<1,000	<5	<5	<5	<5
	11/03			<12	**7**	<5	<5	<10	<1,000	<5	<5	<5	<5

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-17[D]	6/04			<25	**5 J**	<10	<10	<20	<1,000	<10	<5	<5	<10
(cont'd)	11/04			--	--	--	--	--	**200 J**	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0	**0.8 J**	<5.0	<4.0	<5.0	<1,000	<1.0	<1.1	<1.1	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			<5.0	**0.7 J**	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500 J	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			**2.3 J**	**1.8**	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
MW-18	11/89	325.15	316.15	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<10	<10	<10	<20	**720 J**	<10	**280 D** (<5)[F]	**200 D** (<5)[F]	<10
	10/02			**6 J**	<10	<10	<10	<20	<1,000	<10	<5[G]	<5[G]	<10
	5/03			<12	<5	<5	<5	<5	**280 J**	<5	<5	<5	<5
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**0.7 J**	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	R	R	<10
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.1	<1.1 J	<3.0
	6/06			<5.0	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			**5.5**	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.6	<0.6	<3.0

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-19[K]	11/89	318.45	309.45	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<12
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	**5 J**	<11
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	10/03			<11	<5	<5	<5	<10	<1,000	<5	**51 J**	**16 J**	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.1	<1.1	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.5	<1.1	<3.0
	11/07			<5.0 J	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.6	<0.6	<3.0
	3/09			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<0.5	<1.0
	9/09			<10 J	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
	4/10			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
MW-20[C]	11/89	329.85	320.85	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
MW-21[C]	11/89	323.65	314.65	<100	<5	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-22[L]	11/89	368.55	359.55	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	10/10			<10	<1.0	<1.0	<1.0	<3.0	<500 J	<1.0	<5.0	<1.0	<1.0
MW-23S	12/94	364.1	354.1	<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-23S	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
(cont'd)	8/96			<10	<10	<10	<10	<10	<1,000	<10	**7**	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	**11**	<10	<10
	8/97			**12**	<10	<10	<10	<10	<1,000	<10	**92**	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	**56**[H]	**7 J**	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	**10**	<10 J
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	**2 J**	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	**2 J**	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	**2 J**	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
	5/03			<62	<25	<25	<25	<50	**380 J**	<25	<5	<5	<25
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**60**	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.2	<1.2	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.6	<0.6	<3.0
MW-23I	12/94	341.2	336.2	<10	<5.0	<5	<5.0	<5.0	<200	<5.0	<5.0	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<11	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			**4 J**	<10	<10	<10	**2 J**	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	**2 J**
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-23I	10/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
(cont'd)	6/04			<25	<10	<10	<10	<20	<1,000	<10	**1 J**	<5	<10
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0 J	<1.0	**0.6 J**	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
MW-24S[CL]	12/94	358.4	352.4	<10	<5	<5	<5	<5	<1,000	<5	<5	<10	<5
(Replaced by MW-24SR)	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	<10 J	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	6/02[F]			NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**16**	<6	<5
	6/04 [J]			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.7	<0.6	<3.0
	9/09			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
MW-24D[CL]	12/94	334.4	341.2	<10	<5	<5	<5	<5	<1,000	<5	<5	<10	<5
(Replaced by MW-24DR)	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	6/02[F]			NA	NA	NA	NA	NA	NA	NA	ND	ND	NA

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NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-24D[DL]	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
(cont'd)	10/03			<12	<5	<5	<5	<10	<1,000	<5	**0.5 J**	<5	<5
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5 J	<1	<5	<4	<5	<1,000	<1	<1	<1	<3
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.1	<1.1 J	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.7	<0.6	<3.0
	9/09			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
MW-25S[L]	8/95	361.2	356.2	<1,000	<5	<5	<5	<5	<1,000	<5	<5	**0.7 J**	<10
	10/95			NA	<5	<5	<5	<5	NA	<5	<5	<10	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	**130**	<10	<10 J
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	**110 J**	**21 J**	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	**5 J**	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02			<25	<10	<10	<10	<20	<1,000	<10	<5[G]	<5[G]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	11/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.1	<1.1	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.2	<0.5	<3.0
	3/09			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<0.5	<1.0
	9/09			<10 J	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
	4/10			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
MW-25D[L]	8/95	349.55	344.55	<1,000	<5	<5	<5	<5	<1,000	<5	<5	**1 J**	<5
	10/95			NA	<5	<5	<5	<5	NA	**3 J**	<5	<10	<5
	8/96			**15**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<11	<10

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Monitoring Memorandum
McKesson Envirosystems Site
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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-25D[L]	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
(cont'd)	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	**5 J**	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	6/06			<5.0 J	<1.0	**0.7 J**	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	6/07			**12 J**	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	3/09			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<0.5	<1.0
	4/10			<10	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
MW-26	12/96	365	355.3	<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
MW-27	9/98	362.5	354.5	**23**	**3 J**	**4 J**	<10	**3 J**	<1,000	<10	**340 DJ**	<10	<10
	7/99			<10 J	**4 J**	**2 J**	**3 J**	**8 J**	<1,000	<10	**740 D**	<10	<10
	3/00			<10	**6 J**	<10	**8 J**	**2 J**	<1,000 J	<10	**110 D**	**1 J**	<10
	9/00			<10 J	**4 J**	<10 J	**3 J**	**1 J**	<1,000 J	<10 J	**16 J**	**2 J**	**1 J**
	3/01			<10	**5 J**	<10	**5 J**	**2 J**	<1,000	<10	**260 D**	**2 J**	<10
	9/01			<10	**5 J**	<10	**2 J**	<10	<1,000 J	<10	**26**	<10	<10
	4/02			<18	**7**	**11**	**12**	**26**	<1,000	<5	**176,000 DJ**	**19 J**	<5
	10/02			**9 J**	**3 J**	<10	<10	<20	<1,000	**4 J**	**2,700 D**	**100 J**	**60 JN**
	5/03			<12	**8**	**11**	**23**	**51**	<1,000	<5	**15,000 DJ**	**11**	**43**
	10/03			**170**	**5**	<5	<5	**3 J**	<1,000	<5	**3,700 D**	<5	**240 D**
	6/04			**23 J**	**5 J**	**4 J**	**2 J**	**6 J**	<1,000	<10	**3,700 D**	**20 J**	<10
	11/04			<120 (28)	<50 (**4 J**)	<50 (**2 J**)	<50 (<10)	<100 (<20)	<1,000	<50 (<10)	**1,100 DJ**	<5	**310 (490 D)**
	6/05			**31 J**	**6.1**	**15**	**5.8**	**15**	<1,000	<1.0	**5,200**	<23	<3.0
	11/05			**35 J (37 J)**	**11 (12)**	**77 (78)**	**26 (26)**	**86 (88)**	<1,000 (<1,000)	<1.0 (<1.0)	**37,000 (38,000)**	<270 J (<260 J)	<3.0 (<3.0)
	6/06			**5.3 J (5.8 J)**	**9.5 J (8.9 J)**	**50 J (48 J)**	**25 J (25 J)**	**66 J (63 J)**	<1,000 J (<1,000 J)	<1.0 J (<1.0 J)	**14,000 J (12,000 J)**	<100 J (<100 J)	<3.0 J (<3.0 J)
	9/06			NA	NA	NA	NA	NA	NA	NA	**1,700**	<10	NA
	11/06			**31 [24]**	**14 [14]**	**71 [71]**	**42 [45]**	**91 [110]**	<500 [<500]	<1.0 [<1.0]	**33,000 [33,000]**	<210 [<200]	<3.0 [<3.0]
	6/07			**21**	**8.4**	**9.5**	**14**	**24**	<500	<1.0	**1,100**	<10	<3.0
	8/07			NA	NA	NA	NA	NA	NA	NA	**<10 J [4,300 J]**	<1.0 [<20]	NA
	11/07			<5.0 J [<5.0]	**6.6 [5.9]**	**4.7 J [4.1 J]**	**8.6 [7.2]**	**24 [21]**	<500 [<500]	<1.0 [<1.0]	**3,000 J [3,800 J]**	<25 J [<25 J]	<3.0 [<3.0]
	3/08			**21**	**9.4**	**23**	**43**	**68**	<500	<2.0	**13,000**	<100	<6.0
	8/08			**3.8 J**	**5**	**2.2 J**	**1.8 J**	**10**	<500	<1.0	**2,400**	<25	<3.0
MW-28	9/98	363.6	355.6	<5,000 J	<5,000	<5,000	<5,000	<5,000	**2,200**	<5,000	**546 D[H]**	**54**	**64,000 J**
	7/99			<500 J	<500	<500	<500	<500	<1,000	<500	**1,100 D**	**40**	**39,000 D**
	3/00			<10,000	<10,000	<10,000	<10,000	<10,000	<1,000 J	<10,000	**1,300 D**	**30**	**130,000 J**
	9/00			<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000 J	**540 DJ**	<10	**8,100 BJ**
	3/01			<400	<400	<400	<400	<400	<1,000	<400	**3,200 D**	**7 J**	**5,900 B**
	9/01			<400	<400	<400	<400	<400	<1,000 J	<400	**1,000 D**	<10	**4,700 B**

