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July 14, 2015

United States Environmental Protection Agency
Region 5
LU-9J
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Attention: Mr. Don Heller

Reference: Quarterly Progress Report
Administrative Order on Consent
U.S. EPA Docket No. RCRA-05-2010-0014
EMD Millipore Corporation
Norwood, Ohio Facility
Project No. 228581.0006

Dear Mr. Heller:

TRC Environmental Corporation (TRC) is pleased to submit, on behalf of EMD Millipore Corporation, (EMD) the attached Quarterly Progress Report. The Quarterly Progress Report is a requirement of the Administrative Order on Consent (AOC) with the United States Environmental Protection Agency (U.S. EPA), Region 5, to address releases of hazardous waste or hazardous constituents at its facility located at 2909 Highland Avenue, Cincinnati, Ohio.

Should you have any questions regarding the enclosed document, please contact either of us at (513) 489-2255 or via e-mail at JWasserbauer@trcsolutions.com or CKugler@trcsolutions.com.

Sincerely,

TRC Environmental Corporation

James A. Wasserbauer, LPG
Senior Project Manager

Curtis S. Kugler
Project Manager

cc: Mr. Dennis Taus – EMD Millipore (electronic only)
Sherry L. Estes, Esq. – U.S. EPA, Region 5
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QUARTERLY PROGRESS REPORT – SECOND QUARTER 2015
(04/01/2015 – 06/30/2015)
EMD Millipore Corporation, Norwood, Ohio

A. IDENTIFICATION OF FACILITY AND ACTIVITY

The EMD Millipore Corporation (EMD) facility is located at 2909 Highland Avenue, Norwood, Ohio. EMD is conducting corrective measures to address releases of hazardous waste or hazardous constituents at the facility. The U.S. EPA submitted the Notification of Final Decision to EMD on November 5, 2008, and issued the fully executed copy of the 3008(h) Administrative Order on Consent (AOC) and Certificate of Incumbency on March 31, 2010. The *Containment Corrective Measures Operation and Maintenance Plan – Retaining Wall and Groundwater Collection Trench* was submitted to the U.S. EPA on January 10, 2014 and subsequently approved via letter on May 21, 2014. This Quarterly Progress Report is being submitted to fulfill the quarterly reporting requirements of this plan. This is the sixth Quarterly Progress Report submitted under this plan.

Copies of the Quarterly Progress Reports have also been filed at the public repository established by EMD at the Cincinnati Public Library (Norwood Branch) located at 4325 Montgomery Road, Cincinnati, Ohio.

B. STATUS AND PROGRESS DURING THE REPORTING PERIOD

This report includes a summary of work performed and data collected since completion of the ground water treatment system, secant pile wall and ground water collection trench, and the concrete cover system of the final corrective measures in 2013.

1. Performance Monitoring

a. In accordance with the Ground Water Monitoring Plan (GWMP), performance monitoring was conducted during the week of April 20, 2015 by the collection of ground water samples. Sampling locations are identified on Figure 1. Laboratory results from the surface water samples, onsite and offsite monitoring wells and QA/QC results are summarized in the attached Tables 1 through 3.

   Laboratory analytical results have been validated by the TRC data validation coordinator. Appendix I includes the data validation memorandum.

   Laboratory analytical reports and electronic data files are included as a CD in Appendix II.

b. Ground water levels were recorded on April 20, 2015 from all the monitoring wells on and off the property for the demonstration that hydraulic control is being achieved by the corrective measures. This is the sixth water level recording event since completion of the construction activities. Prior to the corrective measures being complete and throughout 2014 and the first quarter of 2015, ground water flow maps from the Upper Sand Unit and Lower Clay Unit were prepared to show the on and off property hydraulic characteristics associated with the performance of the interim measure (French Drain) and offsite migration characteristics from the West Ravine. Table 4 provides the ground water data from the monitoring well network and historical groundwater elevation ranges

from target wells being utilized for hydraulic containment monitoring. Figures 2 and 3 show the ground water contours for the Upper Sand and Lower Clay Units, respectively.

Ground water measurements have also been collected from the ground water intercept trench since April 2014 and are included in Table 5 and Chart 1. The ground water intercept trench intersects both the Upper Sand and Lower Clay Units. Figure 2 shows the ground water contours of the Upper Sand Unit with the ground water intercept trench water level data. Figure 3 shows the ground water contours of the Lower Clay Unit with the ground water intercept trench wells.

2. Operation and Maintenance

a. Effluent monitoring from the ground water treatment system was performed during this period on April 20, 2015, May 21, 2015 and June 29, 2015. Effluent sampling results will continue to be reviewed to evaluate the performance of the treatment system. The treatment system effluent sampling results are summarized in Table 6 and the laboratory reports are included as Appendix II.

b. Monitoring of the effluent from the trench was also performed on the same days as the treatment system effluent monitoring. The trench effluent samples are identified as the treatment system influent samples. The trench effluent monitoring is conducted to identify if there are any spikes in contaminant concentrations that may indicate a new release migrating into the trench. The sampling results collected during this period do not indicate a spike in contaminant concentrations. The trench effluent monitoring results are summarized in Table 7 and the laboratory reports are included as Appendix II.

c. Visual inspection of the remedy components consisting of the entire concrete surface cover in the area of the remediation system and the retaining wall were implemented on June 23, 2015. The visual inspections were conducted to determine if subsidence, erosion or significant fractures have occurred during this reporting period. No subsidence, erosion or significant fractures were observed during these visual observations. However, several small cracks and joint deteriorations, pop-outs, and scaling were observed during the visual inspection and are planned to be repaired during the third quarter of 2015. A quarterly inspection of the cover system including an inspection of all joints was conducted on June 23, 2015 by Lithko Restoration Technologies. Appendix III includes the inspection reports for March 18, 2015 and June 23, 2015. Concrete repairs were made to the surface cover during this reporting period. The June 23, 2015 inspection report was prepared after the concrete repairs were made. The repairs will be summarized in the next inspection report and included in the next quarterly progress report.

3. Tank Farm *In-Situ* Chemical Oxidation Injections

ConeStoga-Rovers Associates (CRA) conducted the third Chemox injection ground water event *in-Situ* Chemical Oxidation (ISCO) event between June 15, 2015 and June 22, 2015.

The ISCO summary report is currently being prepared and will be provided in the next quarterly progress report.

C. EVALUATION OF HYDRAULIC CONTAINMENT

As the facility continues performance monitoring of the corrective measures, the ground water measurements and flow directions from the Upper Sand and Lower Clay Units and the other water level measurements collected during quarterly events will be evaluated and compared to historical groundwater elevations. The data collected from the 2014 events and the first 2015 event was utilized to establish a baseline for post remedy ground water flow direction and hydraulic containment.

As referenced in Section B1, ground water levels were recorded from the ground water interceptor trench and groundwater monitoring wells on April 20, 2015. Table 4 provides the ground water data from the monitoring well network and historical groundwater elevation ranges from target wells being utilized for hydraulic containment monitoring. Chart 2 shows the ground water elevations for each performance well and includes the maximum and minimum baseline recorded elevations from 2014 and the first quarter of 2015. As stated in the Quarterly Progress Report dated January 14, 2015, future ground water measurements will be recorded and compared to the maximum and minimum at each location observed during previously established periods of hydraulic containment. Only if the current quarter's measurements are outside these maximum and minimum observed elevations will ground water contouring be conducted to further evaluate hydraulic containment.

Several ground water elevations recorded on April 20, 2015 at the performance monitoring wells are outside the baseline maximum and minimum. Therefore, ground water contouring has been conducted to further evaluate hydraulic containment. Figures 2 and 3 show the ground water contours for the Upper Sand and Lower Clay Units, respectively. The ground water flow maps indicate that water within the Upper Sand and Lower Clay Units is being captured by the remedial measures and hydraulic containment has been maintained.

D. RESULTS OF COC SAMPLING AND MONITORING

A comparison of the chemicals of concern at the points of compliance (Property boundary) indicates that all results are below the risk-based clean-up standards summarized in the GWMP. Additionally, analytical results from non-compliance ground water monitoring well samples indicate concentrations of 1,4-dioxane and volatile organic compounds (VOCs) are generally within historical concentration ranges. Table 1 summarizes the sampling results compared to the risk-based clean-up standards. These results will be compared to future events to demonstrate that COCs in the ground water are stable.

E. SUMMARY OF PERFORMANCE OF CORRECTIVE MEASURE

The results of the Performance Monitoring and inspections of the remedy components indicate the final corrective measures are performing as designed. These performances will continue to be evaluated in accordance with the GWMP and Operation and Maintenance Plan.

F. SUMMARY OF STAKEHOLDER CORRESPONDENCE

The 2015 first quarter *Quarterly Progress Report* prepared by TRC, dated April 14, 2015, was submitted to the U.S. EPA on April 14, 2015.

G. PROJECT SCHEDULE

During this reporting period, the project schedule, personnel updates, and any summaries of correspondence to/from U.S. EPA are summarized below.

- There have been no changes to the project schedule during this reporting period.

H. 2015 THIRD QUARTER PROJECTED ACTIVITIES

The following activities are planned for next reporting period.

- Ground water elevations will be recorded in July 2015 at all monitoring wells. This will be the seventh event since completion of the construction activities and will be utilized for the evaluation of the hydraulic characteristics compared to the monitoring events conducted in 2014 and the first and second quarter of 2015.
- Ongoing inspection, monitoring and repair of the remedy as defined in the Containment Corrective Measures Operation and Maintenance Plan – Retaining Wall and Groundwater Collection Trench.
- Continued review of effluent sampling results to evaluate performance of the treatment system.
- Post ISCO sampling and analysis at the former tank farm area monitoring wells will be conducted by CRA in September 2015.

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EMD Millipore Corporation

Norwood, Ohio
U.S. EPA ID No. OHD086438538
Project No. 228581.0000

TABLE 1: Quarterly Ground Water VOC Results (April 2015)

Analyte	Risk-Based Cleanup Standards UG/L	DW001 4/21/2015 GW 240-49638-4 UG/L	DW002 4/21/2015 GW 240-49638-6 UG/L	DW003 4/21/2015 GW 240-49638-5 UG/L	DW004 4/21/2015 GW 240-49638-7 UG/L	MW001R 4/22/2015 GW 240-49736-12 UG/L	MW011A 4/23/2015 GW 240-49811-5 UG/L	MW015BR 4/22/2015 GW 240-49736-4 UG/L	MW015R 4/22/2015 GW 240-49736-3 UG/L	MW016 4/23/2015 GW 240-49811-3 UG/L	MW021A 4/23/2015 GW 240-49811-6 UG/L	MW025 4/23/2015 GW 240-49811-7 UG/L	MW026AR 4/22/2015 GW 240-49736-1 UG/L	MW026R 4/22/2015 GW 240-49736-2 UG/L	MW030 4/23/2015 GW 240-49811-2 UG/L	MW031A 4/23/2015 GW 240-49811-4 UG/L	MW031B 4/22/2015 GW 240-49736-9 UG/L	MW031B 4/22/2015 GWDUP 240-49736-14 UG/L	MW031C 4/22/2015 GW 240-49736-8 UG/L	MW031D 4/22/2015 GW 240-49736-7 UG/L
1,1,1,2-TETRACHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
1,1,1-TRICHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
1,1,2,2-TETRACHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
1,1,2-TRICHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
1,1-DICHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	98	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	12 J	< 17 U
1,1-DICHLOROETHENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	3.5 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
1,2,3-TRICHLOROPROPANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
1,2-DIBROMO-3-CHLOROPROPANE	–	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 40 U	< 200 U	< 13 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 25 U	< 2 U	< 2 U	< 25 U	< 33 U
1,2-DICHLOROETHANE	13,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	230	950	180	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	25	< 1 U	< 1 U	34	170
1,2-DICHLOROETHENE, TOTAL	–	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 40 U	100 J	59	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	270	< 2 U	< 2 U	24 J	98
1,2-DICHLOROPROPANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
1,4-DIOXANE	1,000,000	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 100 U	< 1000 U	< 5000 U	1300	< 50 U	120	< 50 U	< 50 U	63	5800	< 50 U	< 50 U	5000	1000
2-BUTANONE	–	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 200 U	< 1000 U	< 67 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 130 U	< 10 U	< 10 U	< 130 U	< 170 U
2-HEXANONE	–	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 200 U	< 1000 U	< 67 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 130 U	< 10 U	< 10 U	< 130 U	< 170 U
3-CHLORO-1-PROPENE	–	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 40 U	< 200 U	< 13 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 25 U	< 2 U	< 2 U	< 25 U	< 33 U
4-METHYL-2-PENTANONE (MIBK)	–	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 200 U	< 1000 U	< 67 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 130 U	< 10 U	< 10 U	< 130 U	< 170 U
ACETONE	–	< 10 U	< 10 U	2.4 J	< 10 U	< 10 U	< 20 U	< 200 U	< 1000 U	210	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 130 U	< 10 U	< 10 U	< 130 U	< 170 U
ACETONITRILE	–	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 40 U	< 400 U	< 2000 U	< 130 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 250 U	< 20 U	< 20 U	< 250 U	< 330 U
ACROLEIN	–	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 40 U	< 400 U	< 2000 U	< 130 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 250 U	< 20 U	< 20 U	< 250 U	< 330 U
ACRYLONITRILE	–	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 40 U	< 400 U	< 2000 U	< 130 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 250 U	< 20 U	< 20 U	< 250 U	< 330 U
BENZENE	2,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	7.5 J	< 17 U
BROMODICHLOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
BROMOFORM	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
BROMOMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
CARBON DISULFIDE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
CARBON TETRACHLORIDE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
CHLOROBENZENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
CHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
CHLOROFORM	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	180	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	0.34 J	0.33 J	< 13 U	< 17 U
CHLOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
CHLOROPRENE	–	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 40 U	< 200 U	< 13 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 25 U	< 2 U	< 2 U	< 25 U	< 33 U
CIS-1,2-DICHLOROETHENE	9,400	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	100	54	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	270	< 1 U	< 1 U	24	98
CIS-1,3-DICHLOROPROPENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
DIBROMOCHLOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
DIBROMOMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
DICHLORODIFLUOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
ETHYL METHACRYLATE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
ETHYLBENZENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
ETHYLENE DIBROMIDE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
IODOMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
ISOBUTANOL	–	< 50 U	< 50 U	22 J	< 50 U	< 50 U	< 100 U	< 1000 U	< 5000 U	< 330 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 630 U	< 50 U	< 50 U	< 630 U	< 830 U
METHACRYLONITRILE	–	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 200 U	< 1000 U	< 67 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 130 U	< 10 U	< 10 U	< 130 U	< 170 U
METHYL METHACRYLATE	–	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 40 U	< 200 U	< 13 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 25 U	< 2 U	< 2 U	< 25 U	< 33 U
METHYLENE CHLORIDE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	32	< 17 U
PROPIONITRILE	–	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 200 U	< 1000 U	< 67 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 130 U	< 10 U	< 10 U	< 130 U	< 170 U
STYRENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
TETRACHLOROETHENE	280	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	73 J	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	39	< 1 U	< 1 U	< 13 U	< 17 U
TOLUENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
TRANS-1,2-DICHLOROETHENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	5.2 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	4.9 J	< 1 U	< 1 U	< 13 U	< 17 U
TRANS-1,3-DICHLOROPROPENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
TRANS-1,4-DICHLORO-2-BUTENE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
TRICHLOROETHENE	3,500	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	690	46	< 1 U	< 1 U	< 1 U	< 1 U	0.37 J	340	0.35 J	0.29 J	4 J	10 J
TRICHLOROFLUOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 20 U	< 100 U	< 6.7 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 13 U	< 1 U	< 1 U	< 13 U	< 17 U
VINYL ACETATE	–	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 40 U	< 200 U	< 13 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 25 U	< 2 U	< 2 U	< 25 U	< 33 U
VINYL CHLORIDE	1,250	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	7.1 J	< 100 U	15	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	53	< 1 U	< 1 U	9.4 J	12 J
XYLENES, TOTAL	–	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 40 U	< 200 U	< 13 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 25 U	< 2 U	< 2 U	< 25 U	< 33 U

See data validation memo for definitions of data qualifiers.
VOCs = Volatile Organic Compounds
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DUP = Duplicate Sample
RE = Laboratory Reanalyzed Sample
µg/L = micrograms per liter