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-28	4/02			<49	**8**	**6**	**9**	**10 J**	<1,000	<5	**33,400 D**	**57**	**4,600 D**
(cont'd)	10/02			**14 J**	**8 J**	**6 J**	**11**	**12 J**	<1,000	<10	**2,700 D**	R	<10
	5/03			**13**	**4 J**	**2 J**	**2 J**	**8 J**	<1,000	<5	**1,000 DJ**	**3 J**	**52**
	10/03			**24**	**11**	**6**	**12**	**13 J**	<1,000	<5	**1,900 D**	<5	<5
	6/04			**20 J**	**4 J**	**2 J**	**5 J**	**4 J**	<1,000	<10	**910 D**	<5	<10
	11/04			<120 (<25)	<50 (**4 J**)	<50 (<10)	<50 (**5 J**)	<100 (**3 J**)	**190 J**	<50 (<10)	**640 DJ**	<5	<50 (<10)
	6/05			**5.2 J**	**4.5**	**1.2 J**	**4.6**	**3.9 J**	<1,000	<1.0	**630**	<5.0	<3.0
	11/05			**6.8 J (7.8 J)**	**6.1 (5.8)**	<5.0 (<5.0)	**4.7 (4.7)**	<5.0 (<5.0)	<1,000 (<1,000)	<1.0 (<1.0)	**380 J (350 J)**	<2.2 (<2.1)	<3.0 (<3.0)
	6/06			<5.0 J (<5.0 J)	**6.0 J (6.3 J)**	**1.2 J (1.3 J)**	**5.3 J (5.4 J)**	**4.2 J (4.3 J)**	<500 J (<1,000 J)	<1.0 J (<1.0 J)	**430 J (530 J)**	<2.1 J (<5.0 J)	<3.0 J (<3.0 J)
	9/06			NA	NA	NA	NA	NA	NA	NA	**280**	<2.2	NA
	11/06			**12**	**8.2**	**1.4 J**	**5.6**	**4.4 J**	<500	<1.0	**1,000**	<5.2	<3.0
	6/07			**13**	**4.6**	**0.4 J**	**0.8 J**	**0.6 J**	<500	<1.0	**60**	<1.0	<3.0
	8/07			NA	NA	NA	NA	NA	NA	NA	**40**	<1.0	NA
	11/07			<5.0 J	**4.5**	**0.5 J**	**1.4 J**	**0.8 J**	<500	<1.0	**29 J**	<0.5 J	<3.0
	3/08			<5.0	**4.0**	**0.5 J**	**1.6 J**	**1.3 J**	<500	<1.0	**81**	**0.9**	<3.0
	8/08			<5.0	**3.8**	<5.0	<4.0	<5.0	<500	<1.0	**0.7 J**	<0.5	<3.0
MW-29	9/98	362.9	345.9	<10	<10	<10	<10	**2 J**	<1,000	<10	<10	**13**	<10
	2/99			**7 J**	<10	<10	<10	**1 J**	<1,000	<10	**5 J**	**4 J**	<10
	7/99			<10	<10	<10	<10	<10	<1,000	<10	**2 J**	**4 J**	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	**450 D**	**6 J**	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	**24 J**	**4 J**	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	**30**	**4 J**	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	**7 J**	**2 J**	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	**3 J**	**9**	<6
	10/02			<25 J	<10	<10	<10	<20	<1,000	<10	**8**	R	**4 JN**
	5/03			<12	<5	<5	<5	<10	<1,000	<5	**19**	**1 J**	<3
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**2 J**	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	**3 J**	<5	<10
	11/04			<120	<50	<50	<50	<100	**420 J**	<50	<5	<5	<50
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/06			**5.4**	<1.0	<5.0	<4.0	<5.0	<500	<1.0	**0.4 J**	<1.0	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	**0.5 J**	<500	<1.0	<5.5	<1.1	<3.0
	11/07			<5.0 J	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0 J	<0.5 J	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
MW-30	9/98	363.5	355.5	<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	2/99			**7 J**	<10	<10	<10	<10	<1,000	<10	<10	**2 J**	<10
	7/99			<10	**0.7 J**	<10	<10	<10	<1,000	**0.5 J**	<10	**1 J**	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	**18**	**2 J**	**4 J**
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	**9 J**	**2 J**	**2 J**

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-30	3/01			<10	<10	<10	<10	<10	<1,000	<10	**8 J**	**2 J**	<10
(cont'd)	9/01			**4 J**	**2 J**	<10	<10	<10	<1,000 J	<10	**8 J**	**1 J**	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	**250**	**210**	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	R	R	<10
	5/03			<62	<25	<25	<25	<50	<1,000	<25	**18**	0.6 J	**8 J**
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**4 J**	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			<120	<50	<50	<50	<100	<1,000	<50	<5	<5	<50
	6/05			<5.0 J	**0.3 J**	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	**0.7 J**	**0.6 J**	<4.0	**0.5 J**	<1,000	<1.0	**240**	<1.0 J	<3.0
	6/06			<5.0	**0.6 J**	**0.4 J**	<4.0	<5.0	<1,000	<1.0	**29**	<1.0	<3.0
	11/06			**11**	**1.0**	<5.0	<4.0	<5.0	<500	<1.0	**200**	<1.0	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	**30**	<1.1	<3.0
	11/07			<5.0 J	**0.8 J**	<5.0	<4.0	<5.0	<500	<1.0	**49**	<0.5	<3.0
	3/08			<5.0	**0.6 J**	<5.0	<4.0	**0.2 J**	<500	<1.0	**3.0 J**	**0.7**	<3.0
	8/08			<5.0	**0.7 J**	<5.0	<4.0	<5.0	<500	<1.0	**31**	<0.5	<3.0
MW-31	9/98	363.7	355.4	<10	**12**	<10	<10	<10	<1,000	<10	**34**	**4 J**	<10
	7/99			<10	**16**	<10	<10	<10	<1,000	<10	**230 D**	**3 J**	<10
	3/00			<10	**16**	<10	<10	<10	<1,000 J	<10	**3 J**	**4 J**	<10
	9/00			<10 J	**12 J**	<10 J	<10 J	<10 J	<1,000	<10 J	**10**	**6 J**	<10 J
	3/01			**21**	**11**	<10	<10	<10	<1,000	<10	<10	**5 J**	<10
	9/01			<10	**14**	<10	<10	<10	<1,000 J	<10	**91 D**	**3 J**	<10
	4/02			<14	**9**	<5	<5	<10	<1,000	<5	**804 D**	**21**	<5
	10/02			<25	**11**	<10	<10	<20	<1,000	<10	**560 D**	**1 J**	<10
	5/03			<12	**9**	<5	<5	<10	<1,000	<5	**0.9 J**	**3 J**	<5
	10/03			**1,200 D**	**13**	<5	<5	<5	<1,000	<5	**88**	<5	<5
	6/04			**15 J**	**12**	<10	<10	<20	<1,000	<10	**3 J**	<5	<10
	11/04			<25	**9 J**	<10	<10	<20	<1,000	<10	<5	<5	<10
	6/05			<5.0 J	**11**	<5.0	<4.0	**1.3 J**	<1,000	<1.0	**3.2**	**2.7**	<3.0
	11/05			<1.3 J	**6.7**	<0.4	<0.5	**0.6**	<1,000	<0.4	**16**	<1.0 J	<0.5
	6/06			<5.0 J	**11 J**	**0.6 J**	<4.0 J	**1.7 J**	<1,000 J	<1.0 J	<1.0 J	**2.4 J**	<3.0 J
	9/06			NA	NA	NA	NA	NA	NA	NA	**1.6**	**3.4**	NA
	11/06			R	**6.9**	<5.0	<4.0	<5.0	<500	<1.0	**0.4 J**	**1.1 J**	<3.0
	6/07			<5.0	**14**	**0.7 J**	<4.0	**1.3 J**	<500	<1.0	<5.0	**2.0**	<3.0
	8/07			NA	NA	NA	NA	NA	NA	NA	**0.5 J**	**2.7**	NA
	11/07			<5.0 [<5.0]	**12 [10]**	<5.0 [0.4 J]	<4.0 [<4.0]	**1.1 J [1.4 J]**	<500 J [<500 J]	<1.0 [<1.0]	<5.0 [0.3 J]	**2.3 [2.8]**	<3.0 [<3.0]
	3/08			<5.0 J	**2.0**	<5.0	<4.0	<5.0	<500	<1.0	**0.2 J**	**1.6**	<3.0
	8/08			**22**	**13**	**0.4 J**	<1.0	**2.2 J**	<500	<1.0	<5.6	**2.4**	<3.0
MW-32	9/98	364	356	<10	**16**	**2 J**	**5 J**	**3 J**	<1,000	<10	**6,300 D**	**4 J**	<10
	7/99			**3 J**	**14**	**2 J**	**4 J**	<10	<1,000	**56**	<10	**3 J**	<10
	3/00			<10	**5 J**	<10	<10	<10	<1,000 J	<10	**800 D**	<10	<10

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-32	9/00			<10 J	**12 J**	<10 J	<10 J	<10 J	<1,000	<10 J	**4,500 D**	<10	<10 J
(cont'd)	3/01			<10	**5 J**	<10	<10	<10	<1,000	<10	**1,900 D**	**2 J**	<10
	9/01			<10	**10**	<10	<10	<10	<1,000 J	<10	**1,100 D**	**2 J**	<10
	4/02			<15	**4 J**	<5	<5	<10	<1,000	<5	**4,620 D**	**11**	<5
	10/02			<25	**4 J**	<10	<10	<20	<1,000	<10	**50**	R	<10
	5/03			<12	<5	<5	<5	<10	<1,000	<5	**0.6 J**	**0.7 J**	<5
	10/03			**20**	**2 J**	<5	<5	<10	<1,000	<5	<5	<5	<5
	6/04			**6 J**	**1 J**	<10	<10	<20	<1,000	<10	**1 J**	<5	<10
	11/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	6/05			<5.0 J	**1.0**	<5.0	<4.0	<5.0	<1,000	<1.0	**0.4 J**	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0 J	<1.0 J	<5.0 J	<4.0 J	<5.0 J	<1,000 J	<1.0 J	<1.0 J	<1.0 J	<3.0 J
	11/06			R	<1.0	**0.8 J**	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500 J	<1.0	**0.1 J**	**0.8**	<3.0
	3/08			<5.0 J	**0.8 J**	<5.0	<4.0	<5.0	<500	<1.0	<5.0	**0.8**	<3.0
	8/08			**5.8**	**0.3 J**	<5.0	<4.0	<5.0	<500	<1.0	<5.7	<0.6	<3.0
MW-33	9/98	344.1	356.1	<10	<10	<10	<10	<10	<1,000	<10	**9 J**	**6 J**	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	**120**	**6 J**	<10
	7/99			**5 J**	**2 J**	**0.7 J**	<10	<10	<1,000	<10	**150**	**8 J**	<23
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10	**51**	**7 J**	**11**
	9/00			**45 J**	**4 J**	**1 J**	<10 J	<10 J	<1,000	<10 J	**540 D**	**23**	**330 DJ**
	3/01			**17 J**	<20	<20	<20	<20	<1,000	<20	**1,300 D**	**16**	**370 B**
	9/01			**21**	**5 J**	<10	<10	<10	<1,000 J	<10	**1,900 D**	**12**	<18
	4/02			<18	**3 J**	<5	<5	<10	<1,000	<5	**2,780 D**	**21**	**19**
	10/02			**11 J**	**4 J**	<10	<10	<20	<1,000	<10	**290 D**	**3 J**	**4 J**
	5/03			**88**	**13**	<5	<5	<10	<1,000	<5	**2,000**	**35 J**	**2,800 D**
	10/03			**22**	**2 J**	<5	<5	<10	<1,000	<5	**1,900 D**	<6	<5
	6/04			**9 J**	**12 J**	<10 J	<10 J	<20 J	<1,000	<10 J	**2,700 D**	**5 J**	<10 J
	11/04			--	--	--	--	--	<1,000	--	**2,700 D**	**5 J**	--
	6/05			<5.0 J	**11**	**1.0 J**	<4.0	<5.0	<1,000	<1.0	**1,800**	<10	<3.0
	11/05			<5.0 J	**16**	**1.8 J**	<4.0	<5.0	<1,000	<1.0	**3,500**	<25 J	<3.0
	6/06			<5.0 J	**6.7 J**	**0.7 J**	<4.0 J	<5.0 J	<1,000 J	<1.0 J	**370 J**	**3.5 J**	<3.0 J
	9/06			NA	NA	NA	NA	NA	NA	NA	**940**	**8.0**	NA
	11/06			**17 J**	**8.6**	**0.7 J**	<4.0	<5.0	<500	<1.0	**84**	**2.9 J**	<3.0
	6/07			<5.0	**5.7**	**0.4 J**	<4.0	<5.0	<500	<1.0	**46**	**2.6**	<3.0
	8/07			NA	NA	NA	NA	NA	NA	NA	**46**	**4.2**	NA
	11/07			<5.0	**4.0**	<5.0	<4.0	<5.0	<500 J	<1.0	**0.1 J**	**3.5**	<3.0
	3/08			<5.0 J	**4.1**	<5.0	<4.0	<5.0	<500	<1.0	<5.0	**4.1**	<3.0
	8/08			<5.0	**3.2**	<5.0	<4.0	<5.0	<500	<1.0	<5.9	**2.8**	<3.0

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Attachment B
Summary of Historical Groundwater Monitoring Data, March 1988 through August 2008

Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-34	9/98	362.7	354.7	<10	<10	<10	<10	<10	<1,000	<10	**83**	<10	<10
	7/99			**2 J**	**0.9 J**	**1 J**	<10	<10	<1,000	<10	**380 D**	**2 J**	<10
	3/00			<10 J	**1 J**	**2 J**	<10	<10	<1,000 J	<10	**200 D**	**3 J**	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	**320 D**	**4 J**	<10 J
	3/01			<10	<10	**2 J**	<10	**2 J**	<1,000	<10	**700 D**	**5 J**	<10
	9/01			**7 J**	**2 J**	**2 J**	<10	**2 J**	<1,000 J	<10	**76**	**3 J**	<10
	4/02			<32	<5	<5	<5	<10	<1,000	<5	**640 D**	**15**	<5
	10/02			**37 J**	<10	<10	<10	<20	<1,000	<10	**380 DJ**	**2 J**	<10
	5/03			**16**	<5	<5	<5	<10	<1,000	<5	**140**	**3 J**	<5
	10/03			**9 J**	<5	<5	<5	<10	<1,000	<5	**18**	<5	<5
	6/04			**24 J**	<10	<10	<10	<20	<1,000	<10	**30**	<5	<10
	11/04			<25	<10	<10	<10	<20	**180 J**	<10	**14**	<5	<10
	6/05			**5.6 J**	**0.7 J**	**0.9 J**	<4.0	**1.2 J**	<1,000	**0.4 J**	**16**	**2.5**	<3.0
	11/05			**20 J**	<0.3	**0.9**	<0.5	**1.1**	<1,000	<0.4	**12**	**2 J**	<0.5
	6/06			**6.4**	**0.6 J**	**0.5 J**	<4.0	<5.0	<1,000	<1.0	**16**	**2.3**	<3.0
	11/06			**49 J**	<1.0	**0.6 J**	<4.0	**0.6 J**	<500	<1.0	**9.9**	**1.2 J**	<3.0
	6/07			**22**	**0.9 J**	**0.5 J**	<4.0	**0.6 J**	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	**0.8 J**	**0.6 J**	<4.0	**1.1 J**	<500 J	<1.0	**0.3 J**	**1.5**	<3.0
	3/08			**16**	**1.0 J**	**0.5 J**	<4.0	**1.1 J**	<500	<1.0	**24**	**1.3**	<3.0
	8/08			**12**	**0.8 J**	**0.5 J**	<4.0	**1.1 J**	<500	<1.0	**0.6 J**	**1.6**	<3.0
MW-35	9/98	363	355	<10	<10	<10	<10	<10	<1,000	<10	**6 J**	**5 J**	<10
	7/99			<10	**0.7 J**	<10	<10	<10	<1,000	<10	**3 J**	**4 J**	<10
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10	**2 J**	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	**3 J**	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000 J	<10	<10	**2 J**	<10
	4/02			<13	<5	<5	<5	<10	<1,000	<5	**3 J**	**4 J**	<5
	10/02			<25	<10	<10	<10	<20	<1,000	<10	**2 J**	R	<10
	5/03			<12	<5	<5	<5	<10	<1,000	<5	**1,000**	<100	<5
	10/03			**5 J**	<5	<5	<5	<10	<1,000	<5	**4 J**	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	**30**	**4 J**	<10
	11/04			<25	<10	<10	<10	<20	**240 J**	<10	**82**	<5	<10
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	6/06			<5.0	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	**0.4 J**	<1.0	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	**1.1**	<1.0 J	<3.0
	6/07			**13**	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500 J	<1.0	<5.0	<0.5	<3.0
	3/08			<5.0 J	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			**5.4**	<1.0	<5.0	<4.0	<5.0	<500	<1.0	**1.1 J**	<0.5	<3.0
MW-36[E]	9/98	363.6	355.6	<10	<10	<10	<10	<10	<1,000	<10	**290 D**	**6 J**	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	**860 D**	**4 J**	<10
	7/99			**8 J**	**0.8 J**	<10	<10	<10	<1,000	<10	**250**	<10	<10
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10	**60**	**7 J**	<10
	9/00			**5 J**	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	**8 J**	**6 J**	<5
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10

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Summary of Historical Groundwater Monitoring Data, March 1988 through August 2008