EMD Millipore Corporation

Norwood, Ohio
U.S. EPA ID No. OHD086438538
Project No. 228581.0000

TABLE 1: Quarterly Ground Water VOC Results (April 2(

Analyte	Risk-Based Cleanup Standards UG/L	MW041 4/22/2015 GW 240-49736-5 UG/L	MW043AR 4/23/2015 GW 240-49811-12 UG/L	MW044 4/22/2015 GW 240-49736-6 UG/L	MW505A 4/21/2015 GW 240-49638-13 UG/L	MW505B 4/21/2015 GW 240-49638-12 UG/L	MW508 4/21/2015 GW 240-49638-10 UG/L	MW508B 4/21/2015 GW 240-49638-11 UG/L	MW509A 4/21/2015 GW 240-49638-14 UG/L	MW509B 4/21/2015 GW 240-49638-15 UG/L	MW510A 4/21/2015 GW 240-49638-16 UG/L	MW510B 4/21/2015 GW 240-49638-17 UG/L	P006 4/23/2015 GW 240-49811-11 UG/L	VE542/04_5-09_5 4/21/2015 GWSC 240-49638-8 UG/L	VE542/11_5-16_5 4/21/2015 GWDUP 240-49638-19 UG/L	VE542/11_5-16_5 4/21/2015 GWSC 240-49638-9 UG/L	WRPZ05 4/23/2015 GW 240-49811-8 UG/L	WRPZ10 4/23/2015 GW 240-49811-9 UG/L	WRPZ15 4/23/2015 GW 240-49811-10 UG/L
1,1,1,2-TETRACHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,1,1-TRICHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,1,2,2-TETRACHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,1,2-TRICHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,1-DICHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	3.7 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	3.3	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,1-DICHLOROETHENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,2,3-TRICHLOROPROPANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,2-DIBROMO-3-CHLOROPROPANE	–	< 2 U	< 2 U	< 2 U	< 80 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 8 U	< 29 U	< 13 U	< 2 U	< 2 U	< 2 U
1,2-DICHLOROETHANE	13,000	< 1 U	< 1 U	< 1 U	< 40 U	120	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	3.7 J	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,2-DICHLOROETHENE, TOTAL	–	< 2 U	< 2 U	< 2 U	31 J	310 F1	1.9 J	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	2	3.8 J	< 29 U	< 13 U	< 2 U	< 2 U	< 2 U
1,2-DICHLOROPROPANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
1,4-DIOXANE	1,000,000	< 50 U	< 50 U	< 50 U	17000	2200	560	< 50 U	< 50 U	73	120	< 50 U	< 50 U	2500	2400	2300	430	97	< 50 U
2-BUTANONE	–	< 10 U	< 10 U	< 10 U	< 400 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 40 U	< 140 U	< 67 U	< 10 U	< 10 U	< 10 U
2-HEXANONE	–	< 10 U	< 10 U	< 10 U	< 400 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 40 U	< 140 U	< 67 U	< 10 U	< 10 U	< 10 U
3-CHLORO-1-PROPENE	–	< 2 U	< 2 U	< 2 U	< 80 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 8 U	< 29 U	< 13 U	< 2 U	< 2 U	< 2 U
4-METHYL-2-PENTANONE (MIBK)	–	< 10 U	< 10 U	< 10 U	< 400 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 40 U	< 140 U	< 67 U	< 10 U	< 10 U	< 10 U
ACETONE	–	< 10 U	< 10 U	< 10 U	< 400 U	< 100 U	16	1.1 J	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 40 U	< 140 U	< 67 U	< 10 U	< 10 U	< 10 U
ACETONITRILE	–	< 20 U	< 20 U	< 20 U	< 800 U	< 200 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 80 U	< 290 U	< 130 U	< 20 U	< 20 U	< 20 U
ACROLEIN	–	< 20 U	< 20 U	< 20 U	< 800 U	< 200 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 80 U	< 290 U	< 130 U	< 20 U	< 20 U	< 20 U
ACRYLONITRILE	–	< 20 U	< 20 U	< 20 U	< 800 U	< 200 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 80 U	< 290 U	< 130 U	< 20 U	< 20 U	< 20 U
BENZENE	2,000	< 1 U	< 1 U	< 1 U	< 40 U	4.1 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	2.4 J	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
BROMODICHLOROMETHANE	–	< 1 U	< 1 U	0.68 J	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
BROMOFORM	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
BROMOMETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CARBON DISULFIDE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CARBON TETRACHLORIDE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CHLOROBENZENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CHLOROETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CHLOROFORM	–	< 1 U	< 1 U	2.9	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CHLOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CHLOROPRENE	–	< 2 U	< 2 U	< 2 U	< 80 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 8 U	< 29 U	< 13 U	< 2 U	< 2 U	< 2 U
CIS-1,2-DICHLOROETHENE	9,400	< 1 U	< 1 U	< 1 U	31 J	280 F1	1.9	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	1.7	3.8 J	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
CIS-1,3-DICHLOROPROPENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
DIBROMOCHLOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
DIBROMOMETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
DICHLORODIFLUOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
ETHYL METHACRYLATE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
ETHYLBENZENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
ETHYLENE DIBROMIDE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
IODOMETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
ISOBUTANOL	–	< 50 U	< 50 U	< 50 U	< 2000 U	< 500 U	< 50 U	16 J	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 200 U	< 710 U	< 330 U	< 50 U	< 50 U	< 50 U
METHACRYLONITRILE	–	< 10 U	< 10 U	< 10 U	< 400 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 40 U	< 140 U	< 67 U	< 10 U	< 10 U	< 10 U
METHYL METHACRYLATE	–	< 2 U	< 2 U	< 2 U	< 80 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 8 U	< 29 U	< 13 U	< 2 U	< 2 U	< 2 U
METHYLENE CHLORIDE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
PROPIONITRILE	–	< 10 U	< 10 U	< 10 U	< 400 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 40 U	< 140 U	< 67 U	< 10 U	< 10 U	< 10 U
STYRENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
TETRACHLOROETHENE	280	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
TOLUENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
TRANS-1,2-DICHLOROETHENE	–	< 1 U	< 1 U	< 1 U	< 40 U	31	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.33 J	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
TRANS-1,3-DICHLOROPROPENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
TRANS-1,4-DICHLORO-2-BUTENE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
TRICHLOROETHENE	3,500	< 1 U	< 1 U	< 1 U	< 40 U	4.7 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
TRICHLOROFLUOROMETHANE	–	< 1 U	< 1 U	< 1 U	< 40 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
VINYL ACETATE	–	< 2 U	< 2 U	< 2 U	< 80 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 8 U	< 29 U	< 13 U	< 2 U	< 2 U	< 2 U
VINYL CHLORIDE	1,250	< 1 U	< 1 U	< 1 U	< 40 U	79	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	1.7	< 4 U	< 14 U	< 6.7 U	< 1 U	< 1 U	< 1 U
XYLENES, TOTAL	–	< 2 U	< 2 U	< 2 U	< 80 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 8 U	< 29 U	< 13 U	< 2 U	< 2 U	< 2 U

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GW = Ground Water
DUP = Duplicate Sample
RE = Laboratory Reanalyzed Sample
µg/L = micrograms per liter

EMD Millipore Corporation

Norwood, Ohio

U.S. EPA ID No. OHD086438538

Project No. 228581.0000

TABLE 2: Surface Water VOC Results (April 2015)

ANALYTE	DC INFLOW 4/20/2015 SW 240-49638-3 UG/L	DC OUTFLOW 4/20/2015 SW 240-49638-2 UG/L
1,1,1,2-TETRACHLOROETHANE	< 1 U	< 1 U
1,1,1-TRICHLOROETHANE	< 1 U	< 1 U
1,1,2,2-TETRACHLOROETHANE	< 1 U	< 1 U
1,1,2-TRICHLOROETHANE	< 1 U	< 1 U
1,1-DICHLOROETHANE	< 1 U	< 1 U
1,1-DICHLOROETHENE	< 1 U	< 1 U
1,2,3-TRICHLOROPROPANE	< 1 U	< 1 U
1,2-DIBROMO-3-CHLOROPROPANE	< 2 U	< 2 U
1,2-DICHLOROETHANE	< 1 U	< 1 U
1,2-DICHLOROETHENE, TOTAL	< 2 U	< 2 U
1,2-DICHLOROPROPANE	< 1 U	< 1 U
1,4-DIOXANE	< 50 U	< 50 U
2-BUTANONE	0.65 J	< 10 U
2-HEXANONE	< 10 U	< 10 U
3-CHLORO-1-PROPENE	< 2 U	< 2 U
4-METHYL-2-PENTANONE (MIBK)	< 10 U	< 10 U
ACETONE	28	3.2 J
ACETONITRILE	< 20 U	< 20 U
ACROLEIN	< 20 U	< 20 U
ACRYLONITRILE	< 20 U	< 20 U
BENZENE	< 1 U	< 1 U
BROMODICHLOROMETHANE	< 1 U	< 1 U
BROMOFORM	< 1 U	< 1 U
BROMOMETHANE	< 1 U	< 1 U
CARBON DISULFIDE	< 1 U	< 1 U
CARBON TETRACHLORIDE	< 1 U	< 1 U
CHLOROBENZENE	< 1 U	< 1 U
CHLOROETHANE	< 1 U	< 1 U
CHLOROFORM	< 1 U	< 1 U
CHLOROMETHANE	< 1 U	< 1 U
CHLOROPRENE	< 2 U	< 2 U

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TABLE 2: Surface Water VOC Results (April 2015)

ANALYTE	DC INFLOW 4/20/2015 SW 240-49638-3 UG/L	DC OUTFLOW 4/20/2015 SW 240-49638-2 UG/L
CIS-1,2-DICHLOROETHENE	< 1 U	< 1 U
CIS-1,3-DICHLOROPROPENE	< 1 U	< 1 U
DIBROMOCHLOROMETHANE	< 1 U	< 1 U
DIBROMOMETHANE	< 1 U	< 1 U
DICHLORODIFLUOROMETHANE	< 1 U	< 1 U
ETHYL METHACRYLATE	< 1 U	< 1 U
ETHYLBENZENE	< 1 U	< 1 U
ETHYLENE DIBROMIDE	< 1 U	< 1 U
IODOMETHANE	< 1 U	< 1 U
ISOBUTANOL	< 50 U	< 50 U
METHACRYLONITRILE	< 10 U	< 10 U
METHYL METHACRYLATE	< 2 U	< 2 U
METHYLENE CHLORIDE	< 1 U	< 1 U
PROPIONITRILE	< 10 U	< 10 U
STYRENE	< 1 U	< 1 U
TETRACHLOROETHENE	< 1 U	< 1 U
TOLUENE	< 1 U	< 1 U
TRANS-1,2-DICHLOROETHENE	< 1 U	< 1 U
TRANS-1,3-DICHLOROPROPENE	< 1 U	< 1 U
TRANS-1,4-DICHLORO-2-BUTENE	< 1 U	< 1 U
TRICHLOROETHENE	0.25 J	< 1 U
TRICHLOROFLUOROMETHANE	< 1 U	< 1 U
VINYL ACETATE	< 2 U	< 2 U
VINYL CHLORIDE	< 1 U	< 1 U
XYLENES, TOTAL	< 2 U	< 2 U

See data validation memo for definitions of data qualifiers.

VOCs = Volatile Organic Compounds

SW = Surface Water

RE = Laboratory Reanalyzed Sample

µg/L = micrograms per liter

EMD Millipore Corporation

Norwood, Ohio

U.S. EPA ID No. OHD086438538

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TABLE 3: Aqueous Quality Control VOC Results (April 2015)

ANALYTE	FIELD BLANK 4/21/2015 QFB 240-49638-18 UG/L	FIELD BLANK 4/22/2015 QFB 240-49736-10 UG/L	RINSEATE 4/22/2015 QRIN 240-49736-11 UG/L	TRIP BLANK 4/20/2015 QTB 240-49638-1 UG/L	TRIP BLANK 4/22/2015 QTB 240-49736-13 UG/L	TRIP BLANK 4/23/2015 QTB 240-49811-1 UG/L
1,1,1,2-TETRACHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-TRICHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-TETRACHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-TRICHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-DICHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-DICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,3-TRICHLOROPROPANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-DIBROMO-3-CHLOROPROPANE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-DICHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-DICHLOROETHENE, TOTAL	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-DICHLOROPROPANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-DIOXANE	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2-BUTANONE	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-HEXANONE	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
3-CHLORO-1-PROPENE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
4-METHYL-2-PENTANONE (MIBK)	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
ACETONE	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	7.2 J
ACETONITRILE	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
ACROLEIN	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
ACRYLONITRILE	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
BENZENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
BROMODICHLOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
BROMOFORM	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
BROMOMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CARBON DISULFIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CARBON TETRACHLORIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CHLOROBENZENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CHLOROFORM	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CHLOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CHLOROPRENE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
CIS-1,2-DICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CIS-1,3-DICHLOROPROPENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
DIBROMOCHLOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
DIBROMOMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
DICHLORODIFLUOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
ETHYL METHACRYLATE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
ETHYLBENZENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
ETHYLENE DIBROMIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
IODOMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
ISOBUTANOL	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
METHACRYLONITRILE	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U

EMD Millipore Corporation

Norwood, Ohio

U.S. EPA ID No. OHD086438538

Project No. 228581.0000

TABLE 3: Aqueous Quality Control VOC Results (April 2015)

ANALYTE	FIELD BLANK 4/21/2015 QFB 240-49638-18 UG/L	FIELD BLANK 4/22/2015 QFB 240-49736-10 UG/L	RINSEATE 4/22/2015 QRIN 240-49736-11 UG/L	TRIP BLANK 4/20/2015 QTB 240-49638-1 UG/L	TRIP BLANK 4/22/2015 QTB 240-49736-13 UG/L	TRIP BLANK 4/23/2015 QTB 240-49811-1 UG/L
METHYL METHACRYLATE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
METHYLENE CHLORIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
PROPIONITRILE	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
STYRENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TETRACHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TOLUENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TRANS-1,2-DICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TRANS-1,3-DICHLOROPROPENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TRANS-1,4-DICHLORO-2-BUTENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TRICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TRICHLOROFLUOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VINYL ACETATE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
VINYL CHLORIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
XYLENES, TOTAL	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U

See data validation memo for definitions of data qualifiers.

VOCs = Volatile Organic Compounds

QFB = Field Blank

QRIN = Equipment Rinseate

QTB = Trip Blank

µg/L = micrograms per liter

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Table 4: Performance Monitoring Well Ground Water Elevations, 04/20/2015

B0=Fill; C0=Upper Till Unit; C1=Upper Till Sand Seams; D1=Upper Sand Unit; D2=Lacustrine Unit; D3=Lower Clay Unit; D4=Lower Sand Zone; D5=Lacustrine 2 Zone; E1=Lacustrine 3 Zone
PVC=Poly Vinyl Chloride; SS=Stainless Steel; Iron=Iron Pipe; NL=Not Listed
fbtoc=feet below top of casing; famsl=feet above mean sea level; DCBC=Duck Creek Box Culvert
State Plane coordinates (NAD83/NAVD88) surveyed by G.J. Berding Surveying, Inc., 2004/2005.

Well ID	Easting	Northing	Top of Casing Elevation (famsl)	Ground Water Elevation (fbtoc)	Ground Water Elevation (famsl)	Total Well Depth (fbtoc)	Casing Diameter (inches)	Casing Material	Geologic Unit Screened	Baseline Ground Water Elevation Ranges (famsl)	
DW001	1419787.08	430079.00	582.50	10.02	572.48	30.46	2.00	PVC	D3-Middle	Max	573.49
										Min	571.47
DW002	1419985.28	430108.94	578.44	13.96	564.48	27.83	2.00	PVC	D3-Middle	Max	566.48
										Min	563.96
DW003	1420054.60	430125.89	577.10	11.31	565.79	29.33	2.00	PVC	D3-Middle	Max	566.86
										Min	564.24
DW004	1420078.14	430128.17	576.79	20.83	555.96	42.44	2.00	PVC	D3-Lower	Max	557.00
										Min	542.86
MW004	1419890.20	430376.76	609.85	3.46	606.39	11.75	2.00	SS	B0	Max	--
										Min	--
MW006	1419951.30	430284.88	608.39	11.98	596.41	16.19	2.00	SS	B0	Max	--
										Min	--
MW011	1419451.70	430726.56	617.18	7.33	609.85	20.58	2.00	SS	C1	Max	--
										Min	--
MW011A	1419456.70	430726.09	618.64	34.63	584.01	40.14	0.75	Iron	D1	Max	585.45
										Min	582.42
MW011C	1419470.90	430724.79	616.17	30.76	585.41	51.47	2.00	SS	D3-Upper	Max	--
										Min	--
MW012	1419879.40	430305.53	609.03	17.09	591.94	24.93	2.00	SS	B0	Max	--
										Min	--
MW013	1420051.30	430292.75	610.41	14.06	596.35	22.71	2.00	SS	C1	Max	--
										Min	--
MW014	1420057.80	430400.11	610.39	29.62	580.77	31.19	2.00	SS	D1	Max	--
										Min	--
MW014A	1420055.70	430396.89	611.16	8.38	602.78	15.96	0.75	Iron	C1	Max	--
										Min	--
MW016	1420181.30	430466.79	596.59	27.55	569.04	36.99	2.00	SS	D1	Max	569.02
										Min	568.41
MW021A	1419776.50	430664.08	611.20	28.68	582.52	33.63	2.00	SS	D1	Max	595.36
										Min	581.10
MW021B	1419774.00	430664.23	611.17	15.22	595.95	21.88	2.00	SS	C1	Max	--
										Min	--
MW025	1419991.30	430667.55	606.19	9.20	596.99	20.85	2.00	SS	C1	Max	597.30
										Min	595.60
MW025A	1419940.50	430670.88	607.98	26.01	581.97	41.98	2.00	SS	D1	Max	--
										Min	--
MW027	1419776.90	430157.16	610.18	7.84	602.34	21.28	2.00	SS	C1	Max	--
										Min	--
MW029	1420099.80	430635.41	602.99	21.97	581.02	33.29	2.00	SS	D1	Max	--
										Min	--
MW030	1420070.00	430570.20	608.48	35.03	573.45	72.50	2.00	SS	D3-Middle	Max	583.26
										Min	572.68
MW031A	1419906.70	430519.78	610.45	18.99	591.46	35.25	2.00	SS	D1	Max	601.60
										Min	587.24
MW031B	1419902.20	430520.02	610.43	10.60	599.83	25.03	2.00	SS	C1	Max	596.25
										Min	593.83
MW031C	1419898.50	430517.80	609.95	30.24	579.71	51.30	2.00	SS	D2-Lower	Max	580.44
										Min	577.86
MW031D	1419903.10	430516.72	609.91	31.51	578.40	61.90	2.00	SS	D3-Upper	Max	579.29
										Min	577.16
MW035	1419879.20	430445.33	608.96	27.45	581.51	32.46	2.00	SS	D1	Max	--
										Min	--
MW035A	1419884.60	430441.64	609.00	27.34	581.66	34.00	4.00	PVC	D1	Max	--
										Min	--

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Table 4: Performance Monitoring Well Ground Water Elevations, 04/20/2015

B0=Fill; C0=Upper Till Unit; C1=Upper Till Sand Seams; D1=Upper Sand Unit; D2=Lacustrine Unit; D3=Lower Clay Unit; D4=Lower Sand Zone; D5=Lacustrine 2 Zone; E1=Lacustrine 3 Zone
PVC=Poly Vinyl Chloride; SS=Stainless Steel; Iron=Iron Pipe; NL=Not Listed
fbtoc=feet below top of casing; famsl=feet above mean sea level; DCBC=Duck Creek Box Culvert
State Plane coordinates (NAD83/NAVD88) surveyed by G.J. Berding Surveying, Inc., 2004/2005.