Monitoring Memorandum
McKesson Envirosystems Site
Syracuse, New York

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
MW-36[E]	9/01			**54**	<10	<10	<10	<10	<1,000 J	<10	**350 D**	**5 J**	<10
(cont'd)	4/02			<20	<5	<5	<5	<10	<1,000	<5	**9**	**41**	<5
	10/02			**12 J**	<10	<10	<10	<20	<1,000	<10	**2 J**	**2 J**	<10
	5/03			**9 J**	<5	<5	<5	<10	<1,000	<5	**67**	**4 J**	<5
	10/03			**580 D**	<5	<5	<5	<10	<1,000	<5	**100**	<5	<5
	6/04			**22 J**	<10 J	<10 J	<10 J	<20 J	<1,000	<10 J	**33**	**7**	<10 J
	11/04			**13 J**	<10	<10	<10	<20	<1,000	<10	**22**	<5	<10
	6/05			**24 J**	**2.1**	<5.0	<4.0	**1.0 J**	<1,000	<1.0	**1,200**	<5.4	<3.0
	11/05			**77 J**	**3.6**	**2.0 J**	**0.6 J**	**2.8 J**	<1,000	<1.0	**1,600**	<10 J	<3.0
	6/06			**25**	**1.6**	**0.7 J**	<4.0	**1.2 J**	<1,000	<1.0	**76**	**1.9**	<3.0
	9/06			NA	NA	NA	NA	NA	NA	NA	**3.5**	**1.2**	NA
	11/06			**130 J**	**3.6**	**1.2 J**	<4.0	**1.1 J**	<500	<1.0	**420**	**1.7 J**	<3.0
	6/07			**33**	**4.6**	**1.4 J**	**0.8 J**	**5.0**	<500	<1.0	**1,300**	<10	<3.0
	8/07			NA	NA	NA	NA	NA	NA	NA	**740**	<5.0	NA
	11/07			**10**	**4.5**	**1.7 J**	**0.9 J**	**5.3**	<500 J	<1.0	**480 J**	**3.4 J**	<3.0
	3/08			**8.0 J**	**4.2**	**1.5 J**	**0.8 J**	**5.5**	<500	<1.0	**130**	**3.0**	<3.0
	8/08			**27**	**3.7**	**1.4 J**	**0.6 J**	**5.7**	<500	<1.0	**4.5 J**	**3.2**	<3.0
TW-01	12/96	365.1	355.4	<10	**82**	**4 J**	**6 J**	**4 J**	<1,000	<10	**2,090 D**	**13**	**4 J**
	9/98			<10	**15**	<10	**4 J**	<10	<1,000	<10	**4,400 DEJ**	**4 J**	<10
	2/99			<10	**24**	**2 J**	**2 J**	**2 J**	<1,000	<10	**9,000 D**	**5 J**	<10
	7/99			<10	**16**	**1 J**	**3 J**	<10	<1,000	<10	**4,400 D**	**4 J**	<10
	3/00			<10	**16**	<10	<10	<10	<1,000 J	<10	**280 D**	**4 J**	<10
	9/00			<10 J	**11 J**	<10 J	<10 J	<10 J	<1,000	<10 J	**15**	**2 J**	<10 J
	3/01			<10	**5 J**	<10	<10	<10	<1,000	<10	<10	**3 J**	<10
	9/01			<10	**10**	<10	<10	<10	<1,000 J	<10	<10	**2 J**	<10
	4/02			<14	**3 J**	<5	<5	<10	<1,000	<5	**8**	**13**	<5
	10/02			<25	**7 J**	<10	<10	<20	<1,000	<10	<5	R	<10
	5/03			<12	**7**	<5	<5	<10	<1,000	<5	<5	**1 J**	<5
	10/03			<12	**6**	<5	<5	<10	<1,000	<5	**0.6 J**	<5	<5
	6/04			**6 J**	**3 J**	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			<25	**2 J**	<10	<10	<20	<1,000	<10	<5	<5	<10
	6/05			<5.0 J	**1.8**	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<1.3 J	**1.9**	<0.4	<0.5	<0.4	<1,000	<0.4	<1.0	<1.0 J	<0.5
	6/06			<5.0 J	**1 J**	<5.0 J	<4.0 J	<5.0 J	<1,000 J	<1.0 J	<1.0 J	**0.8 J**	<3.0 J
	11/06			R	**0.7 J**	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	6/07			**7.8**	**0.5 J**	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<1.0	<3.0
	11/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500 J	<1.0	**0.2 J**	**1.1**	<3.0
	3/08			<5.0 J	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	**1.0**	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.6	<0.6	<3.0
TW-02[C]	12/96	363.3	353.3	**53**	**10**	**77**	**16**	**65**	<1,000	**585 D**	**15,900 JD**	**3,920 D**	**42,449 D**
(Replaced by TW-02R)[E]	9/98			<500 J	<500 J	<500 J	<500 J	**53,000**	**5,000**	**300 J**	**38,000 D**	**61,000 D**	**86,000 D**
	2/99			<1,000	<1,000	**190 J**	<1,000	**150 J**	**14,000JN**	<1,000	**83,000 D**	**7,900**	**14,000 B**
	7/99			**630**	**37**	**240 J**	**31**	**150**	<1,000	**55**	**100,000 D**	**3,500 J**	**9,700 D**
	3/00			<1,000 J	<1,000	**160 J**	<1,000	**240 J**	<1,000 J	<1,000	**64,000 D**	**3,900**	**13,000**
	9/00			**190 J**	**28 J**	**95 J**	**35 J**	**160 J**	<1,000	**6 J**	**79,000**	<10,000	**390 J**
	3/01			**81**	**19**	**68**	**28**	**130**	<1,000	<10	**67,000 D**	**650 J**	**400 D**

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
TW-02[C]	9/01			**57**	**25**	**70**	**31**	**140**	<1,000 J	<20	**63,000 D**	**32**	**48 B**
(cont'd)	4/02			**240**	**19**	**65**	**23**	**96**	<1,000	<5	**1,090,000 D**	<5,300	**14**
	10/02			**110 J**	**15**	**19**	**23**	**65**	<1,000	<10	**80,000 D**	**10 J**	<10
	5/03			**240**	**30**	**130**	**49**	**226**	<1,000	<5	**160,000 D**	**230**	**97**
	10/03			**68**	**28**	**75 J**	<5	<10	<1,000	**2 J**	**92,000 D**	<260	**91**
	6/04			**140 J**	**19 J**	**39 J**	**31 J**	**111 J**	<1,000	<10 J	**82,000**	<5,200	**4 J**
TW-02RR[BE]	11/04	363.3	353.3	**18 J**	**4 J**	**8 J**	**4 J**	**16 J**	<1,000	<10	**7,100 D**	<5	<10
	6/05			**7.2 J**	**3.6**	**2.1 J**	**3.6 J**	**9.6**	<1,000	**0.3 J**	**8,400**	<50	<3.0
	11/05			**26 J**	**6**	**4.1**	**3.6**	**11**	<1,000	<0.4	**14,000**	<110 J	<0.5
	6/06			**16**	**4.4**	**1.3 J**	**2.7 J**	**6.7**	<1,000	<1.0	**10,000**	<100	<3.0
	9/06			NA	NA	NA	NA	NA	NA	NA	**7,600**	<52	NA
	11/06			**78 J**	**4.9**	**1.4 J**	**2.2 J**	**6.2**	<500	<1.0	**2,100**	<10 J	<3.0
	6/07			**17**	**5.5**	**1.3 J**	**4.0**	**8.8**	<500	<1.0	**6,800**	<100	<3.0
	8/07			NA	NA	NA	NA	NA	NA	NA	**4,000 J**	<20	NA
	11/07			**5.5**	**5.8**	**1.2 J**	**3.0 J**	**7.6**	<500 J	<1.0	**3,700**	<25	<3.0
	3/08			**6.4 [5.2]**	**4.5 J [2.3 J]**	**1.3 J [0.7 J]**	**3.8 J [1.9 J]**	**10 [4.8 J]**	<500 [<500]	<1.0 [<1.0]	**7,500 [5,400]**	<50 [<50]	<3.0 [<3.0]
	8/08			**9.0 [9.6]**	**4.4 [4.6]**	**1.0 J [1.1 J]**	**2.3 J [2.4 J]**	**6.7 [7.0]**	<500 [<500]	<1.0 [<1.0]	**9,600 [7,000]**	<71 [<56]	<3.0 [<3.0]
PZ-4D	11/89	350.8	345.9	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	**0.8 J**	<5
	10/95			NA	<5	<5	<5	<5	NA	<5	<5	<10	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<6	<12	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	6/06			<5.0	<1.0	**0.5 J**	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.5	<1.1	<3
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
PZ-4S	11/89	362.79	357.88	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<18
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	<10 J	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10

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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
PZ-4S	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	**3 J**	<10
(cont'd)	4/02			<14	<5	<5	<5	<10	<1,000	<5	**8** (<5)[F]	<5 (<5)[F]	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	6/06			<5.0	<1.0	**0.6 J**	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	6/07			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.5	<1.1	<3.0
	3/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
PZ-5D[L]	11/89	353.5	348.6	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<12
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**46**	<5	<5
	6/04[J]			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0	<3.0
	11/05			<5.0 J	<1.0	**0.7 J**	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	11/07			<5.0 J	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.1	<0.5	<3.0
	9/09			<10 J	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
PZ-5S[KL]	11/89	361.42	356.52	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			**5 J**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<12
	6/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10 J	<10 J	<10 J
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			**7 J**	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[G]	<5[G]	<10
	10/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	11/04			--	--	--	--	--	<1,000	--	<5	<5	--
	6/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.1	<1.1	<3.0
	11/05			<5.0 J	<1.0	<5.0	<4.0	<5.0	<1,000	<1.0	<1.0	<1.0 J	<3.0
	11/06			R	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<1.0	<1.0 J	<3.0
	11/07			<5.0 J	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.0	<0.5	<3.0
	8/08			<5.0	<1.0	<5.0	<4.0	<5.0	<500	<1.0	<5.3	<0.5	<3.0
	9/09			<10 J	<1.0	<1.0	<1.0	<3.0	<500	<1.0	<5.0	<1.0	<1.0
PZ-8S[I]	9/98	362.6	357.7	<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10

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McKesson Envirosystems Site
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Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene[A]	Methanol	Trichloro-ethene	Aniline	N,N-Dimethyl-aniline	Methylene Chloride
NYSDEC Groundwater Quality Standards (Part 700)				50	1	5	5	5	NS	5	5	1	5
PZ-11D[D]	11/89	352.09	347.19	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-11S[D]	11/89	359.09	354.19	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-12D[D]	11/89	350	345.1	<100	<1	<1	<1	<1	<1,000	<1	<53	<53	<1
	11/90			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<1	**3**	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
PZ-12S[D]	11/89	360	355.1	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	**6**	<1	<10	<10	**5**
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
PZ-13D[C]	11/89	349.4	344.4	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-13S[C]	11/89	359.5	354.5	<100	<1	2	<1	**2**	<1,000	<1	<11	<11	<1

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Summary of Historical Groundwater Monitoring Data, March 1988 through August 2008

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General Notes:

1. Concentrations are presented in micrograms per liter, which is equivalent to parts per billion.
2. Compounds detected are indicated by bold-faced type.
3. Detections exceeding New York State Department of Environmental Conservation (NYSDEC) Groundwater Standards (Part 700) are indicated by shading.
4. Replacement wells for MW-6, MW-8, MW-9, MW-10, MW-11 and MW-12D were installed 8/95.
5. Replacement wells for MW-17, MW-24S, MW-24D and TW-02 were installed 11/97 - 12/97.
6. The laboratory analytical results for the duplicate sample collected from monitoring well MW-23S during the 7/99 sampling event indicated the presence of methanol at 5.1 milligrams per liter. Because methanol was not detected in the original sample, the duplicate results were determined, based on the results of the data validation process, to be unacceptable. Furthermore, methanol has not been previously detected in groundwater samples collected from this monitoring well. Accordingly, the detection of methanol appears to be the result of a laboratory error and not representative of actual groundwater quality in the vicinity of monitoring well MW-23S.
7. N,N-dimethylaniline data for 10/02 sampling event for MW-1, MW-3S, MW-28, MW-29, MW-32, MW-35 and TW-01 were rejected due to matrix spike and matrix spike duplicate recoveries below control limits. Aniline and N,N-dimethylaniline data for 10/02 sampling event for MW-30 were rejected due to matrix spike and matrix spike duplicate recoveries below control limits. These wells and piezometers are not perimeter monitoring locations and were not resampled.
8. Aniline and N,N-dimethylaniline results of nondetect for the 6/04 sampling event at MW-18 were rejected due to the deviation from a surrogate recovery that was below 10%. This well was not resampled.
9. Volatile organic compound (VOC) results for the 11/04 sampling event were inadvertently lost due to laboratory equipment failure for monitoring locations MW-1, MW-17R, MW-18, MW-23I, MW-23S, MW-24DR, MW-24SR, MW-25, MW-33, PZ-5D and PZ-5S. In addition, the initial VOC results were also irretrievable due to laboratory equipment failure for monitoring locations MW-27, MW-28, MW-29 and MW-30; however, results for subsequent dilutions of these groundwater samples were valid, but the detection limits were high. The duplicate sample VOC results for MW-27 and MW-28 have lower detection limits and are presented in parentheses. These wells were not resampled.

Superscript Notes:

[A] = Data presented is total xylenes (m- and p-xylenes and o-xylenes). For the 1995 data, the listed quantitation limit applies to the analyses conducted for m- and p-xylenes and o-xylenes.
[B] = Because aniline was detected at monitoring well MW-3S at a concentration of 690 ug/l during the September 2001 sampling event, this well was resampled for aniline on November 8, 2001. Aniline was detected in MW-3S during the November 8, 2001 resampling event at a concentration of 69 ug/l.
[C] = Wells/piezometers MW-5, MW-14D, MW-16D, MW-17, MW-20, MW-21, MW-24S, MW-24D, TW-02, PZ-13S, and PZ-13D were abandoned 11/97 - 1/98.
[D] = Wells/piezometers MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12D, PZ-11D, PZ-11S, PZ-12D, and PZ-12S were abandoned during OU No.1 soil remediation activities (1994).
[E] = Wells MW-8S, MW-8D, and TW-02R were abandoned in 8/04 and replacement wells MW-8SR and TW-02RR were installed in 8/04.
[F] = MW-17R, MW-18, and PZ-4S wells/piezometers were resampled for aniline and N,N-dimethylaniline on June 18, 2002 because N,N-dimethylaniline and/or aniline was detected during the April 2002 sampling event. The results of this additional sampling event are shown in parenthesis. MW-24SR and MW-24DR were also sampled for aniline and N,N-dimethylaniline on June 18, 2002, because N,N-dimethylaniline and/or aniline was detected at nearby perimeter monitoring locations during the April 2002 sampling event.
[G] = MW-17R, MW-18, MW-19, MW-23S, MW-23I, MW-24DR, MW-24SR, MW-25S, PZ-4S, PZ-5S and PZ-5D wells/peizometers were resampled for aniline and N,N-dimethylaniline during 1/03, because the 10/02 results were rejected due to matrix spike and matrix spike duplicate recoveries below control limits. These wells and piezometers are perimeter monitoring locations.
[H] = MW-18, MW-19, MW-23I, MW-23S, MW24DR, MW-24SR, MW-28, PZ-5S and PZ-5D wells/piezometers were resampled for aniline during 12/98, because the 9/98 results were rejected due to laboratory error.
[I] = Piezometer PZ-8S was decommissioned 8/00.
[J] = MW-24SR and PZ-5D well and piezometer were sampled during the June 2004 sampling event because N,N-dimethylaniline and/or aniline was detected at nearby perimeter monitoring locations during the October 2003 sampling event.
[K] = Wells/piezometers MW-1, MW-19, and PZ-5S were abandoned 11/10.
[L] = Wells/piezometers, MW-22, MW-24S, MW-24D, MW-25S, MW-25D, PZ-5S and PZ-5D were eliminated from the groundwater monitoring program after the 10/10 sampling event; therefore all data for these locations are presented in this table.

Abbreviations:

AMSL = Above mean sea level (NGVD of 1929).
NA = Parameter not analyzed for.
ND = Not detected.
NS = Standard not available.

Analytical Qualifiers:

D = Indicates the presence of a compound in a secondary dilution analysis.
J = The compound was positively identified; however, the numerical value is an estimated concentration only.
E = The compound was quantitated above the calibration range.
JN = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
< = Compound was not detected at the listed quantitation limit.
U = Undetected.
R = The sample results were rejected.
-- = Sample results are not available. (See Note 9.)

Attachment C

Statistical Analyses

Attachment C. Statistical Analyses
Monitoring Memorandum, McKesson Envirosystems Site, Syracuse, New York
Discussion of Statistical Results

To evaluate the continued effectiveness of the Operable Unit No. 2 (OU2) remedial action and the need (if any) to restart the remedial process, technical analyses were performed to evaluate whether constituent of concern (COC) concentrations: (1) rebound substantially above the pre-shutdown COC concentrations based on an evaluation of the most up-to-date dataset and (2) continue to trend at asymptotic levels. The technical analyses performed, as described below, are the same as those detailed in the January 2013 Periodic Review Report (PRR; ARCADIS 2013) and have been updated to include groundwater data through April 2015.

Technical Analyses

To evaluate whether total COC molar concentrations have reached asymptotic conditions (where COC levels are no longer significantly decreasing or increasing), three different analyses were performed using each area's annual data from 1998 to April 2015.[1] The first analysis involved a calculation of overall percent removal of total COC molar concentrations (i.e., moles per liter) from 1998 to 2015. If the overall percent removal during the 18-year period was within 1% of complete (100%) removal, then it was implied that COC levels approached asymptotic conditions as removal cannot exceed 100%.

$$\frac{\text{(Initial Molar Concentration)} - \text{(2015 Molar Concentration)}}{\text{(Initial Molar Concentration)}} * 100 = \% \text{ reduction}$$

The second analysis used a first-order decay function [$C_t = C_0 * e^{kt}$, where C_t = total COC molar concentration at time t, C_0 = total COC molar concentration in 2002, k = the decay coefficient, and t = number of years since 2002] of total COC molar concentrations from 2002 to 2015 to determine the decay rate and half-life of COC concentrations to evaluate how rapidly COC levels decreased over time.

[1]Total COC molar concentrations were calculated for each area by converting COC concentrations (reported as micrograms per liter [µg/L]) to molar concentrations (i.e., moles per liter), adding together the nine COC molar concentrations (excluding methanol) for each sampling date, and then averaging molar concentrations for the year. The basis for excluding methanol from the technical analyses was detailed in the January 2013 PRR and is presented below.

"Methanol values have been excluded from the analyses in order to accurately portray the temporal trends in COCs at the site. Methanol has a very high detection limit relative to the other COCs evaluated. The methanol detection limit was 1,000 micrograms per liter (µg/L) until 2006 when lowered to 500 µg/L. In the calculation for total COC molar COC concentrations, the use of half the detection limit for non-detects of methanol tends to misrepresent the total COC molar concentration present and confound interpretation of trends regarding COC concentrations.

In Area 1, this problem is most profound due to the low concentrations present compared to the other two Areas. Half the detection limit for methanol represents 17 percent of the initial molar concentration of all COCs present in 1998, and frequently represents more than 95 percent of the calculated COCs present. In Area 1, there have been only six detected methanol concentrations in 137 reported samples (95.6 percent non-detect); five of these six were during 2009, when sample contamination was suspected.

In Area 2, methanol was only detected seven times in 108 reported samples (93.5 percent non-detect), with three of the seven during the September 2009 sampling round when sample contamination was suspected.

In Area 3, there is stronger evidence that methanol was actually present at location MW-8SR in significant levels, as methanol was reported in the 11 samples taken prior to 2002. Since that time, only one of 17 reported samples has yielded detectable methanol concentrations at that location. At the other Area 3 locations, there were a total of three detections (including one in September 2009) in 50 samples."