Well ID	Easting	Northing	Top of Casing Elevation (famsl)	Ground Water Elevation (fbtoc)	Ground Water Elevation (famsl)	Total Well Depth (fbtoc)	Casing Diameter (inches)	Casing Material	Geologic Unit Screened	Baseline Ground Water Elevation Ranges (famsl)	
MW041	1420279.20	430603.59	595.04	28.68	566.36	55.34	2.00	SS	D2-Lower	Max	566.65
										Min	565.96
MW044	1420308.50	430661.26	594.73	26.60	568.13	56.03	2.00	SS	D3-Lower	Max	567.60
										Min	566.58
MW051A	1419710.70	430138.92	609.31	15.22	594.09	22.21	2.00	SS	C1	Max	--
										Min	--
MW301	1419617.80	430609.13	612.43	Lost, Paved Over	--	23.50	2.00	SS	C1	Max	--
										Min	--
MW505A	1420182.20	430051.41	571.78	2.48	569.30	13.60	2.00	SS	D2-Middle	Max	567.78
										Min	567.16
MW505B	1420183.50	430050.20	571.70	7.36	564.34	21.38	2.00	SS	D2-Lower	Max	565.49
										Min	564.43
MW506	1420382.30	430221.60	566.76	11.31	555.45	14.05	2.00	SS	Sewer Backfill	Max	--
										Min	--
MW507	1420388.10	430000.81	568.67	12.23	556.44	19.30	2.00	SS	D2-Lower	Max	--
										Min	--
MW507B	1420395.58	429994.67	569.35	14.83	554.52	27.08	2.00	PVC	D3-Lower	Max	--
										Min	--
MW508	1420141.80	429909.99	590.51	33.20	557.31	36.49	2.00	SS	B0-Lower	Max	557.16
										Min	556.42
MW508B	1420159.30	429904.31	590.35	38.27	552.08	50.12	2.00	PVC	D3-Lower	Max	556.07
										Min	548.18
MW509A	1420557.33	429973.21	566.09	8.14	557.95	18.71	2.00	PVC	B0-Lower	Max	558.04
										Min	556.67
MW509B	1420550.88	429971.94	566.07	11.33	554.74	26.45	2.00	PVC	D3-Lower	Max	566.07
										Min	550.01
MW510A	1420487.41	429873.49	569.66	14.09	555.57	15.75	2.00	PVC	B0-Lower	Max	555.21
										Min	554.87
MW510B	1420482.86	429877.57	570.01	23.14	546.87	29.21	2.00	PVC	D3-Lower	Max	546.86
										Min	545.49
P001	1420161.30	430368.72	599.77	20.97	578.80	30.67	2.00	SS	D1	Max	--
										Min	--
P005	1419770.40	430155.51	610.81	28.21	582.60	30.51	2.00	SS	D1	Max	--
										Min	--
P006	1420188.70	430551.39	595.52	28.17	567.35	54.00	2.00	SS	D3-Middle	Max	567.60
										Min	566.86
P006A	1420194.80	430550.52	592.40	28.52	563.88	53.20	4.00	PVC	D3-Middle	Max	--
										Min	--
P007	1420187.30	430572.84	594.95	Rusted Shut	--	48.85	2.00	PVC	D3-Middle	Max	--
										Min	--
P008	1420190.70	430518.84	595.80	Rusted Shut	--	49.30	2.00	PVC	D3-Middle	Max	--
										Min	--
P009	1420192.10	430496.79	596.64	28.26	568.38	52.04	2.00	PVC	D3-Middle	Max	--
										Min	--
WRPZ05	1419873.72	430096.79	579.85	0.91	578.94	5.06	1.00	PVC	B0-Lower	Max	579.35
										Min	576.31
WRPZ10	1419879.15	430096.96	579.67	1.41	578.26	9.95	1.00	PVC	D2-Middle	Max	578.97
										Min	576.11
WRPZ15	1419884.16	430098.11	579.45	5.97	573.48	14.80	1.00	PVC	D2-Middle	Max	577.62
										Min	572.42
WRPZ20	1419888.47	430098.89	579.39	7.71	571.68	19.50	1.00	PVC	D2-Lower	Max	--
										Min	--
VE535/12-17	--	--	--	Dry	--	17.00	1.00	PVC	B0-Lower	Max	--
										Min	--

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Well ID	Easting	Northing	Top of Casing Elevation (famsl)	Ground Water Elevation (fbtoc)	Ground Water Elevation (famsl)	Total Well Depth (fbtoc)	Casing Diameter (inches)	Casing Material	Geologic Unit Screened	Baseline Ground Water Elevation Ranges (famsl)	
VE539/06-11	1420086.44	430133.81	576.68	1.90	574.78	11.00	1.00	PVC	B0-Lower	Max	--
										Min	--
VE542/04.5-09.5	1420008.24	430113.43	578.31	0.89	577.42	9.50	1.00	PVC	D2-Upper	Max	575.62
										Min	573.36
VE542/11.5-16.5	1420006.04	430112.95	578.29	9.66	568.63	16.50	1.00	PVC	D2-Lower	Max	572.59
										Min	567.07
VE543/14-19	--	--	--	Lost	--	16.50	1.00	PVC	--	Max	--
										Min	--
MW26AR	1419640.73	430489.15	610.61	28.65	581.96	59.70	2.00	PVC	D1	Max	582.62
										Min	579.42
MW26R	1419640.02	430482.06	610.75	28.77	581.98	41.97	2.00	PVC	D3-Middle	Max	583.98
										Min	580.28
MW01R	1419625.69	430268.36	608.24	12.20	596.04	33.25	2.00	PVC	C1	Max	603.89
										Min	592.94
MW01AR	1419615.57	430270.15	608.20	23.87	584.33	31.63	2.00	PVC	C1	Max	--
										Min	--
PZ-3AR	1419812.72	430177.14	606.89	26.61	580.28	31.63	2.00	PVC	--	Max	--
										Min	--
PZ-3BR	1419812.48	430178.55	606.98	31.54	575.44	48.30	2.00	PVC	--	Max	--
										Min	--
MW15BR	1420167.97	430288.20	600.53	30.72	569.81	54.45	2.00	PVC	D3-Upper	Max	568.66
										Min	566.39
MW15R	1420165.41	430285.65	600.58	21.12	579.46	28.60	2.00	PVC	D1	Max	579.04
										Min	575.85
MW23R	--	--	597.30	37.44	559.86	38.98	2.00	PVC	Sewer Backfill	Max	--
										Min	--
MW18R	--	--	597.23	36.47	560.76	--	2.00	PVC	Sewer Backfill	Max	--
										Min	--
MW43AR	--	--	597.43	34.69	562.74	52.20	2.00	PVC	D5	Max	562.99
										Min	560.79

Note: Baseline data generated from quarterly performance monitoring ground water measurements.

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Table 5: Groundwater Intercept Trench Water Levels

Shaft # / Top PVC Elev / Feet (asl) Shaft # / Top PVC Elev / Feet (asl)	Well Number	Cover	Groundwater Intercept Trench Water Levels												
			4/1/2014	4/28/2014	5/8/2014	6/26/2014	7/3/2014	8/12/2014	10/2/2014	11/24/2014	12/16/2014	1/17/2015	3/12/2015	4/28/2015	Trench Bottom
TMW	2	606.482	571.822	568.482	569.982	569.482	571.232	569.982	566.822	571.732	570.482	572.482	576.102	574.102	550.000
TMW	4	606.475	571.815	568.482	569.982	569.732	571.232	569.982	566.822	571.732	570.482	572.482	576.102	574.102	550.000
TMW	6	606.409	571.749	568.482	569.982	569.732	571.482	569.982	566.822	571.772	570.482	572.482	576.102	574.102	550.000
TMW	8	606.418	571.758	568.482	569.982	569.732	571.482	569.982	566.822	571.772	570.482	572.482	576.102	574.102	550.000
TMW	10	606.344	571.844	568.732	569.982	569.732	571.482	569.982	566.982	571.822	570.732	573.062	576.152	574.152	550.000
TMW	12	606.274	571.774	568.732	570.152	569.822	571.732	570.152	566.982	571.822	570.732	573.062	576.152	574.152	550.000
TMW	14	606.143	571.643	568.982	570.152	569.982	571.732	570.232	567.152	572.022	570.852	572.772	576.272	574.192	550.000
TMW	16	606.179	571.679	568.982	570.152	569.982	571.732	570.232	567.152	572.022	570.852	572.772	576.272	574.192	550.000
TMW	18	606.154	571.654	568.982	570.152	569.982	571.732	570.232	567.152	572.022	570.902	572.942	576.312	574.402	550.000
TMW	20	606.125	571.625	568.982	570.152	569.982	571.732	570.232	567.152	572.022	570.902	572.942	576.312	574.402	550.000
TMW	22	606.089	571.589	568.982	570.152	569.982	571.732	570.232	567.152	572.062	570.982	572.902	576.352	574.352	550.000
TMW	24	606.074	571.574	568.982	570.152	569.982	571.732	570.232	567.152	572.062	570.982	572.902	576.352	574.352	550.000
TMW	26	606.059	571.559	568.982	569.482	569.982	570.482	569.982	566.982	572.062	573.022	572.982	576.402	574.402	550.000
TMW	28	606.061	570.401	568.482	569.482	569.232	570.482	569.982	566.982	572.062	573.022	572.982	576.402	574.402	550.000
TMW	30	606.040	570.040	568.232	569.232	569.232	570.232	569.982	566.982	569.152	569.152	572.982	575.152	574.402	550.000
TMW	32	606.079	569.829	568.232	569.232	569.152	570.232	569.982	566.982	569.152	569.152	572.982	575.152	574.402	550.000
TMW	34	606.081	569.831	568.232	569.232	569.152	570.232	569.982	566.982	568.942	568.982	570.232	575.062	573.102	550.000
TMW	36	606.097	569.847	568.232	569.232	569.152	570.082	569.982	566.982	568.942	568.982	570.232	575.062	573.102	550.000
TMW	38	606.115	569.615	568.152	569.232	568.982	570.082	569.982	566.982	568.822	568.982	570.102	574.942	572.982	550.000
TMW	40	606.129	569.629	568.152	568.982	568.982	570.082	569.982	566.982	568.822	568.982	570.102	574.942	572.982	550.000
TMW	42	606.174	569.674	567.822	568.982	568.822	569.822	569.982	566.712	568.732	568.902	569.982	574.732	572.732	550.000
TMW	44	606.388	569.888	567.822	568.982	568.732	569.982	569.732	566.712	568.732	568.902	569.982	574.732	572.732	550.000
TMW	46	606.240	569.740	567.982	568.822	568.482	569.732	569.732	566.732	568.692	568.482	569.902	574.352	572.482	550.000
TMW	48	606.498	569.748	567.982	568.822	568.152	569.732	569.482	566.482	568.692	568.482	569.902	574.352	572.482	550.000
TMW	50	606.543	569.793	567.822	568.152	567.822	568.982	569.482	566.482	568.272	568.402	569.852	574.022	572.402	550.000
TMW	52	606.625	569.295	567.482	567.822	567.482	568.732	569.152	566.482	568.272	568.402	569.852	574.022	572.402	550.000
TMW	54	606.631	568.881	567.152	567.732	567.482	568.482	568.982	566.232	567.732	568.062	569.442	573.482	572.102	550.000
TMW	56	606.661	568.661	566.982	567.482	567.232	568.232	568.982	566.232	567.732	568.062	569.442	573.482	572.102	550.000
TMW	58	606.629	568.629	566.982	567.232	566.482	568.152	568.982	566.232	567.482	567.852	568.942	572.812	571.022	550.000
TMW	60	606.664	568.334	566.822	565.732	562.482	566.982	568.732	566.232	567.482	567.852	568.942	572.812	571.022	550.000
TMW	62	606.718	567.218	564.152	563.182	562.482	563.152	566.982	560.482	565.982	567.692	568.822	572.352	570.822	550.000
TMW	64	606.721	564.221	561.482	563.182	562.232	563.152	561.232	559.482	565.982	567.692	568.822	572.352	570.822	550.000
TMW	66	606.731	564.231	561.482	562.982	562.232	562.982	561.232	559.482	563.312	563.942	567.232	568.152	569.352	550.000
TMW	68	606.695	564.035	561.232	562.982	562.232	562.982	561.152	559.482	563.312	563.942	567.232	568.152	569.352	550.000
TMW	70	606.798	564.138	561.232	562.982	562.232	562.982	561.152	559.482	563.232	563.822	564.902	568.062	565.352	550.000
TMW	72	606.728	563.978	561.232	562.982	561.822	562.982	561.152	559.482	563.232	563.822	564.902	568.062	565.352	550.000
TMW	74	606.721	563.221	561.232	562.482	561.822	562.232	561.152	559.232	563.192	563.822	564.732	567.982	565.152	550.000
TMW	76	606.761	563.261	560.982	562.232	561.822	562.232	560.822	559.232	563.192	563.822	564.732	567.982	565.152	550.000
TMW	78	606.852	563.352	560.822	562.232	561.822	562.232	560.822	559.232	562.732	563.192	564.732	567.312	565.152	550.000
TMW	80	606.907	563.577	560.822	562.232	561.732	562.232	560.732	559.232	562.732	563.192	564.732	567.312	565.152	550.000
TMW	82	606.899	563.569	560.822	562.232	561.482	562.152	560.732	559.152	562.482	563.152	563.942	567.152	564.272	550.000
TMW	84	606.935	563.185	560.732	562.152	559.982	561.982	560.482	559.152	562.482	563.152	563.942	567.152	564.272	550.000
TMW	86	606.971	563.221	560.732	560.482	559.982	560.152	559.232	558.982	562.352	563.022	563.852	567.102	564.192	550.000
TMW	88	606.986	560.736	559.152	559.822	559.822	560.152	559.232	557.732	562.352	563.022	563.852	567.102	564.192	550.000
TMW	90	606.996	560.746	559.152	559.822	559.822	560.152	559.232	557.732	560.152	560.402	563.692	564.482	564.022	550.000
TMW	92	607.033	560.783	558.982	559.822	559.822	559.982	559.232	557.732	560.152	560.402	563.692	564.482	564.022	550.000
TMW	94	607.065	560.735	558.982	559.822	559.822	559.982	559.152	557.482	560.062	560.312	560.982	564.442	561.022	550.000
TMW	96	607.077	560.747	558.982	559.822	559.482	559.982	559.152	557.482	560.062	560.312	560.982	564.442	561.022	550.000
TMW	98	607.096	560.766	558.982	559.482	559.482	559.822	558.982	557.482	560.062	560.272	560.902	564.402	560.942	550.000
TMW	100	607.106	560.446	558.982	559.482	558.232	559.822	558.982	557.482	560.062	560.272	560.902	564.402	560.942	550.000
TMW	102	607.106	560.446	558.822	557.732	561.232	558.482	557.822	557.482	559.822	560.022	560.852	564.062	560.902	550.000
TMW	104	607.141	558.891	558.822	557.732	558.232	558.232	557.732	556.982	559.822	560.022	560.852	564.062	560.902	550.000
TMW	106	607.158	558.908	558.732	557.732	558.232	558.232	557.732	556.982	558.442	558.902	560.312	562.692	560.312	550.000
TMW	108	607.176	558.926	558.732	557.482	557.482	558.232	557.482	556.882	558.442	558.902	560.312	562.692	560.312	550.000
TMW	110	607.199	558.799	558.732	557.482	557.482	557.482	557.482	556.882	558.352	558.822	558.942	562.442	558.232	550.000
TMW	112	607.241	551.741	550.482	550.732	550.732	550.732	550.982	550.482	558.352	558.822	558.942	562.442	558.232	550.000
TMW	114	607.287	552.287	550.982	550.982	550.982	550.482	550.482	550.482	550.942	550.772	558.852	555.852	558.152	550.000
SUMP	Sump	608.000	553.000	550.482	550.482	550.482	550.482	550.482	550.482	550.942	550.772	558.852	555.852	558.152	550.000
TMW	120	607.020	551.520	550.482	550.482	550.482	550.482	550.482	550.482	552.732	552.482	552.272	556.902	551.022	550.000
TMW	122	606.790	551.290	550.482	550.482	550.982	550.822	551.152	550.732	552.732	552.482	552.272	556.902	551.022	550.000
TMW	124	606.620	552.620	552.482	552.482	552.232	552.232	552.482	552.482	553.022	552.982	553.822	557.192	552.822	550.000
TMW	126	606.460	552.710	552.732	552.732	552.482	552.482	552.482	552.732	553.022	552.982	553.822	557.192	552.822	550.000
TMW	128	606.260	552.600	552.822	552.822	552.682	552.822	552.822	552.822	553.232	553.232	554.152	557.402	553.102	550.000
TMW	130	606.130	552.630	552.982	552.982	552.982	552.822	552.982	552.982	553.232	553.232	554.152	557.402	553.102	550.000
TMW	132	606.000	552.500	552.982	552.982	552.982	552.982	552.982	553.232	559.732	559.482	554.402	563.982	553.312	550.000
TMW	134	605.860	552.610	553.232	553.232	553.232	553.152	553.232	553.232	559.732	559.482	554.402	563.982	553.312	550.000
TMW	136	605.730	558.730	559.482	559.482	559.482	559.482	559.482	559.482	559.942	559.902	560.352	564.232	559.902	550.000
TMW	138	605.610	558.950	559.732	559.732	559.822	559.822	559.732	559.732	559.942	559.902	560.352	564.232	559.902	550.000
TMW	140	605.500	558.840	559.822	559.822	559.822	559.822	559.822	559.822	560.232	560.152	560.772	564.442	560.152	550.000
TMW	142	605.340	558.840	559.982	559.982	559.982	559.982	559.982	559.982	560.232	560.152	560.772	564.442	560.152	550.000
TMW	144	605.210	558.880	559.982	559.982	560.152	559.982	559.982	559.982	561.692	561.442	561.022	566.022	560.402	550.000
TMW	146	605.050	558.800	560.232	560.232	560.232	560.232	560.232	560.152	561.692	561.442	561.022	566.022	560.402	550.000
TMW	148	604.890	559.890	561.482	561.482	561.482	561.482	561.482	561.482	561.692	561.442	561.732	566.022	561.732	550.000
TMW	150	604.750	560.250	561.732	561.732	561.732	561.732	561.732	561.732	561.692	561.442	561.732	566.022	561.732	550.000