If the COC levels exhibited statistically significant exponential decay over the 13-year period and the percentage of total COCs remaining was relatively small, then it was implied that COC concentrations approached asymptotic conditions.

$$Ln(C_t) = k * Ln(t) + b$$

$$C_t = e^{kt} * e^b$$

$$C_t = C_o * e^{kt}, where\ e^b = C_o$$

$$\text{Decay Rate} = (1 - e^k) * 100$$

$$\text{Half-Life (years)} = Ln(1/2)/k$$

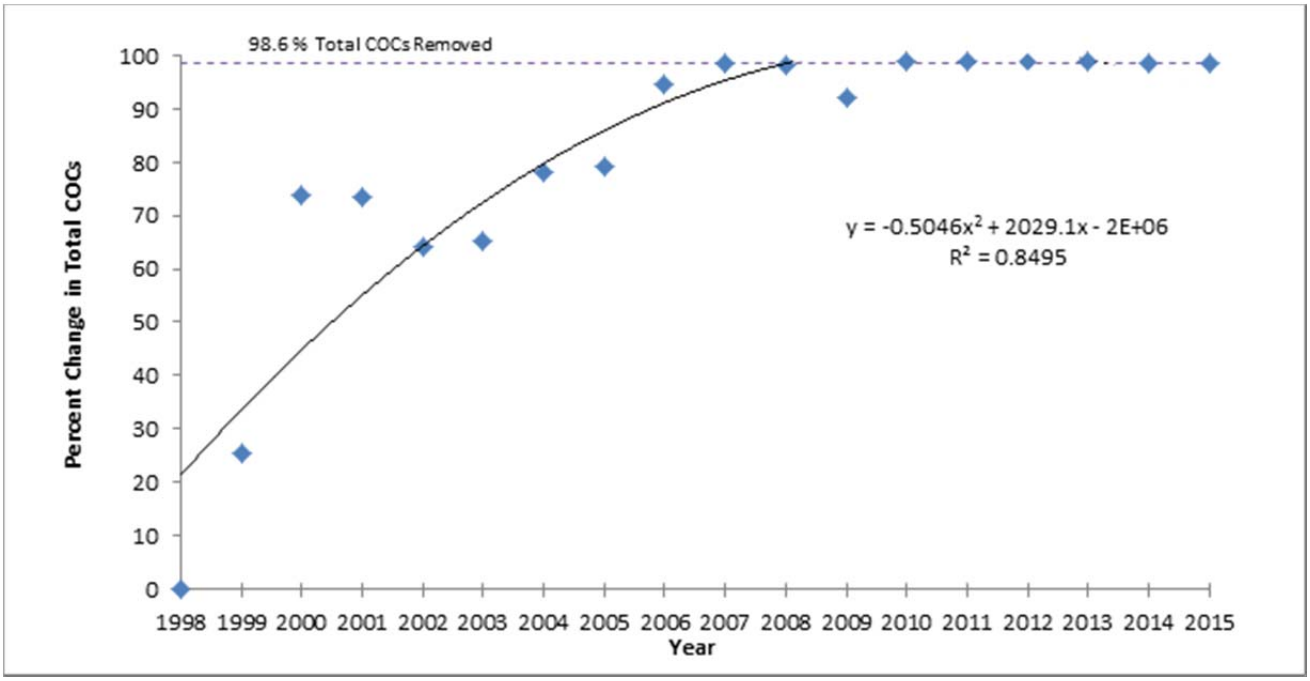
The third analysis involved a linear regression between time (year) and percent reduction in total COC molar concentrations from 2008 to 2015. If the slope of the COC concentrations did not significantly differ from zero, then the data indicate that the asymptote was effectively reached. The data and results of the analyses for each area are described below.

Area 1

Between 1998 and 2015, the overall percent reduction in COC levels in Area 1 (i.e., monitoring wells MW-9S, MW-31, MW-32, MW-33, and TW-01) was 98.6%, as shown on Figure C-1. As COC levels were within 1% of complete removal (based on two significant figures), the data indicate that COC levels approached asymptotic conditions by 2012 and continued through April 2015.

$$\frac{\text{(2.9E-05 mol/L) – (4.3E-07 mol/L)}}{\text{(2.9E-05 mol/L)}} * 100 = 98.6\%\ \text{reduction}$$

Figure C-1: Area 1 Percent Change in Total COCs



The decay relation [$C_t = 7.14E\text{-}06 * e^{-0.2897t}$] for total COC molar concentrations from 2002 to 2015 indicates that total COC molar concentrations decreased relatively quickly and consistently over the 13-year period, as shown on Figure C-2. The decay coefficient (k) for total COC molar concentrations since 2002 is -0.2897 (probability of occurrence [p] = 9.0E-05, confidence interval [α] = 0.05, correlation coefficient [r^2] = 0.73). This decay coefficient results in a half-life of 2.4 years and a statistically significant annual decay rate of 25% per year (95% confidence interval ranging from 16 to 33% per year). As COC molar concentrations exhibited statistically significant exponential decay with less than 1% of total COCs remaining in 2015, the data indicate that COC levels approached asymptotic conditions by 2012 and continued through April 2015.

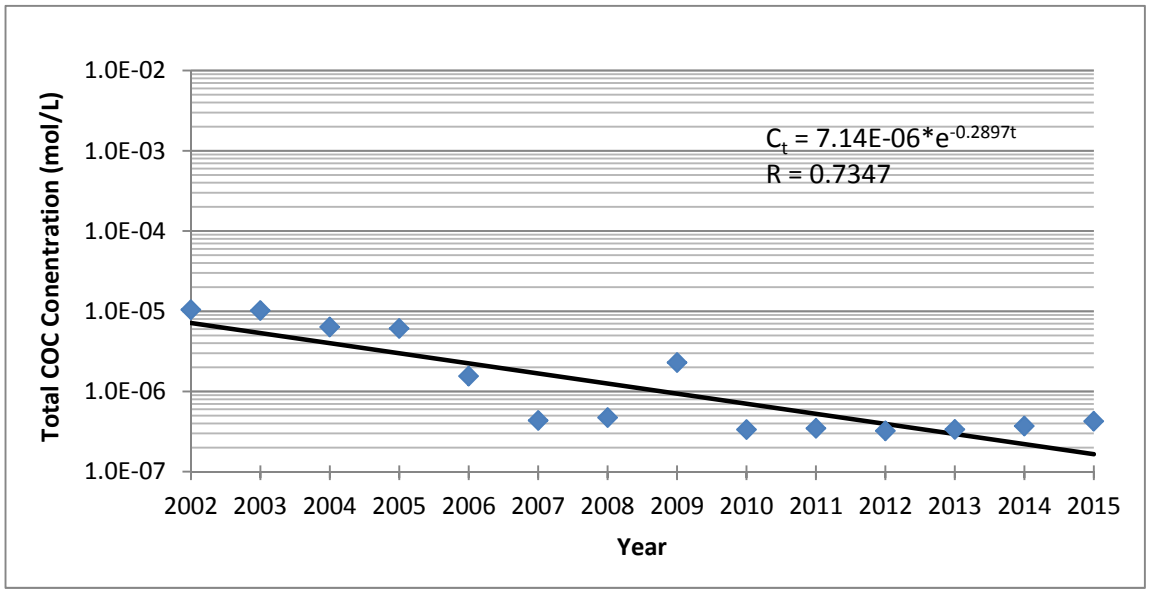
$$Ln(C_t) = -0.2897 * Ln(t) + 568.13$$

$$C_t = 7.14E - 06 * e^{-0.2897t}$$

$$\text{Decay Rate: } (1 - e^{-0.2897}) * 100 = 25\%$$

$$\text{Half-Life: } Ln(1/2)/(-0.2897) = 2.4 \text{ years}$$

Figure C-2: Area 1 Decay Function of Total COC Concentrations



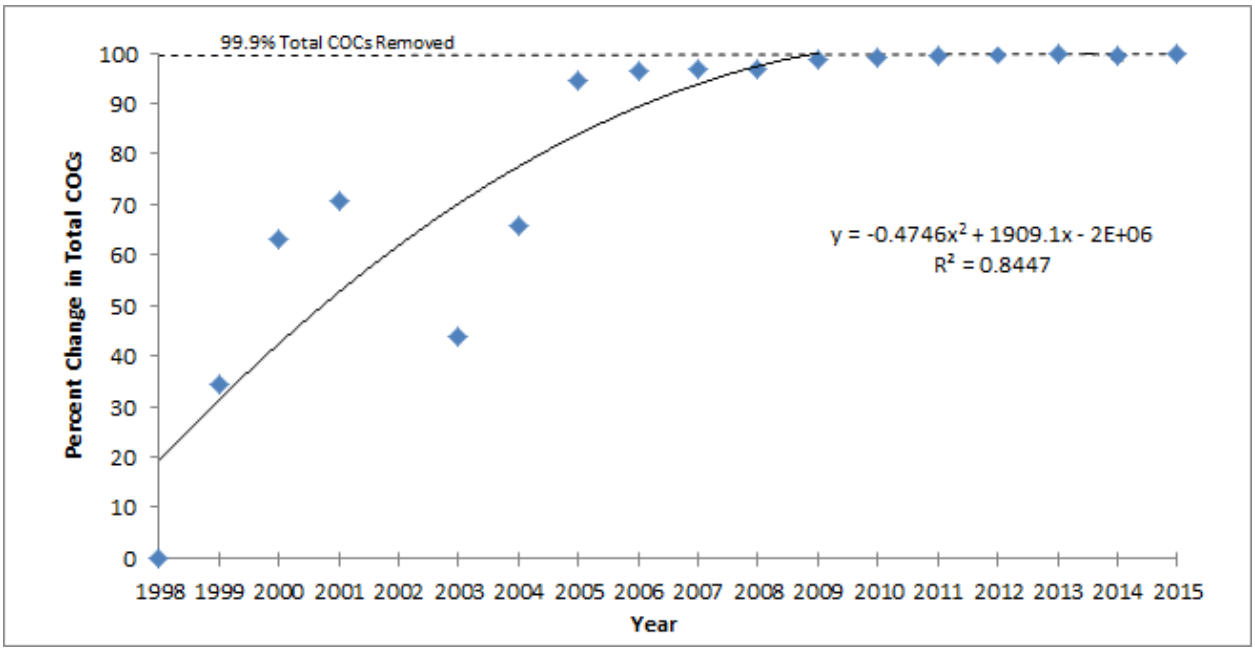
A regression between time (2008 to 2015) and percent total COC reduction further support that COC concentrations in Area 1 approached asymptotic conditions of 100% removal. The computed non-significant mean slope of 0.40% COC reduction per year ($p = 0.29$, $\alpha = 0.05$, $r^2 = 0.18$), with the 95% confidence interval ranging from -0.45 to 1.3% per year, indicates that total COC molar concentrations in Area 1 most likely did not significantly decrease nor increase within the last 8 years, suggesting that COC levels effectively reached an asymptote by 2012 and continued through April 2015.