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Norwood, Ohio

U.S. EPA ID No. OHD086438538

Project No. 228581.0000

Table 6: Treatment System Effluent Monitoring Results

SAMPLE ID		EFFLUENT/011615	EFFLUENT/021015	EFFLUENT/031215	EFFLUENT/042015	EFFLUENT/052115	EFFLUENT/062915
SAMPLE DESCRIPTION	ANALYTE	WW EFFLUENT 1/16/2015 GW 240-46436-1 UG/L	WW EFFLUENT 2/10/2015 GW 240-47163-1 UG/L	WW EFFLUENT 3/12/2015 GW 240-48159-1 UG/L	WW EFFLUENT 4/20/2015 GW 240-49588-1 UG/L	WW EFFLUENT 5/21/2015 GW 240-51070-1 UG/L	WW EFFLUENT 6/29/2015 GW 240-52647-1 UG/L
VOLATILES	1,1,1,2-TETRACHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	1,1,1-TRICHLOROETHANE	1.3	1.5	1.4	2.5	1.5	16 J
VOLATILES	1,1,2,2-TETRACHLOROETHANE	0.86 J	1.4	0.91 J	0.88 J	3.4	36
VOLATILES	1,1,2-TRICHLOROETHANE	0.3 J	0.37 J	0.19 J	0.25 J	0.92 J	< 25 U
VOLATILES	1,1-DICHLOROETHANE	5.1	2.5	2.4	2.7	4	57
VOLATILES	1,1-DICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	1,2,3-TRICHLOROPROPANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	1,2-DIBROMO-3-CHLOROPROPANE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 50 U
VOLATILES	1,2-DICHLOROETHANE	5.6	2.5	6.7	17	7.2	520
VOLATILES	1,2-DICHLOROETHENE, TOTAL	< 2 U	< 2 U	< 2 U	< 2 U	0.52 J	< 50 U
VOLATILES	1,2-DICHLOROPROPANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	1,4-DIOXANE	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 1300 U
VOLATILES	1,4-DIOXANE (SIM)	18	5.2	2.6	5.2	40	570
VOLATILES	2-BUTANONE	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 250 U
VOLATILES	2-HEXANONE	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 250 U
VOLATILES	3-CHLORO-1-PROPENE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 50 U
VOLATILES	4-METHYL-2-PENTANONE (MIBK)	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 250 U
VOLATILES	ACETONE	9.8 J	6.7 J	9.1 J	3.6 J	12	600
VOLATILES	ACETONITRILE	< 20 U	< 20 U	20	< 20 U	< 20 U	< 500 U
VOLATILES	ACROLEIN	< 20 U	< 20 U	< 20 U *	< 20 U	< 20 U	< 500 U
VOLATILES	ACRYLONITRILE	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 500 U
VOLATILES	BENZENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	BROMODICHLOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	BROMOFORM	0.59 J	< 1 U	< 1 U	< 1 U	1.4	< 25 U
VOLATILES	BROMOMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	CARBON DISULFIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	CARBON TETRACHLORIDE	0.28 J	0.34 J	< 1 U	< 1 U	0.91 J	< 25 U
VOLATILES	CHLOROBENZENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	CHLOROETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	CHLOROFORM	4.1	4.7	6.3	3.9	9.1	800
VOLATILES	CHLOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	CHLOROPRENE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 50 U

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Norwood, Ohio

U.S. EPA ID No. OHD086438538

Project No. 228581.0000

Table 6: Treatment System Effluent Monitoring Results

SAMPLE ID	ANALYTE	EFFLUENT/011615	EFFLUENT/021015	EFFLUENT/031215	EFFLUENT/042015	EFFLUENT/052115	EFFLUENT/062915
SAMPLE DESCRIPTION		WW EFFLUENT 1/16/2015 GW 240-46436-1 UG/L	WW EFFLUENT 2/10/2015 GW 240-47163-1 UG/L	WW EFFLUENT 3/12/2015 GW 240-48159-1 UG/L	WW EFFLUENT 4/20/2015 GW 240-49588-1 UG/L	WW EFFLUENT 5/21/2015 GW 240-51070-1 UG/L	WW EFFLUENT 6/29/2015 GW 240-52647-1 UG/L
VOLATILES	CIS-1,2-DICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	0.52 J	< 25 U
VOLATILES	CIS-1,3-DICHLOROPROPENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	DIBROMOCHLOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	DIBROMOMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	DICHLORODIFLUOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	ETHYL METHACRYLATE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	ETHYLBENZENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	ETHYLENE DIBROMIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	IODOMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	ISOBUTANOL	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 1300 U
VOLATILES	METHACRYLONITRILE	< 2 U	< 2 U	< 2 U	< 10 U	< 10 U	< 250 U
VOLATILES	METHYL METHACRYLATE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 50 U
VOLATILES	METHYLENE CHLORIDE	< 1 U	0.67 J	< 1 U	< 1 U	< 1 U	560
VOLATILES	PROPIONITRILE	< 4 U	< 4 U	< 4 U	< 10 U	< 10 U	< 250 U
VOLATILES	STYRENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	TETRACHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	TOLUENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	TRANS-1,2-DICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	TRANS-1,3-DICHLOROPROPENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	TRANS-1,4-DICHLORO-2-BUTENE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	TRICHLOROETHENE	< 1 U	< 1 U	< 1 U	< 1 U	0.24 J	< 25 U
VOLATILES	TRICHLOROFLUOROMETHANE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	VINYL ACETATE	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 50 U
VOLATILES	VINYL CHLORIDE	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 25 U
VOLATILES	XYLENES, TOTAL	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 50 U

NA = Not Analyzed for this constituent.

SIM = selected-ion monitoring method.

U = Non-detect below the method detection limit.

J = Estimated result.

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Norwood, Ohio
U.S. EPA ID No. OHD086438538
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Table 7: Trench Effluent Monitoring Results

SAMPLE ID		INFLUENT/011615	INFLUENT/021015	INFLUENT/031215	INFLUENT/042015	INFLUENT/052115	INFLUENT/062915
SAMPLE DESCRIPTION	ANALYTE	WW INFLUENT 1/16/2015 GW 240-46429-1 UG/L	WW INFLUENT 2/10/2015 GW 240-47162-1 UG/L	WW INFLUENT 3/12/2015 GW 240-48160-1 UG/L	WW INFLUENT 4/20/2015 GW 240-49589-1 UG/L	WW INFLUENT 5/21/2015 GW 240-51067-1 UG/L	WW INFLUENT 6/29/2015 GW 240-52645-1 UG/L
VOLATILES	1,1,1,2-TETRACHLOROETHANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	1,1,1-TRICHLOROETHANE	22 J	< 14 U	22 U F2 F1	8.7 J	6.6	< 50 U
VOLATILES	1,1,2,2-TETRACHLOROETHANE	< 33 U	6.1 J	11 J F2 F1	4.9 J	6	50
VOLATILES	1,1,2-TRICHLOROETHANE	< 33 U	2.9 J	22 U F2 F1	2.2 J	2.1 J	< 50 U
VOLATILES	1,1-DICHLOROETHANE	140	59	77 F2 F1	32	37	60
VOLATILES	1,1-DICHLOROETHENE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	1,2,3-TRICHLOROPROPANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	1,2-DIBROMO-3-CHLOROPROPANE	< 67 U	< 29 U	44 U F2 F1	< 18 U	< 6.7 U	< 100 U
VOLATILES	1,2-DICHLOROETHANE	200	86	320 F2 F1	280	94	550
VOLATILES	1,2-DICHLOROETHENE, TOTAL	70	82	540 F2 F1	310	29	1100
VOLATILES	1,2-DICHLOROPROPANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	1,4-DIOXANE	3700	2900	2400 F2 F1	1000	2100	< 2500 U
VOLATILES	1,4-DIOXANE (SIM)	NA	NA	NA	NA	NA	NA
VOLATILES	2-BUTANONE	< 330 U	< 140 U	220 U F2 F1	< 91 U	< 33 U	< 500 U
VOLATILES	2-HEXANONE	< 330 U	< 140 U	220 U F2 F1	< 91 U	< 33 U	< 500 U
VOLATILES	3-CHLORO-1-PROPENE	< 67 U	< 29 U	44 U F2	< 18 U	< 6.7 U	< 100 U
VOLATILES	4-METHYL-2-PENTANONE (MIBK)	< 330 U	< 140 U	220 U F2 F1	< 91 U	< 33 U	< 500 U
VOLATILES	ACETONE	< 330 U	< 140 U	220 U F2	< 91 U	3.4 J	290 J B
VOLATILES	ACETONITRILE	< 670 U	< 290 U	< 440 U	< 180 U	< 67 U	< 1000 U
VOLATILES	ACROLEIN	< 670 U	< 290 U *	440 U F2 *	< 180 U	< 67 U	< 1000 U
VOLATILES	ACRYLONITRILE	< 670 U	< 290 U	440 U F2 F1	< 180 U	< 67 U	< 1000 U
VOLATILES	BENZENE	920	330	450 F1	73	6.9	570
VOLATILES	BROMODICHLOROMETHANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	BROMOFORM	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	4.5	< 50 U
VOLATILES	BROMOMETHANE	< 33 U	< 14 U	22 U F2	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	CARBON DISULFIDE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	CARBON TETRACHLORIDE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	1.6 J	< 50 U
VOLATILES	CHLOROBENZENE	< 33 U	27	7.4 J F2 F1	23	7.9	40 J
VOLATILES	CHLOROETHANE	< 33 U	< 14 U	22 U F2	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	CHLOROFORM	21 J	19	44 F2 F1	17	18	560
VOLATILES	CHLOROMETHANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	CHLOROPRENE	< 67 U	< 29 U	< 44 U	< 18 U	< 6.7 U	< 100 U
VOLATILES	CIS-1,2-DICHLOROETHENE	45	67	490 F1	280	27	1000
VOLATILES	CIS-1,3-DICHLOROPROPENE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	DIBROMOCHLOROMETHANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	DIBROMOMETHANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	DICHLORODIFLUOROMETHANE	< 33 U	< 14 U	22 U F2	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	ETHYL METHACRYLATE	< 33 U	< 14 U	22 U F2	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	ETHYLBENZENE	96	55	120 F2 F1	23	1.6 J	130
VOLATILES	ETHYLENE DIBROMIDE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	IODOMETHANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	ISOBUTANOL	< 1700 U	< 710 U	1100 U F2 F1	< 450 U	< 170 U	< 2500 U
VOLATILES	METHACRYLONITRILE	< 67 U	< 29 U	< 44 U	< 91 U	< 33 U	< 500 U
VOLATILES	METHYL METHACRYLATE	< 67 U	< 29 U	< 44 U	< 18 U	< 6.7 U	< 100 U
VOLATILES	METHYLENE CHLORIDE	35	< 14 U	17 J F2 F1 B	3 J B	< 3.3 U	480
VOLATILES	PROPIONITRILE	< 130 U	< 57 U	< 89 U	< 91 U	< 33 U	< 500 U
VOLATILES	STYRENE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	TETRACHLOROETHENE	< 33 U	7.5 J	6.6 J F2 F1	10	4	27 J
VOLATILES	TOLUENE	< 33 U	46	56 F2 F1	46	5.8	500
VOLATILES	TRANS-1,2-DICHLOROETHENE	25 J	15	48 F2 F1	26	1.5 J	80
VOLATILES	TRANS-1,3-DICHLOROPROPENE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	TRANS-1,4-DICHLORO-2-BUTENE	< 33 U	< 14 U	22 U F2	< 9.1 U	< 3.3 U	< 50 U
VOLATILES	TRICHLOROETHENE	16 J	19	31 F2 F1	37	11	110
VOLATILES	TRICHLOROFLUOROMETHANE	< 33 U	< 14 U	22 U F2 F1	< 9.1 U	< 3.3 U	< 50 U *
VOLATILES	VINYL ACETATE	< 67 U	< 29 U	44 U F2 F1	< 18 U	< 6.7 U	< 100 U
VOLATILES	VINYL CHLORIDE	87	49	400 F2 F1	120	3.1 J	250
VOLATILES	XYLENES, TOTAL	160	190	140 F2 F1	140	13	260

NA = Not Analyzed for this constituent.
SIM = selected-ion monitoring method.
U = Non-detect below the method detection limit.
J = Estimated result.

CHARTS

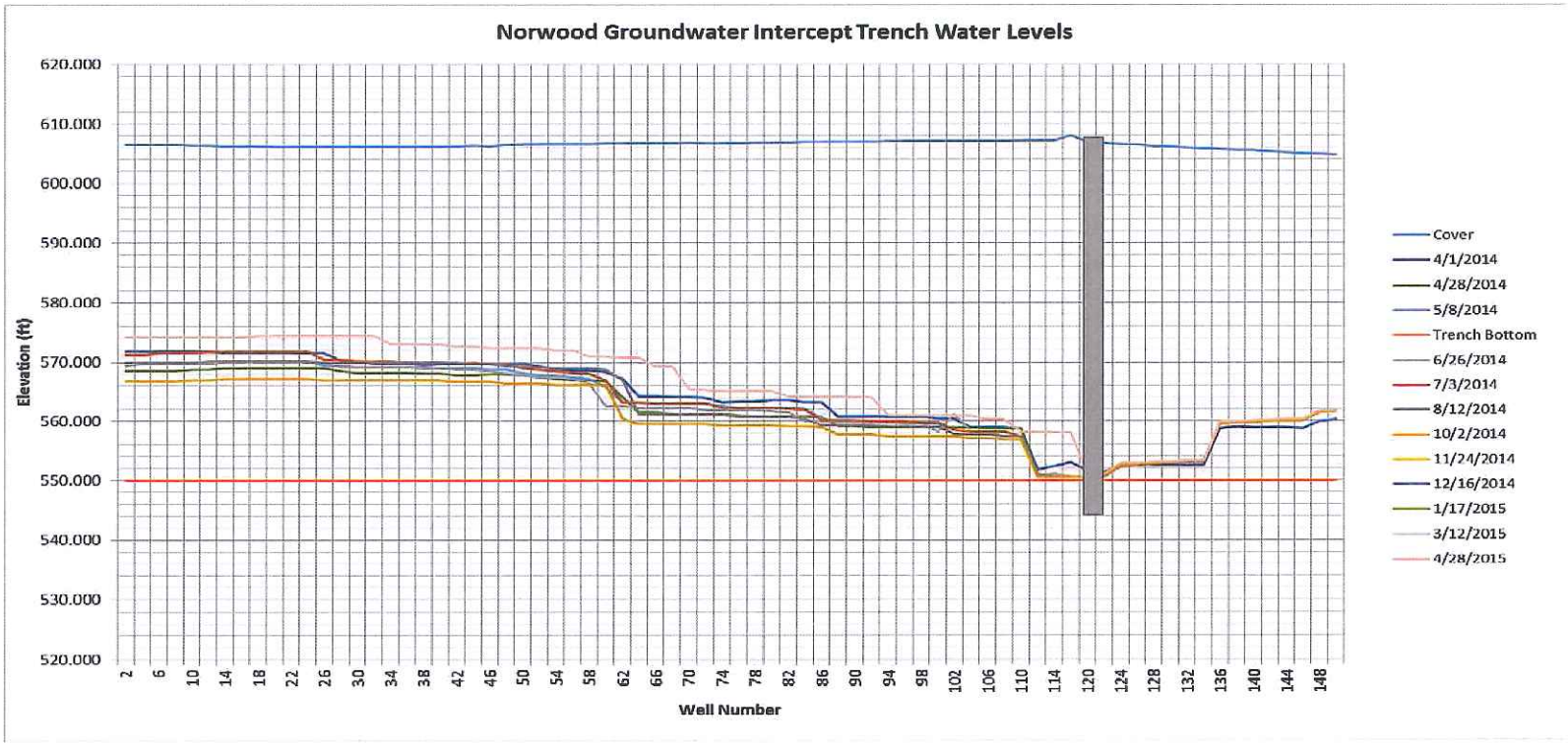
EMD Millipore Corporation

Norwood, Ohio

U.S. EPA ID No. OHD086438538

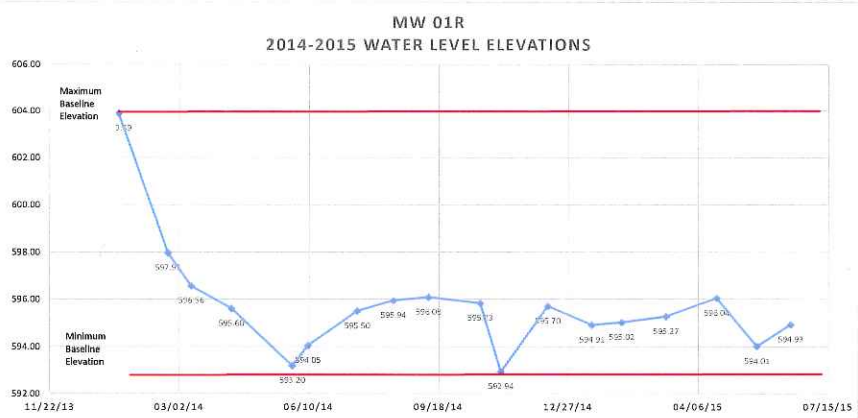
Project No. 228581.0000

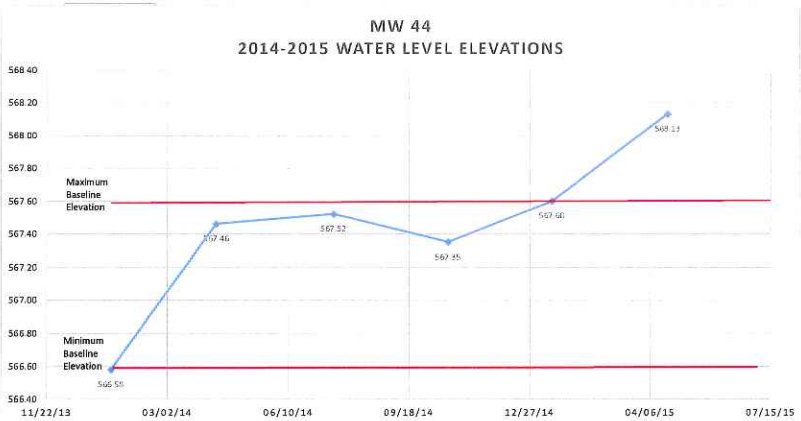
Chart 1: Groundwater Intercept Trench Water Level Chart

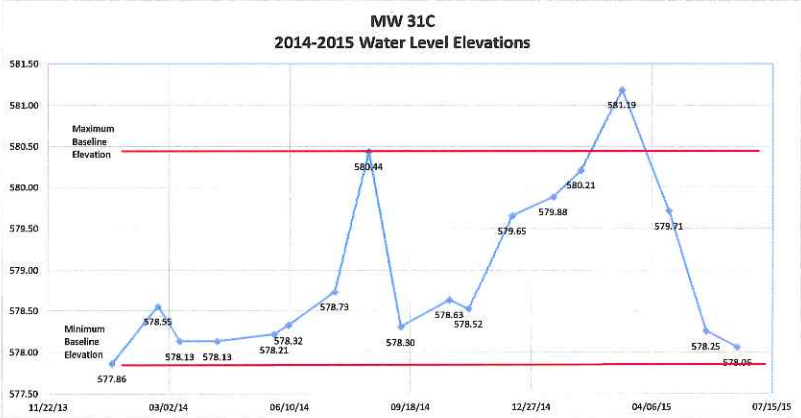


EMD Millipore Corporation
Norwood, Ohio
Project No. 228581.0000

Chart 2: On-Site Monitoring Well Locations







Note: Baseline data generated from quarterly performance monitoring ground water measurements.

EMD Millipore Corporation
Norwood, Ohio
Project No. 228581.0000

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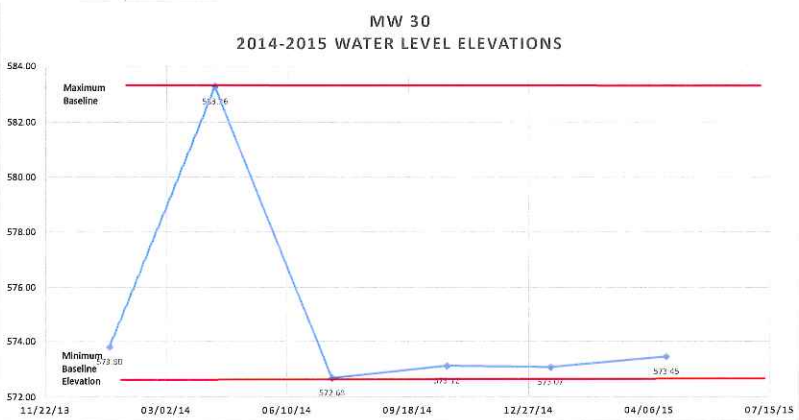

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Project No. 228581.0000

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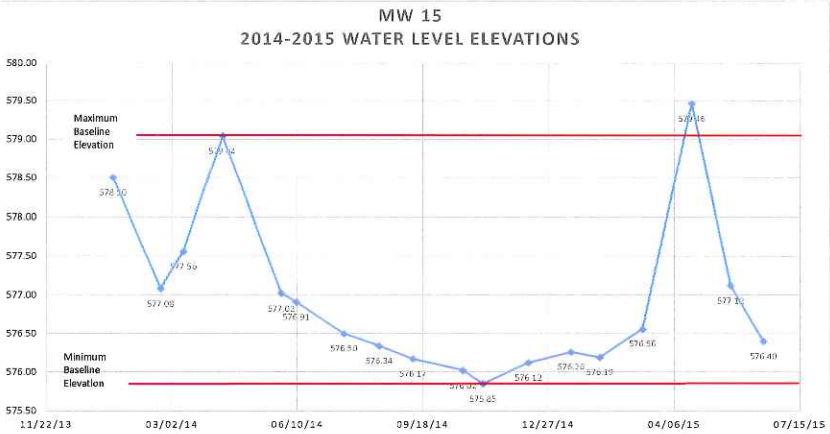

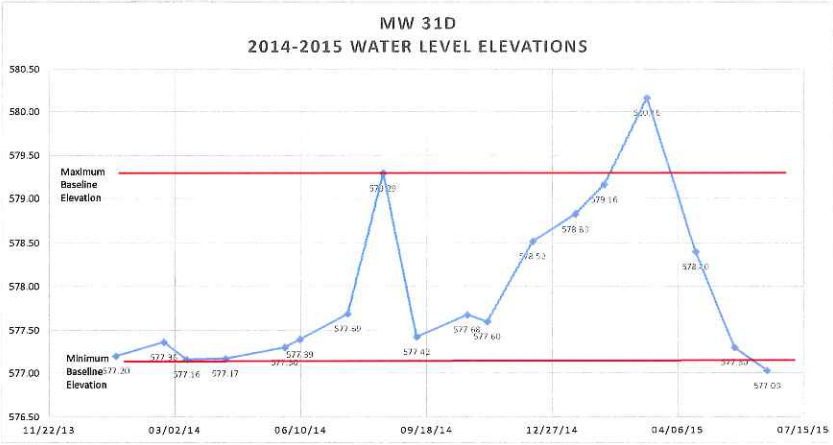

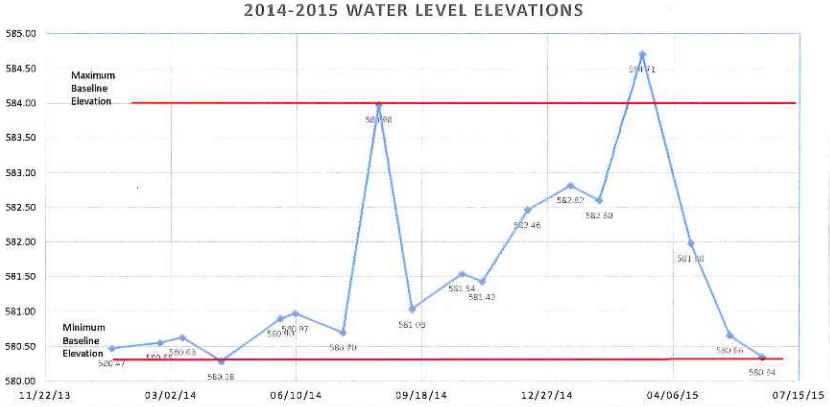

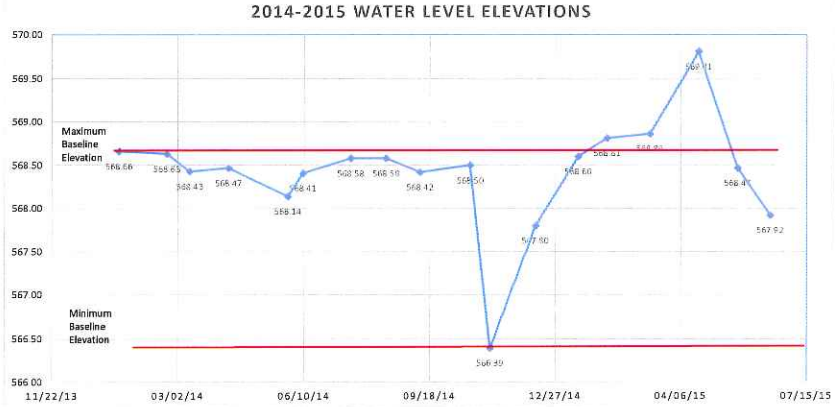

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Norwood, Ohio
Project No. 228581.0000

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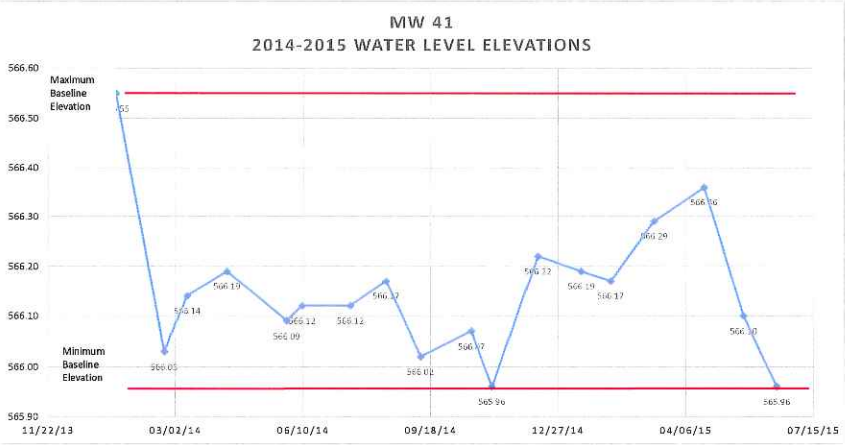

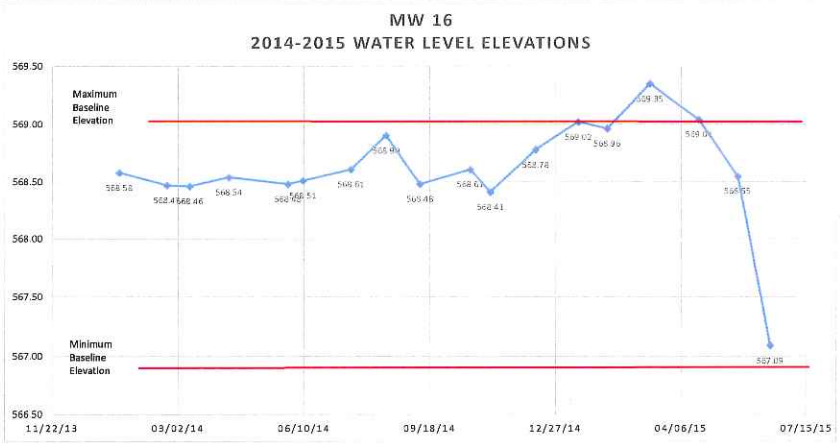

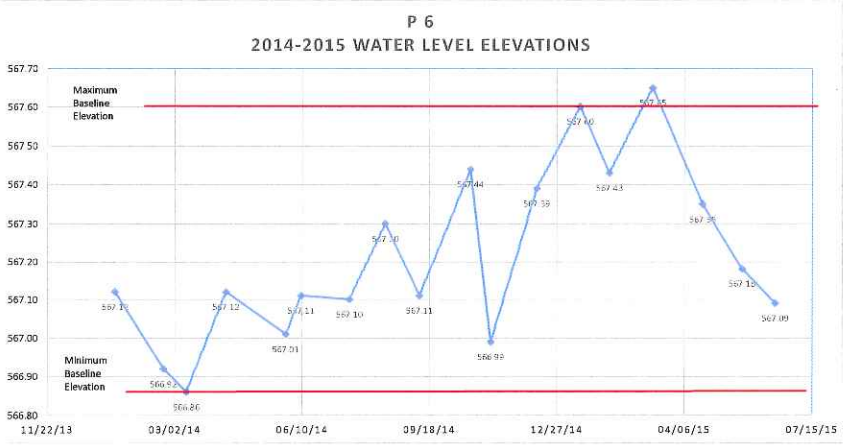

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EMD Millipore Corporation
Norwood, Ohio
Project No. 228581.0000

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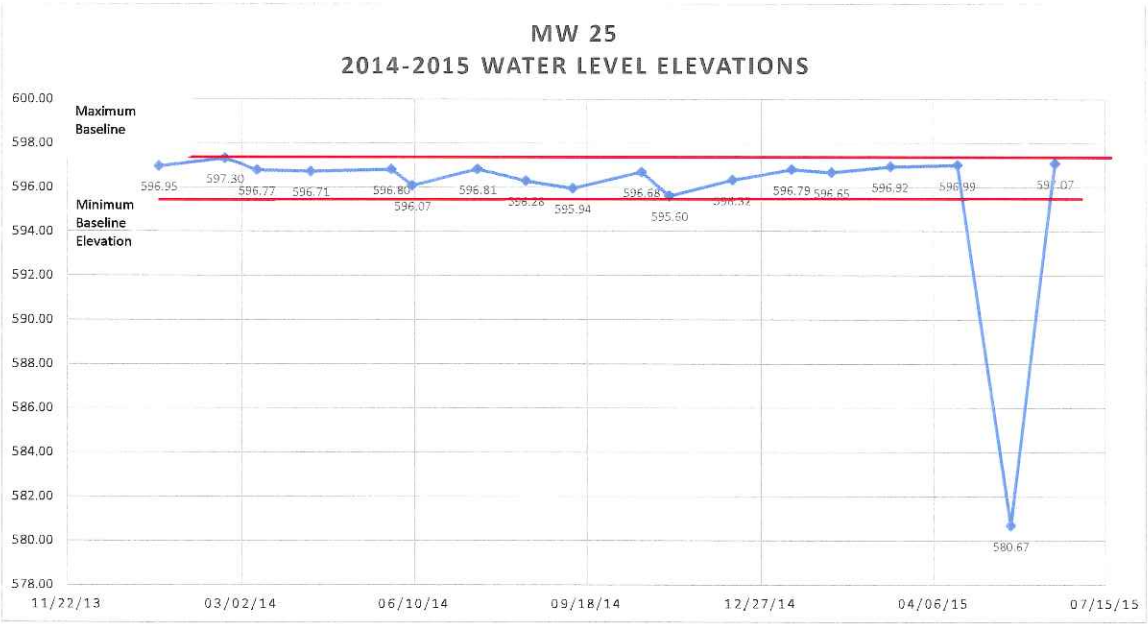

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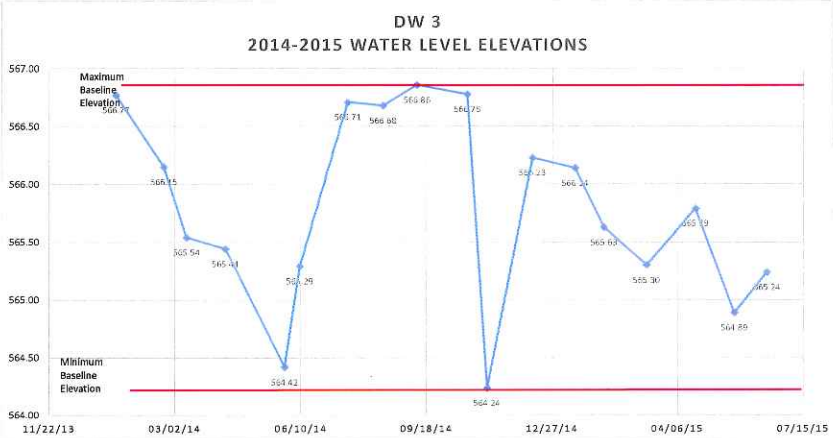