Area 2

The overall percent reduction in COC levels in Area 2 (i.e., monitoring wells MW-36R, TW-02RRR, MW-34, and MW-35) from 1998 to 2015 was 99.9%, as shown on Figure C-3. As COC levels were within 1% of complete removal, the data indicate that COC levels approached asymptotic conditions by 2012 and continued through April 2015.

$$\frac{\text{(6.1E-04 mol/L) – (7.9E-07 mol/L)}}{\text{(6.1E-04 mol/L)}} * 100 = 99.9\% \text{ reduction}$$

Figure C-3: Area 2 Percent Change in Total COCs



In Area 2, aniline contributions dominated the overall COC molar concentrations. The concentrations of constituents other than aniline quickly achieved 99% reduction or more in the first few years, while aniline data actually increased, reaching a maximum in 2002. At that time, aniline accounted for approximately 99.7% of the total COC molar concentration. Since 2002, Area 2 appears to be approaching asymptotic conditions of 100% removal, as noted by the decay function of total COC molar concentrations from 2002 to 2015, as shown on Figure C-4. Using a first-order decay relation [$C_t = 4.25E\text{-}04 * e^{-0.5017t}$], the total molar concentration of total COCs has an estimated decay coefficient (k) of -0.5017 ($p = 9.5E\text{-}08$, $\alpha = 0.05$, $r^2 = 0.91$), with a corresponding half-life of 1.4 years and a statistically significant annual decay rate of 40% per year (95% confidence interval ranging from 33 to 45% per year). After a 13-year period (2002 to 2015), 0.13% of the total COC molar concentration remained. As COC molar concentrations exhibited statistically significant exponential decay with less than 1% of total COCs remaining in 2015, the data indicate that COC levels approached asymptotic conditions by 2012 and continued through April 2015.

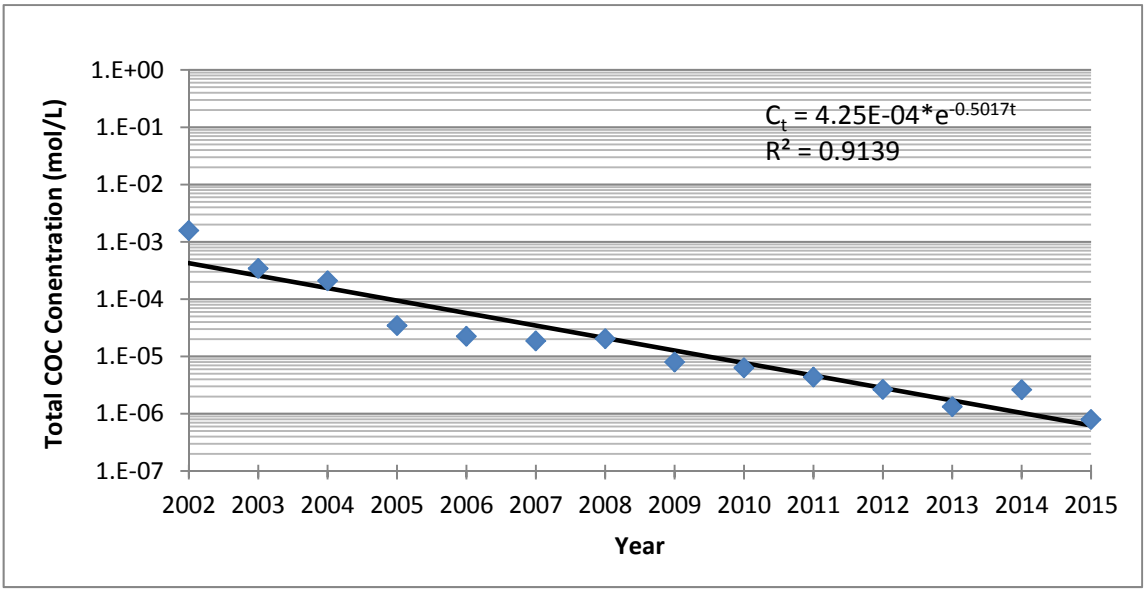
$$Ln(C_t) = -0.5017 * Ln(t) + 996.64$$

$$C_t = 4.25E - 04 * e^{-0.5017t}$$

$$\text{Decay Rate: } (1 - e^{-0.5017}) * 100 = 40\%$$

$$\text{Half-Life: } Ln(1/2)/(-0.5017) = 1.4 \text{ years}$$

Figure C-4: Area 2 Decay Function of Total COC Concentrations



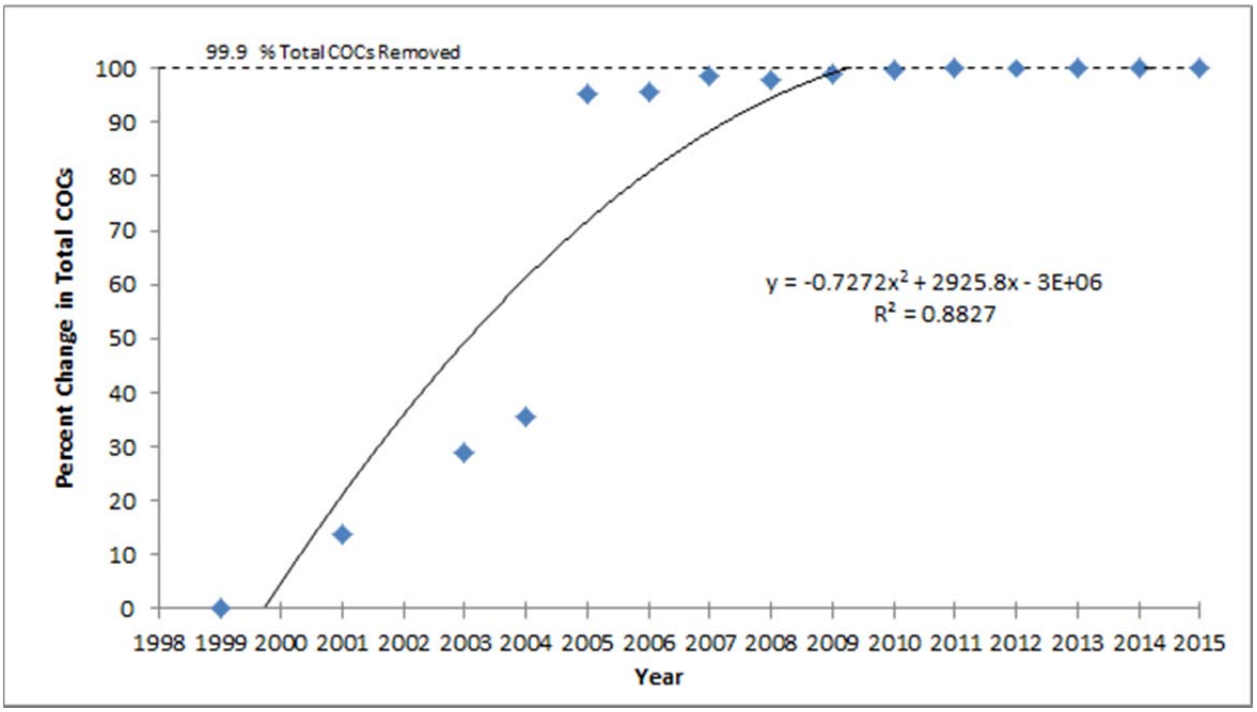
The regression between time (2008 to 2015) and percent total COC reduction indicates a continuing slight positive statistically significant mean slope of 0.35% reduction per year ($p = 0.012$, $\alpha = 0.05$, $r^2 = 0.68$), with the 95% confidence interval ranging from 0.11 to 0.59 percent per year. Despite this minor increase in the percent reduction in total COC molar concentration, Area 2 appeared to be approaching asymptotic conditions by 2012 and continued to trend at asymptotic levels through April 2015, as noted by the lower end of the 95% confidence interval approaching 0% COC reduction per year, the rapid decay rate, and the high degree of total COC removal within the last 6 years (greater than 98.9%).

Area 3

The overall percent reduction in COC levels from 1999 to 2015 in Area 3 (i.e., monitoring wells MW-8SR, MW-27, and MW-28) was 99.9%, as shown on Figure C-5. As COC levels were within 1% of complete removal, the data indicate that COC levels approached asymptotic conditions by 2012 and continued through April 2015.

$$\frac{(4.1E\text{-}03\ mol/L) - (3.9E\text{-}07\ mol/L)}{(4.1E\text{-}03\ mol/L)} * 100 = 99.9\%\ reduction$$

Figure C-5: Area 3 Percent Change in Total COCs



COC molar concentration data were erratic prior to 2002, when aniline, N,N-dimethylaniline, and methylene chloride were major contributors. N,N-dimethylaniline and methylene chloride were essentially gone (greater than 99.9% removal) by 2005. The decay relation [$C_t = 5.55E\text{-}03 * e^{-0.8471t}$] for total COC molar concentrations from 2002 to 2015 supports that COC molar concentrations in Area 3 rapidly decreased over the 13-year period, effectively approaching asymptotic conditions of 100% removal by 2012 and continuing through April 2015, as shown on Figure C-6. The decay coefficient (k) for total COC molar concentrations is -0.8471 (p = 1. 2E-08, α = 0.05, $r^2 = 0.94$), with a half-life of 0.82 years and a statistically significant annual decay rate of 57% per year (95% confidence interval ranging from 51 to 63% per year). After a 13-year period (2002 to 2015), 0.0078% of the total COC molar concentration remained. As COC molar concentrations exhibited statistically significant exponential decay, with less than 1% of total COCs remaining in 2015, the data indicate that COC levels approached asymptotic conditions in 2012 and continued through April 2015.

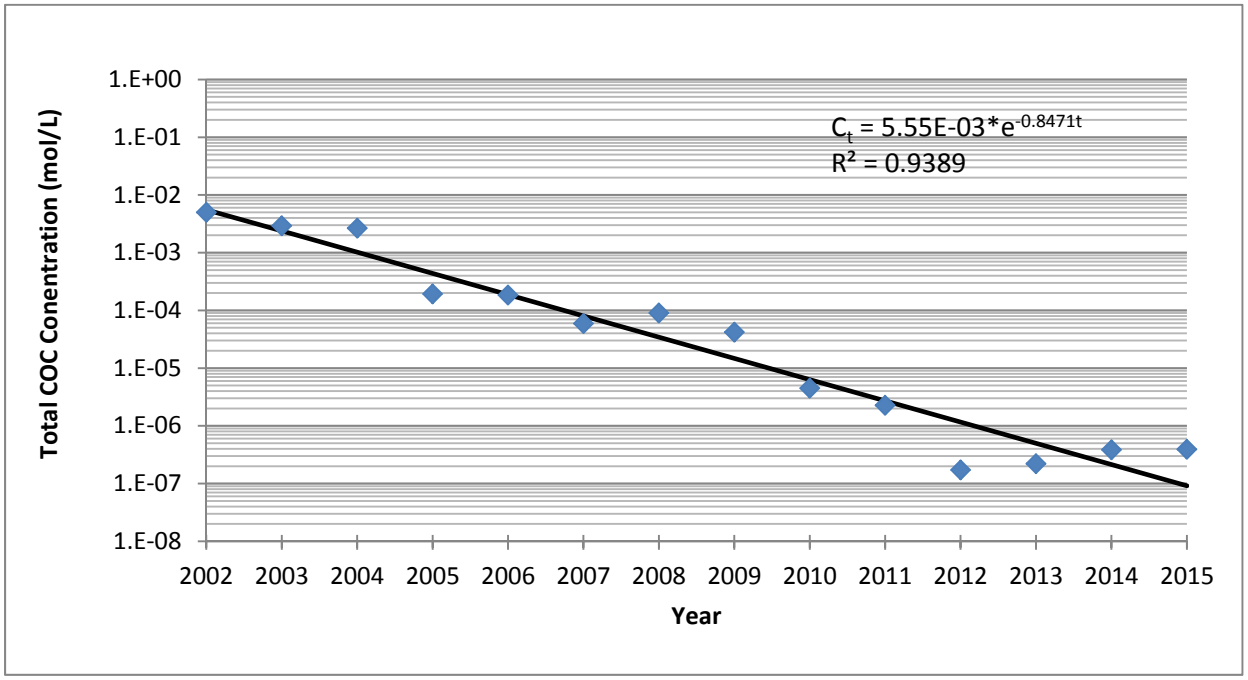
$$Ln(C_t) = -0.8471 * Ln(t) + 1690.7$$

$$C_t = 5.55E - 03 * e^{-0.8471t}$$

$$\text{Decay Rate: } (1 - e^{-0.8471}) * 100 = 57\%$$

$$\text{Half-Life: } Ln(1/2)/(-0.8471) = 0.82 \text{ years}$$

Figure C-6: Area 3 Decay Function of Total COC Concentrations



The regression between time (2008 to 2015) and percent total COC reduction indicates a continuing slight positive statistically significant mean slope of 0.25% COC reduction per year ($p = 0.029$, $\alpha = 0.05$, $r^2 = 0.58$), with the 95% confidence interval ranging from 0.036 to 0.46% per year. Despite this minor increase in the percent reduction in total COC molar concentrations, Area 3 approached asymptotic conditions in 2012 and continued to trend at asymptotic levels through April 2015, as noted by the rapid decay rate and the high degree of COC removal within the last 6 years (greater than 99.9%).

References:

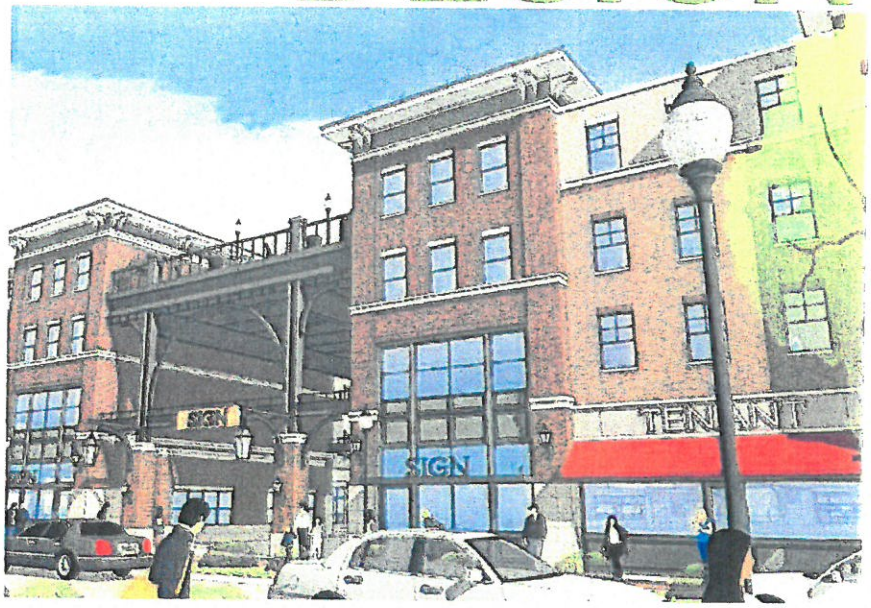
ARCADIS. 2013. January 2013 Periodic Review Report. McKesson Envirosystems Former Bear Street Facility. January 15.

Attachment D

Redevelopment in the Syracuse Inner Harbor

Inside: Sunday Conversation has advice for grads. **D-2**

DESIGN TWEAKS



This rendering shows a fourth-story pedestrian terrace and an entrance to a courtyard for refuse and delivery vehicles.

City OKs changes to Inner Harbor apartment project; construction to start in fall

By Rick Moriarty
rmoriarty@syracuse.com

COR Development Co. has made design changes and expects to begin construction on the first apartments at the Syracuse Inner Harbor by early fall.

The Fayetteville-based development company has decided not to build a two-level basement parking garage under the apartment complex and will instead build a parking lot on the west side of Van Rensselaer Street to serve tenants of the apartments.

Maggie Truax, a spokeswoman for COR, said testing showed that subsurface conditions would not support below-grade parking.

COR also has decided to build two 54-unit apartment buildings, connected by fourth-floor pedestrian terraces on the north and south sides, instead of building a single 108-unit building. Truax said the change will allow motor vehicles to enter the courtyard between the buildings for deliveries and trash pickup.

"It's a more effective and practical use of the space," she said.

The buildings will have four stories, with retail space on the first floor and apartments on the upper three floors.

Construction is scheduled to begin at the end of the summer or early in the fall and will take about 18 months to complete, she said.

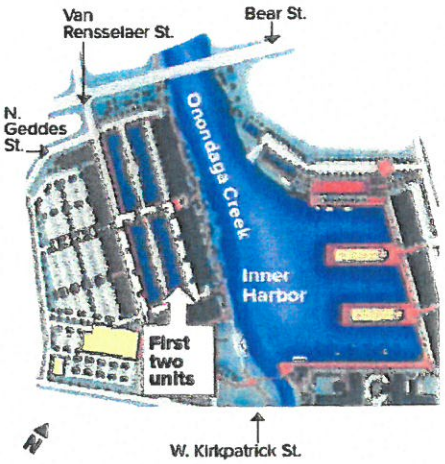
The Syracuse Planning Commission approved both design changes last week. COR is planning to build an identical set of 108 units to the north of the first building. The start of construction of the second group of apartments will depend on how long it takes to lease the first ones, Truax said.

Rents for the units have not been announced.

COR began construction on a 134-room Aloft Hotel on the south bank of the harbor last summer but ran into some delays over the winter. A spring 2016 opening is expected.

The harbor is a former state Barge Canal terminal that the city would like to see redeveloped into a residential, commercial and recreational attraction similar to the Baltimore Inner Harbor.

Contact Rick Moriarty at 470-3148 or by email.



This diagram shows the location of the first two of four 54-unit apartment buildings planned by COR Development for the west bank of the Syracuse Inner Harbor. (Submitted image)

Read more: Local, Inner Harbor, Syracuse City Council, COR Development, Pollution, Creekwalk, Onondaga Lake, Land Transfer, Cleanup

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Inner Harbor development gets OK from Syracuse Council

by Jim Kenyon

Posted: 06.18.2012 at 4:11 PM

Created 1 Created 1 Created 3 Created 4

The Syracuse City Council has approved a plan to turn over 28 acres of the "inner harbor" for private development.

Earlier this year, the City heard from a number of developers interested in transforming the harbor which is on the southern end of Onondaga Lake. COR Development won the contest with its $350 million vision which includes a complex of housing and commercial development, a hotel and a satellite campus for OCC. Steve Aiello of COR Development told reporters, "I'm just excited. I think it's a great project for the city. We're excited to take it on."

Over the decades, the State of New York, which used to own the inner harbor, dumped tons of contaminated material which was dredged from the bottom of the marina onto land next to what is now a picturesque creekwalk. As part of the project, COR will clean out about 217 thousand yards of contaminated soil at a cost of $9.7 million.

Councilor Pat Hogan who was on the committee which selected COR for the inner harbor has no doubt the pollution will be properly addressed, "I'm confident they're going to take care of it. Obviously they're going to end up with it... so it behooves them to take care of it."

Councilors also wanted assurances the public would still have access to the inner harbor which has become a popular spot for concerts and nature walks. "To me public access is key... all that is a really good piece of property. people who live in the City of Syracuse should have an opportunity to use it and take full benefit." said Councilor Jean Kessner.

Aiello assured lawmakers that the public will still have access to the inner harbor along with some new public features including a marina and boathouse.