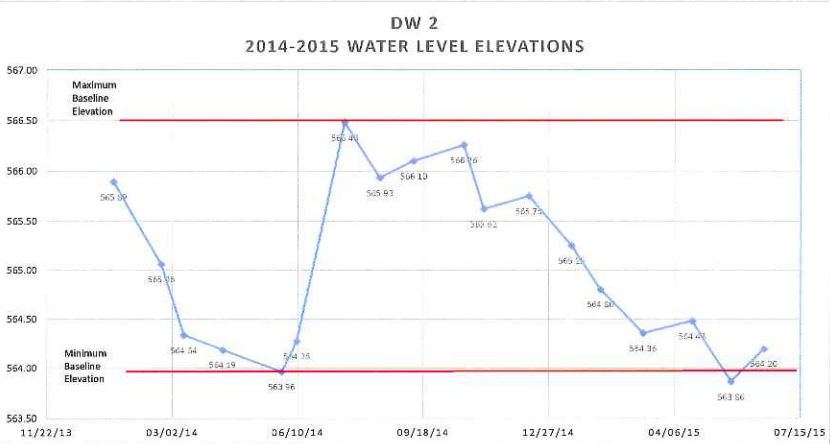

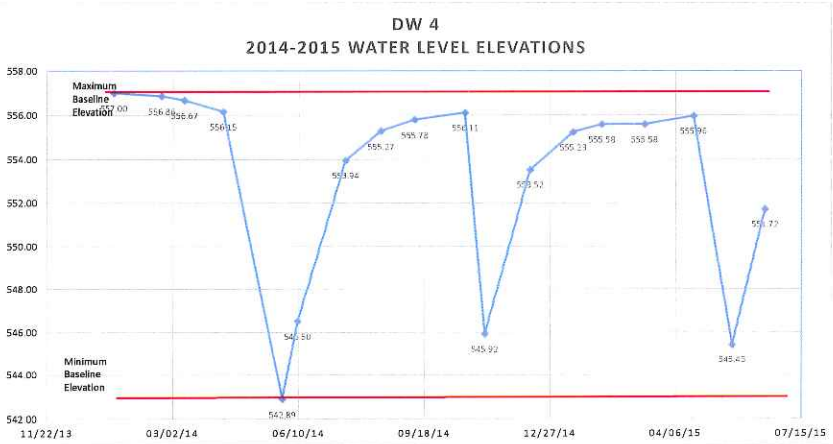

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EMD Millipore Corporation
Norwood, Ohio
Project No. 228581.0000

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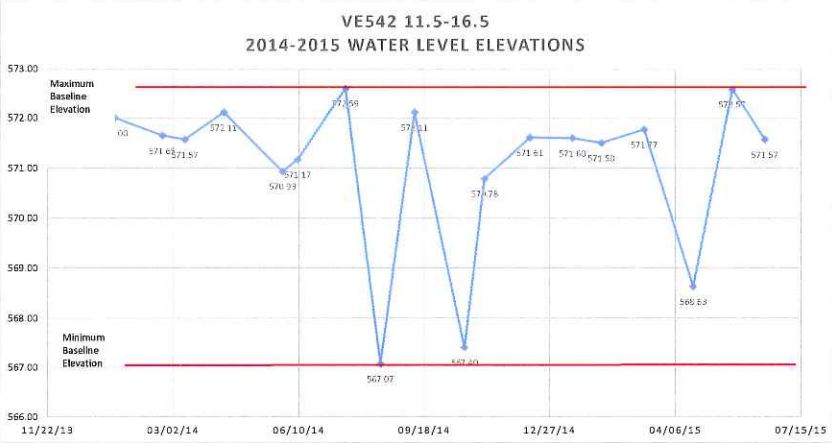

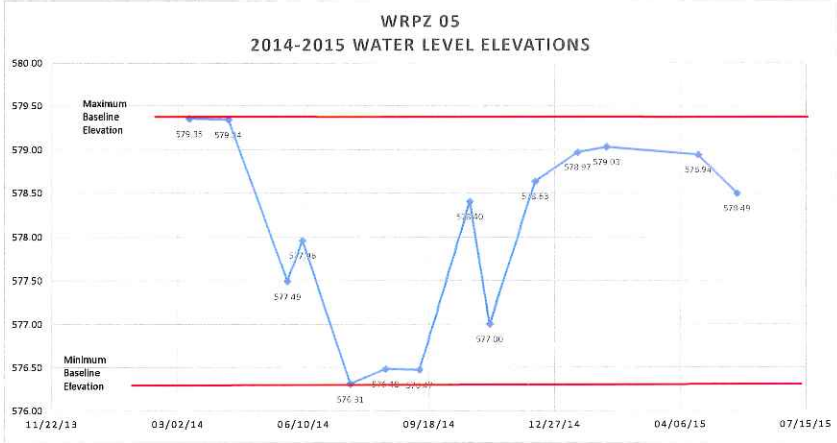

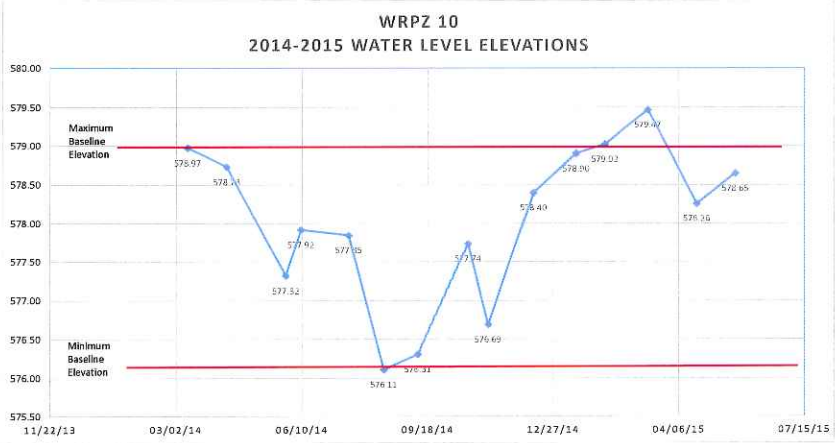

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Norwood, Ohio
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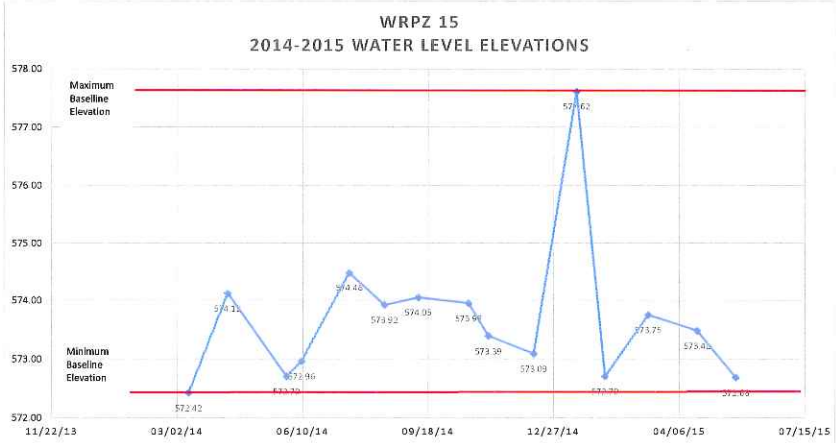

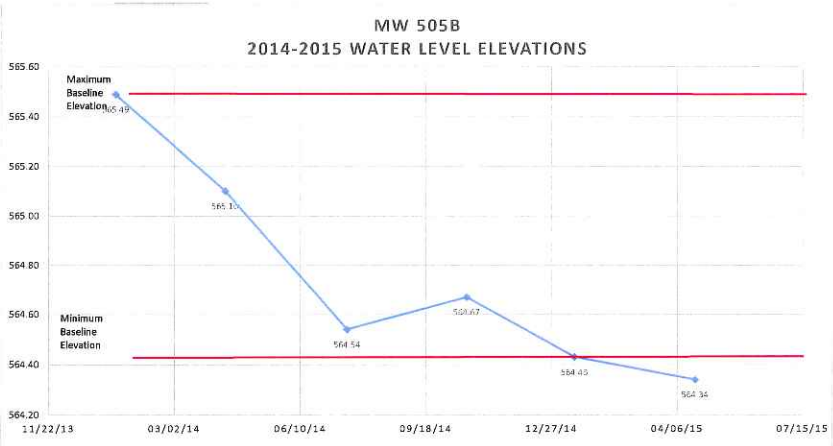

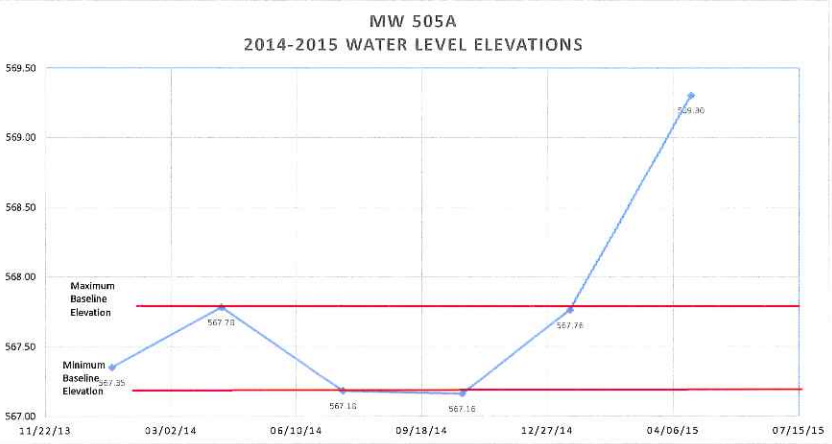

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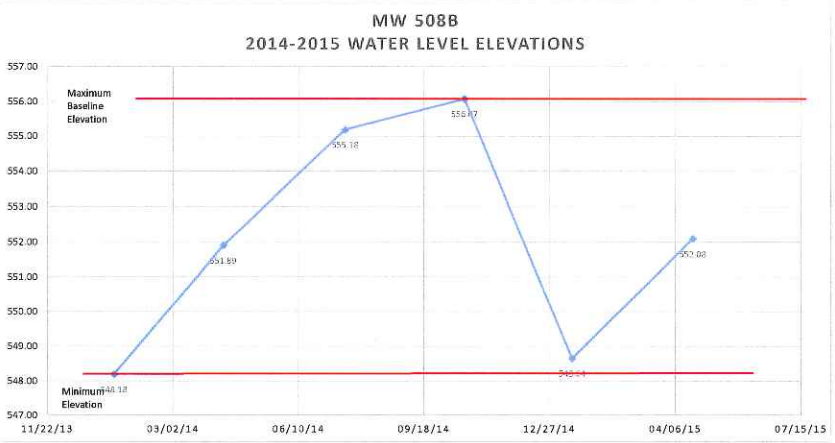

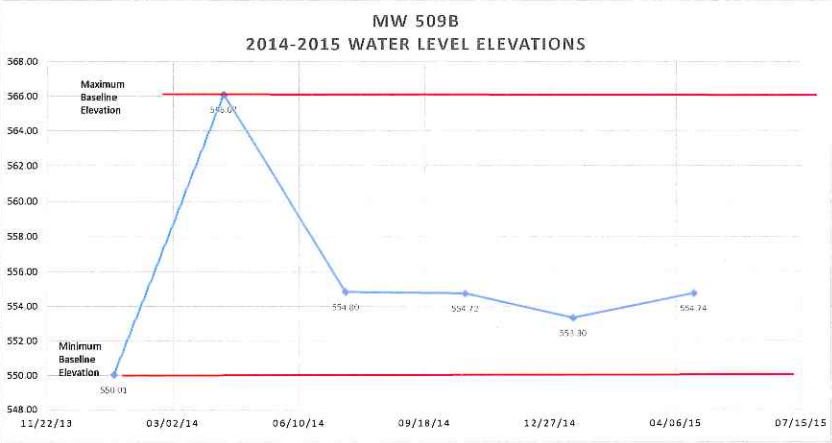

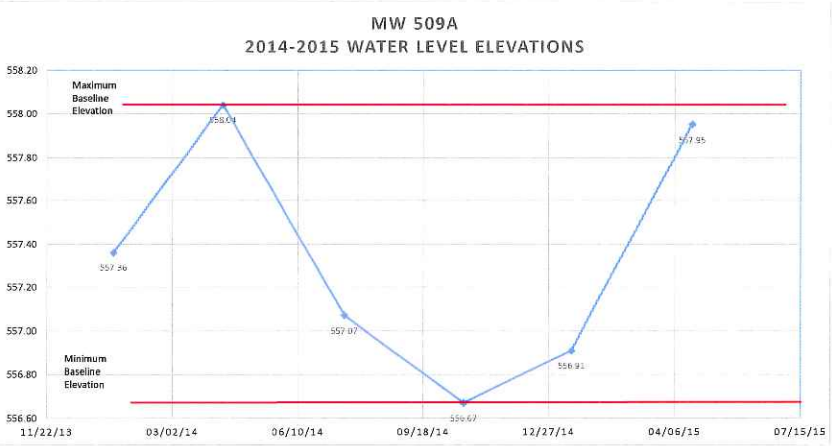

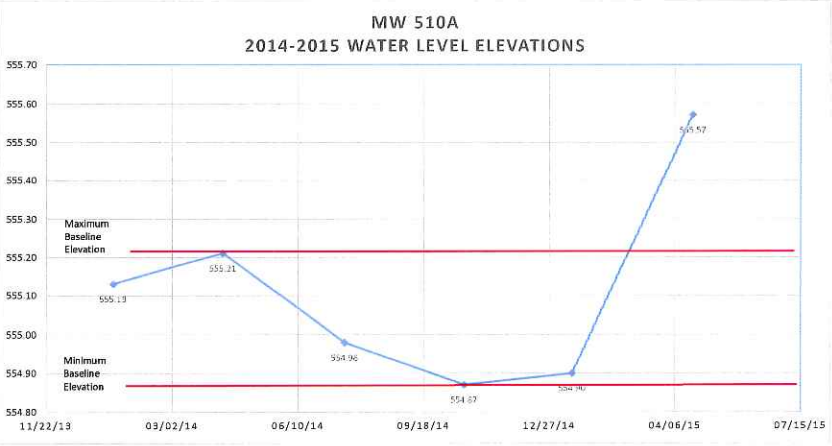

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Norwood, Ohio
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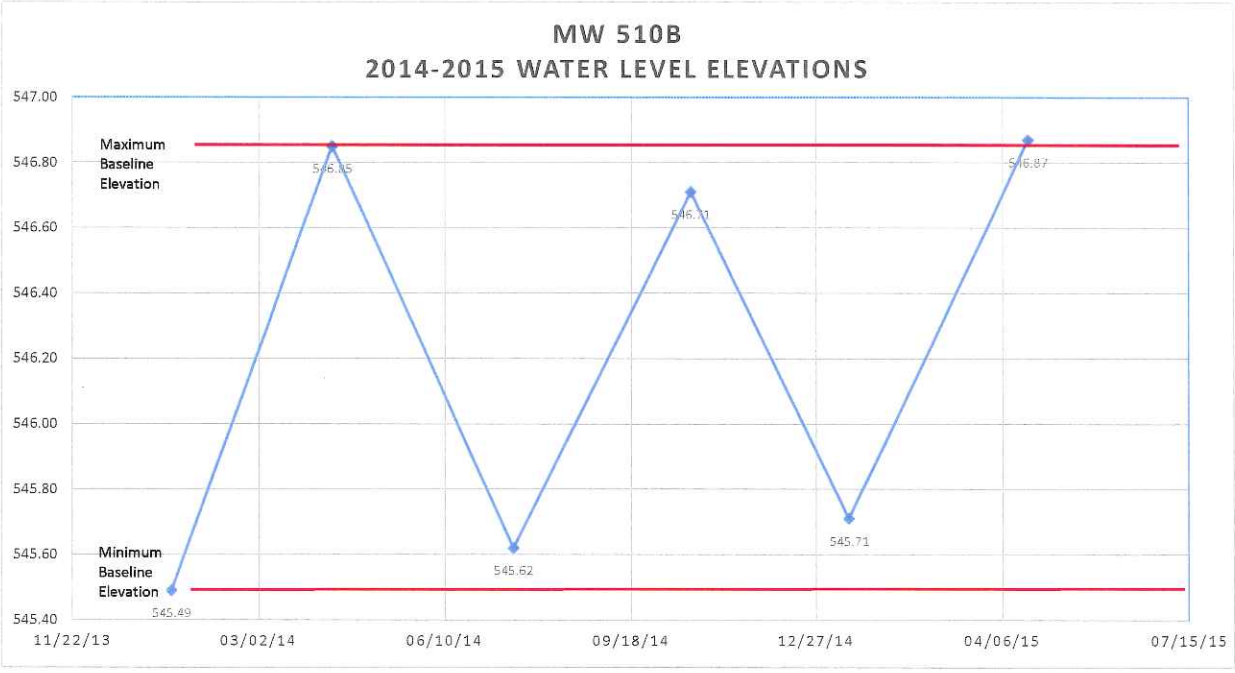

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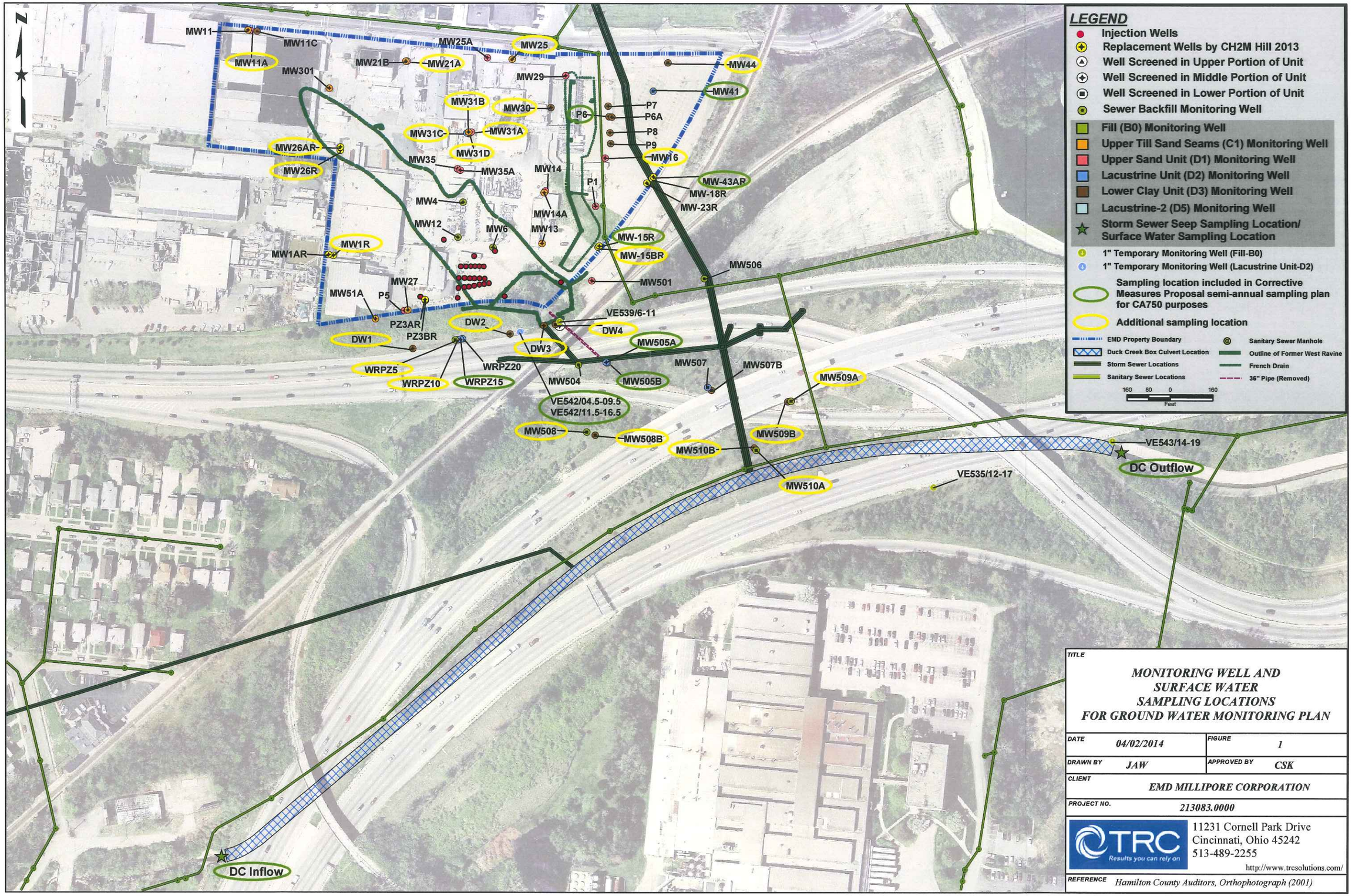
FIGURES



TITLE

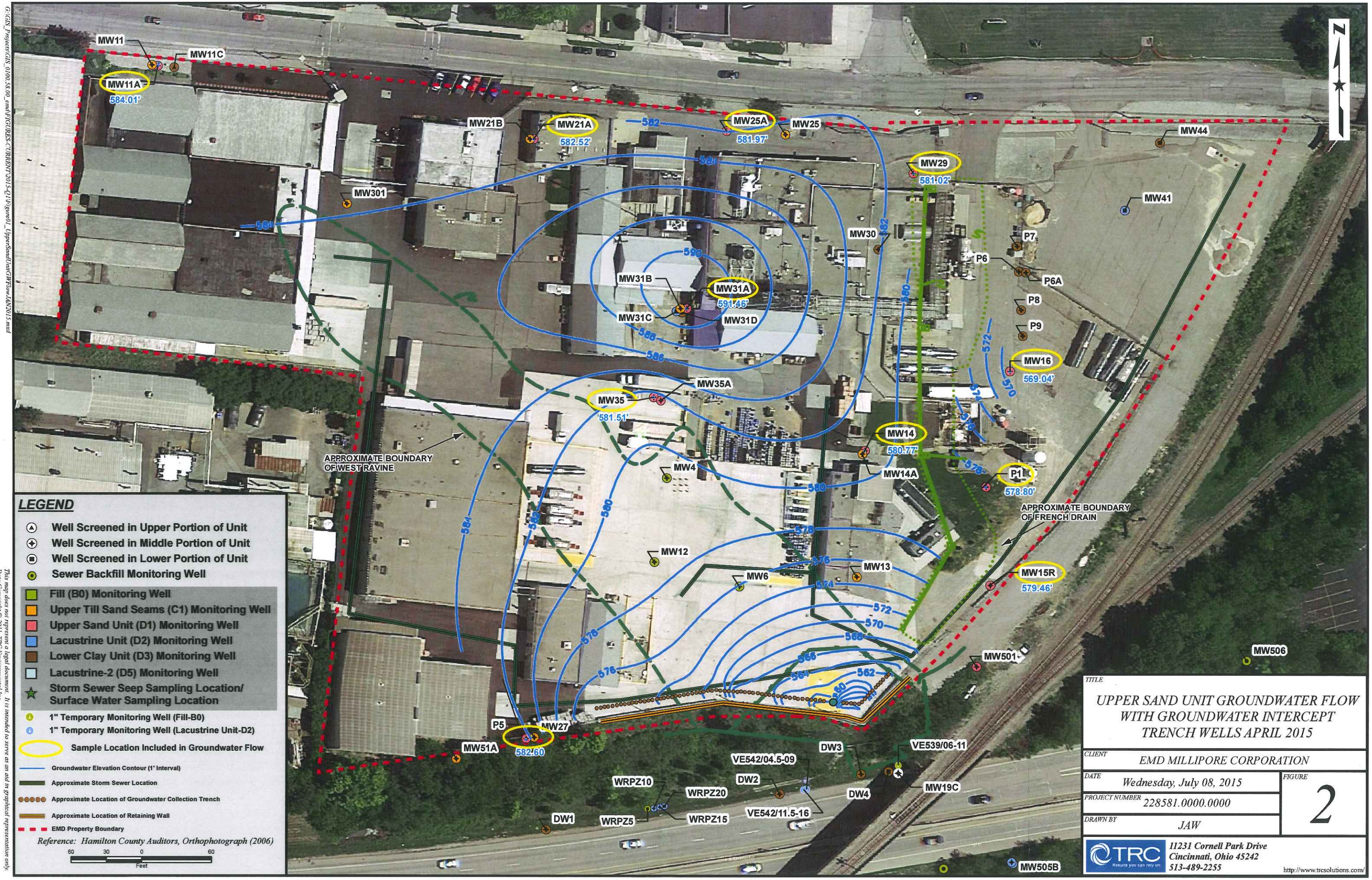
MONITORING WELL AND SURFACE WATER SAMPLING LOCATIONS FOR GROUND WATER MONITORING PLAN

DATE	04/02/2014	FIGURE	1
DRAWN BY	JAW	APPROVED BY	CSK
CLIENT	EMD MILLIPORE CORPORATION		
PROJECT NO.	213083.0000		

TRC Results you can rely on

11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255
http://www.trcsolutions.com/

REFERENCE *Hamilton County Auditors, Orthophotograph (2001)*



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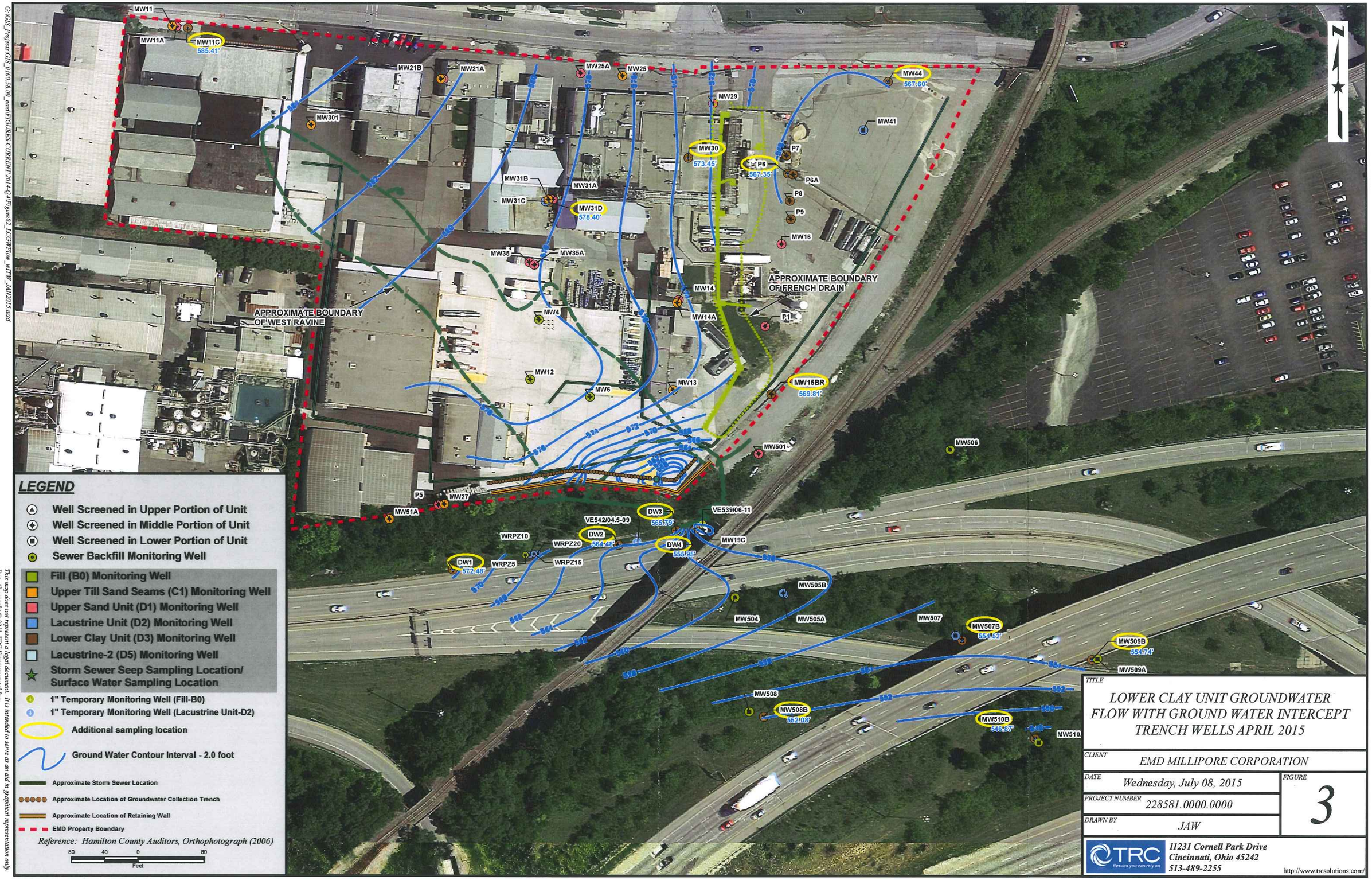

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APPENDIX I

DATA VALIDATION MEMO

MEMORANDUM

TRC Environmental Corporation

11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

TO: James A. Wasserbauer, Senior Project Manager

FROM: Curtis S. Kugler, Data Validation Coordinator

DATE: July 14, 2015

SUBJECT: EMD Millipore Corporation
Norwood, Ohio
U.S. EPA ID #OHD086438538
Resource Conservation Recovery Act (RCRA)
First 2015 Semi-Annual Ground Water Monitoring – Interim Performance Monitoring
TestAmerica Sample Delivery Groups: 240-49683, 240-49811 and 240-49736

PROJECT NO.: 228581.0000.0000 Phase 06

The following details an analytical data validation for ground water collected during April 2015 at EMD Millipore Corporation (EMD Millipore), located in Norwood, Ohio. This sampling event was associated with the EMD Millipore Corporation, May 15, 2014, *Ground Water Monitoring Plan.* The environmental samples are identified in Table 1 and were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (U.S. EPA) Method SW846-8260B. TestAmerica located in North Canton, Ohio performed all analyses.

This data quality assessment and validation process followed the procedures presented in Section 10.0 of the Quality Assurance Project Plan (QAPP) for the EMD Millipore RCRA Voluntary Corrective Action. This process included the completion of a Data Validation Checklist, which is summarized below.

The analytical quality assessment and validation process included the completion of a Data Validation Checklist, which is attached and summarized below. The United States Environmental Protection Agency, *U.S. EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* and the *U.S. EPA Contract Laboratory Program, National Functional Guidelines for Superfund Inorganic Data Review* was utilized as guidance to complete the validation of this data set.

Overall Assessment

The data that were collected during this event exhibited acceptable levels of precision and accuracy and are usable for intended purposes with the exceptions noted below. The following discussion and attached checklist support this conclusion.

1.0 Sample Report Completeness

TestAmerica provided all necessary components of the sample report included in the data package for data validation purposes. The components included the following.

a. Case Narrative

- Date of issuance
- Laboratory analysis performed
- Any deviations from intended analytical strategy
- Laboratory batch number
- Numbers of samples and respective matrices
- QC procedures utilized and also references to the acceptance criteria
- Laboratory report contents
- Project name and number
- Condition of samples "as-received"
- Discussion of whether or not sample holding times were met
- Discussion of technical problems or other observations which may have created analytical difficulties
- Discussion of any laboratory QC checks which failed to meet project criteria
- Signature of Laboratory QA Manager

b. Chemistry Data Package

- Case narrative for each analyzed batch of samples
- Summary page indicating dates of analyses for samples and laboratory QC checks
- Cross referencing of laboratory sample to project sample identification numbers
- Description of data qualifiers to be used
- Sample preparation and analyses for samples
- Sample results
- Raw data for sample results and laboratory QC samples
- Results of (dated) initial and continuing calibration checks, and GC/MS turning results
- MS/MSD recoveries, laboratory control samples, method blank results, calibration check compounds, and system performance check compound results
- Labeled (and dated) chromatograms/spectra of sample results and laboratory QC checks
- Chain-of-custody
- Electronic deliverables

2.0 Holding Time Periods

As indicated by the sample collection and analysis dates on the chain-of-custody forms and the analytical report provided by TestAmerica, all samples were prepared and analyzed within the required holding time period for VOCs. Several samples were submitted with insufficient preservation. However, the samples were analyzed within seven days.

3.0 Quality Assurance

System Monitoring Compounds/Surrogate Spikes
Laboratory performance on individual samples for organic analysis was monitored by using percent recoveries of system monitoring compounds/surrogate spikes. The surrogate recoveries for the environmental and quality assurance/quality control (QA/QC) samples met the acceptance criteria.

Matrix Spike/Matrix Spike Duplicate (MSD/MSD Results)
To assess long-term accuracy and precision of the analytical methods on sample matrices, MS/MSD percent recoveries and the relative percent difference (RPD) of the recoveries were determined by TestAmerica. TestAmerica reported MS/MSD results outside the established limits. These MS/MSD results were reviewed by TRC and no action was taken.

Laboratory Control Sample (LCS)
The laboratory control sample percent recoveries were examined to assess the overall performance and the accuracy of laboratory procedures. The LCS samples met the acceptance criteria.

Method Blank Samples
Contamination of the environmental samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method blank samples. Acetone and methylene chloride were detected in separate method blank samples. The method blank samples met the acceptance criteria.

4.0 Field Quality Assurance/Quality Control (QA/QC)

Field QA/QC
The field QA/QC samples collected consisted of two trip blank samples, two field blank samples, two duplicate samples, and one rinseate sample and are summarized in Table 1. The QA/QC samples met the acceptance criteria.

General Comments

Samples that contained results for VOCs between the TestAmerica method detection limit (MDL) and the reporting limit (RL) were qualified "J" by TestAmerica. Results between the MDL and/or below the RL indicate the possibility for false-positive or misidentification. All "J" qualified results were reviewed with no action taken.

Table 1: Sample Identification (First 2015 Semi-Annual Event)

Report	Field Sample ID	Lab Sample ID	Matrix	Sample Date	Analysis Date	Analysis Group	TRC Qualifier	Qualifier Summary
240-49736-1	FB01/042215	240-49736-10	WATER	22-Apr-15	28-Apr-15	VOLATILES		
240-49736-1	MW01R/ 042215	240-49736-12	WATER	22-Apr-15	29-Apr-15	VOLATILES		
240-49736-1	MW015BR/ 042215	240-49736-4	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	MW015R/ 042215	240-49736-3	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	MW026AR/ 042215	240-49736-1	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	MW026R/ 042215	240-49736-2	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	DUP01/04221 5	240-49736-14	WATER	22-Apr-15	29-Apr-15	VOLATILES		
240-49736-1	MW031B/ 042215	240-49736-9	WATER	22-Apr-15	29-Apr-15	VOLATILES		
240-49736-1	MW031C/ 042215	240-49736-8	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	MW031D/ 042215	240-49736-7	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	MW041/ 042215	240-49736-5	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	MW044/ 042215	240-49736-6	WATER	22-Apr-15	30-Apr-15	VOLATILES		
240-49736-1	RIN01/042215	240-49736-11	WATER	22-Apr-15	29-Apr-15	VOLATILES		
240-49736-1	TB02/042215	240-49736-13	WATER	22-Apr-15	29-Apr-15	VOLATILES		
240-49811-1	MW011A/ 042315	240-49811-5	WATER	23-Apr-15	30-Apr-15	VOLATILES		
240-49811-1	MW016/ 042315	240-49811-3	WATER	23-Apr-15	01-May-15	VOLATILES		
240-49811-1	MW021A/ 042315	240-49811-6	WATER	23-Apr-15	30-Apr-15	VOLATILES		
240-49811-1	MW025/ 042315	240-49811-7	WATER	23-Apr-15	30-Apr-15	VOLATILES		
240-49811-1	MW030/ 042315	240-49811-2	WATER	23-Apr-15	01-May-15	VOLATILES		
240-49811-1	MW031A/ 042315	240-49811-4	WATER	23-Apr-15	01-May-15	VOLATILES		
240-49811-1	MW043AR/ 042315	240-49811-12	WATER	23-Apr-15	01-May-15	VOLATILES		
240-49811-1	P006/042315	240-49811-11	WATER	23-Apr-15	01-May-15	VOLATILES		
240-49811-1	TB03/042315	240-49811-1	WATER	23-Apr-15	01-May-15	VOLATILES		
240-49811-1	WRPZ05/ 042315	240-49811-8	WATER	23-Apr-15	30-Apr-15	VOLATILES		
240-49811-1	WRPZ10/ 042315	240-49811-9	WATER	23-Apr-15	30-Apr-15	VOLATILES		
240-49811-1	WRPZ15/ 042315	240-49811-10	WATER	23-Apr-15	30-Apr-15	VOLATILES		
240-49638-1	DCINFLOW /042015	240-49638-3	WATER	20-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	DCOUTFLOW /042015	240-49638-2	WATER	20-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	DW001/ 042115	240-49638-4	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	DW002/ 042115	240-49638-6	WATER	21-Apr-15	24-Apr-15	VOLATILES		

Table 1: Sample Identification (First 2015 Semi-Annual Event)

Report	Field Sample ID	Lab Sample ID	Matrix	Sample Date	Analysis Date	Analysis Group	TRC Qualifier	Qualifier Summary
240-49638-1	DW003/ 042115	240-49638-5	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	DW004/ 042115	240-49638-7	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	FB02/042115	240-49638-18	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	MW505A/ 042115	240-49638-13	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	MW505B/ 042115	240-49638-12	WATER	21-Apr-15	27-Apr-15	VOLATILES		
240-49638-1	MW508/ 042115	240-49638-10	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	MW508B/ 042115	240-49638-11	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	MW509A/ 042115	240-49638-14	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	MW509B/ 042115	240-49638-15	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	MW510A/ 042115	240-49638-16	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	MW510B/ 042115	240-49638-17	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	TB01/042015	240-49638-1	WATER	20-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	VES42/04.5-09.5/042115	240-49638-8	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	DUP02/ 042115	240-49638-19	WATER	21-Apr-15	24-Apr-15	VOLATILES		
240-49638-1	VES42/11.5-16.5/042115	240-49638-9	WATER	21-Apr-15	24-Apr-15	VOLATILES		

DUP - duplicate sample
TB - trip blank sample
FB - field blank sample
RIN - rinseate sample
DUP01 collected from MW031B
DUP02 collected from VE542/11.5-16.5

TRC Environmental Corporation
Data Validation Checklist

Project: EMD Millipore Corporation.
Sampling Event Description: First 2015 Semi-Annual Ground Water Monitoring – Interim Performance Monitoring
Reviewer: Curtis S. Kugler, Data Validation Coordinator
Sample Delivery Groups: 240-49638, 240-49811 and 240-49736
Laboratory Name: TestAmerica – North Canton
Checklist Completion Date: June 10, 2015

Note: "X" – Applies; "--" – Does Not Apply

1.0	**Sample Report Completeness**	
This Section provides a checklist of important components of data reports. If the report is incomplete, it may be necessary to halt data validation procedures until all missing information is provided.		
1.1	Review any discrepancies between the chain-of-custody (COC) and submitted sampling data.	X
1.2	Presence of signed laboratory statement that attests to the validity of the data.	X
1.3	Presence of case narrative that summarizes QA/QC discrepancies and/or other problems.	X
1.4	Are COC forms present for all samples?	X
1.5	Review the COC forms, Sample Receipt form, or the Case Narrative for any problems with the sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data.	X
1.6	Were Custody Seals present and intact?	X
1.7	Is a Sample receipt form present?	X
2.0	**Holding Times**	
Technical holding times are an important component of assuring that data is valid and not biased from inappropriate handling procedures.		
2.1	**Holding Times – Volatile Organic Compounds**	
2.1.1	Are samples properly preserved? Check preservation requirements, chain-of-custody, and sample receipt form for discrepancies.	X
2.1.2	If samples were improperly preserved, or unpreserved, and the technical holding times were exceeded, qualify all positive results for affected samples as "J" estimated and all non-detected results as "UJ" estimated undetected.	X
2.1.3	If samples were properly preserved, but technical holding times were exceeded, qualify all positive results for affected samples as "J" estimated and all non-detected results as "UJ" estimated undetected.	X
2.1.4	If technical holding times are greatly exceeded (>2x the time requirement) upon analysis or re-analysis then the reviewer may use professional judgment to qualify all non-detected compounds as "R" rejected and all positive results as "J" estimated.	X

2.2	**Holding Times – Semi-Volatile Organic Compounds**	
2.2.1	If technical holding times are exceeded, qualify all positive results for affected samples as "J" estimated and all non-detected results as "UJ" estimated undetected.	--
2.2.2	If holding times are greatly exceeded (>2x the time requirement), the reviewer may use professional judgment to qualify all non-detected compounds as "R" rejected and all positive results as "J" estimated.	--
2.3	**Holding Times Inorganic Compounds**	
2.3.1	Review whether samples were properly preserved (4 degrees Celsius for solids: acid preservation for aqueous).	--
2.3.2	If samples were improperly preserved and the holding times were exceeded, qualify all positive results for affected samples as "J" estimated and all non-detected results as "UJ" estimated undetected.	--
2.3.3	If samples were properly preserved, but technical holding times were exceeded, qualify all positive results for affected samples as "J" estimated and all non-detected results as "UJ" estimated undetected.	--
2.3.4	If holding times are greatly exceeded (>2x requirement), the reviewer may use professional judgment to qualify all non-detect compounds as "R" rejected and all positive results as "J" estimated.	--
2.4	**Holding Times – pH**	
2.4.1	If technical holding times are exceeded the reviewer may use professional judgment to qualify data as "R" rejected or "J" estimated.	X
3.0	**Quality Assurance Summary Data Review**	
VOC Surrogate Compound Recovery – Surrogate compounds are spiked compounds of known composition that are added to samples and blanks. The recovery of surrogate compounds allows an assessment interference. VOC surrogate recoveries are used with other QA/QC data to qualify sample results and to justify laboratory re-analysis.		
3.1.1	Were surrogate recoveries present for each batch?	X
3.1.2	Were any outliers marked correctly (based upon the laboratory's criteria)?	X
3.1.3	If any surrogate compound was out of compliance was re-analysis performed to confirm matrix interference?	X
3.2	**SVOC Surrogate Compound Recovery – Surrogate compounds are spiked compounds of known composition that are added to samples and blanks. The recovery of surrogate compounds allows an assessment of matrix interference. SVOC analyses include compounds that can be divided into two classes: acid compounds and base/neutral compounds. Each class has a specific assigned set of surrogate compounds.**	
3.2.1	Are the surrogate recovery data present for each batch (method and matrix), including TCLP?	--
3.2.2	Were any outliers marked correctly?	--
3.2.3	If any two surrogate compounds in either the acid or base/neutral classes were out of compliance, was re-analysis performed to confirm a matrix interference? Note: Check the report narrative for an indication of re-analysis.	--
3.2.4	If any one surrogate compound has a recovery of less than 10% in either the acid or base/neutral classes, check for indications that re-analysis was performed to confirm a matrix interference?	--

3.2.5	Based on the findings, qualify data in either the acid or base/neutral classes with the following criteria: Note: Qualification may not be appropriate for TCLP data. Best professional judgment may be used to qualify data. Action: If two surrogates in a particular class are above the upper control limit, all positive results, for that fraction, in that class should be qualified as "J." If any two surrogates in a particular class have recoveries less than the lower criteria, but the recovery is greater than or equal to 10%, all detected compounds, for that fraction, should be qualified as "J." If any surrogate in a particular class has recoveries less than 10%, all detected compounds, for that fraction, should be qualified as "J" estimated and all non detected compounds as "R" rejected.	--
3.3	**Quality Assurance Summary Review – Matrix Spike/Matrix Spike Duplicates**	
Matrix spike and matrix spike duplicates are performed to assess method precision for VOC and SVOC analyses. Matrix spikes and duplicates are required for every batch of samples (every 20 - 30 samples). The reviewer should be aware that MS/MSD are batch specific not sample specific.		
3.3.1	Is matrix spike/matrix spike duplicate recovery data present?	X
3.3.2	Were any VOC spike recoveries are outside the QC limits?	X
3.3.3	Check RPDs for matrix spike and matrix spike duplicate recoveries.	X
3.4	**Matrix Spike/Matrix Spike Duplicates, SVOC**	
3.4.1	Is matrix spike/matrix spike duplicate recovery data present?	--
3.4.2	Were any SVOC spike recoveries are outside the QC limits?	--
3.4.3	Check RPDs for matrix spike and matrix spike duplicate recoveries.	--
3.5	**Sample Specific**	
Metal Spike Recovery – Spikes are elements of known composition that are added to blanks and to samples that measure accuracy and precision of the analyses. At least one spike should be included for each batch of samples. Spike recovery criteria listed in this section are determined from U.S. EPA's National Functional Guidelines for Inorganic Data Review. The criteria applied by an individual laboratory may vary. The laboratory should be consulted and its QA/QC criteria supplied to the reviewer.		
3.5.1	Confirm that at least one spike sample was analyzed per batch and per matrix type.	--
3.5.2	Are all spike recoveries (except Hg and Ag) within control limits?	--
3.5.3	Based on the results of 3.5.2, if the sample results were <4x the spike amount and spike recoveries were out of criteria, a post-digestion spike should be analyzed. Note: Post-digestion spikes are not required for Ag or Hg. The post digestion spike confirms a matrix interference and should not be used for qualification.	--
3.5.4	Are any Aqueous spike recoveries (pre and post digestion): 1. Less than 30%? 2. Between 30% and 74%? 3. Between 126% and 150%? 4. Greater than 150%?	--
3.5.5	Are any soil/solid/waste spike recoveries (pre and post digestion): 1. Less than 10%? 2. Between 10% and 74%? 3. Between 126% and 200%? 4. Greater than 200%?	--
3.5.6	If the pre-digestion spike was outside the QC limits for Atomic Adsorption furnace analysis (e.g. SW-846 methods in the 7000 series), was a post-digestion spike performed?	--

3.5.7	Based on the results from 3.5.6, were the post-digestion spike recoveries within the quality control range (75% to 125%)?	--
4.0	**Blank Data Review**	
Blank Data – Laboratory blanks are used to assess whether contamination from the laboratory, reagents or other samples exists and whether this contamination can bias sample results. The qualification of sample results will depend upon the magnitude of blank contamination.		
4.1	**Blank Summary Review – VOC**	
4.1.1	Is the method blank summary data present for each batch (method and matrix), including TCLP?	X
4.1.2	Is there an indication that the samples associated with that blank were diluted?	X
4.1.3	Check field/trip/rinsate blanks for any positive results for volatile target analytes.	X
4.1.4	Check method blanks for VOCs.	X
4.2	**Blank Summary Review – SVOC**	
4.2.1	Is the method blank summary data present for each batch (method and matrix), including TCLP?	--
4.2.2	Check for dilution associated with that blank.	--
4.2.3	Check field/trip/rinsate blanks for any positive results for semi-volatile target analytes.	--
4.2.4	Check method blanks for SVOCs.	--
4.3	**Blank Summary Review – Metals**	
4.3.1	Were the method blank summary data present for each batch (method and matrix), including TCLP?	--
4.3.2	Check for detections in blank.	--

APPENDIX II

LABORATORY ANALYTICAL REPORTS ON CD

APPENDIX III

REMEDY COMPONENTS INSPECTION RECORDS

LITHKO RESTORATION TECHNOLOGIES

July 9th 2015

Dennis Taus
EMD

RE: Review of Exterior Joint Condition June 23rd, 2015

Dear Dennis,
Lithko Restoration Technologies reviewed the EMD truck parking lot on March 18th and found these items.

General Assessment: There does not appear to be serious repair concerns associated with the exterior caulk joints we reviewed. However the slab needs to be sealed with a silicate treatment. It was noticed that there are significant amount of popouts and scaling occurring over the majority of the slab.

These are categorized by the following notations as per the mapped layout:
1- Should be removed and replaced in the near future
2- Transcending crack repair – repair in the near future
3- Concrete deterioration along the edges – monitor for future restoration and repair
4- Signs of wear or minor flaw – recommend either MONITOR (a) or REPAIR (b)*
*these are mostly surface cracks
5- Good condition

Map Section	Condition
1.1-	5
2.1-	5
1.2-	2 - 4' Minor Crack Repair
2.2-	5
1.6-	5
2.4-	5
1.3-	5
1.10-	5
1.18-	5
2.14-	5
1.7-	5
2.5-	5
1.4-	5
2.7-	5
1.9-	5
2.15-	5
1.11-	5
3.4-	5
1.8-	5
2.6-	5
2.3-	5
3.2-	5
2.8-	2 - Crack Repair 3'

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4.1-	5
1.12-	5
4.7-	5
2.16-	5
4.8-	5
1.13-	5
5.1-	5
4.4-	2 – Crack Repair 3'
3.5-	5
2.9-	5
3.1-	5
1.5-	5
4.2-	5
6.1-	5
5.2-	2 – Crack Repair 3'
3.6-	5
4.9-	5
1.14-	5
3.7-	5
5.9-	2 – Crack Repair 14'
6.2-	5
5.3-	5
1.15-	5
4.10-	5
5.7-	5
4.5-	5
2.10-	5
3.3-	5
4.3-	5
5.4-	5
5.5-	5
2.13-	5
2.11-	5
2.12-	5
5.6-	5
4.6-	5
6.3-	5
5.10-	5
3.8-	5
1.16-	5
4.11-	5
5.8-	5
6.4-	5
5.11-	5
3.9-	5

1.17-	5
3.11-	5
3.10	5

Submitted: July 9th 2015

Don Vanneman, Proj. Mgr.
Lithko Restoration Technologies
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LITHKO RESTORATION TECHNOLOGIES

March 18th 2015

Dennis Taus RE: Review of Exterior Joint Condition March 18, 2015
EMD

Dear Dennis,
Lithko Restoration Technologies reviewed the EMD truck parking lot on March 18th and found these items.

SCOPE OF WORK:
General Assessment: There does appear to be serious repair concerns associated with the exterior caulk joints we reviewed. Items to note
1) there are some caulk joints that should be replaced in the near future 2) there are some cracks in the concrete that transcend the joints and joints that have some concrete deterioration along the edges, both of which may eventually have the capacity to compromise the caulk effectiveness, and
3) there are joints that show signs of wear, but do not need to be replaced at this juncture.

These are categorized by the following notations as per the mapped layout:
1- Should be removed and replaced in the near future
2- Transcending crack repair – repair in the near future
3- Concrete deterioration along the edges – monitor for future restoration and repair
4- Signs of wear or minor flaw – recommend either MONITOR (a) or REPAIR (b)*
*these are mostly surface cracks
5- Good condition

Map Section	Condition
1.1-	5
2.1-	5
1.2-	2 -Patch Repair
2.2-	1 -Joint Repair 20'
1.6-	5
2.4-	5
1.3-	5
1.10-	5
1.18-	5
2.14-	5
1.7-	5
2.5-	5
1.4-	5
2.7-	1 – Joint Repair 7'
1.9-	1 – Joint Repair 13'
2.15-	1 – Joint Repair 15'
1.11-	1 – Joint Repair 33' Wall Inj 5'
3.4-	1 - Joint Repair 13'

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1.8-	1 – Joint Repair 9'
2.6-	1 – Joint Repair 4'
2.3-	1 – Joint Repair 16' Spalls Patch
3.2-	1 – Joint Repair 52'
2.8-	1 – Joint Repair 11'
4.1-	5
1.12-	5
4.7-	5
2.16-	5
4.8-	1 – Wall Injection, Joint Repair 37'
1.13-	5
5.1-	1 – Joint Repair 16'
4.4-	1 – Joint Repair 71'
3.5-	1 – Joint Repair 71' Patch
2.9-	1- Joint Repair 16'
3.1-	1 - Joint Repair 6' Silane treatment of slab
1.5-	2 - 6 WALL cracks @ 3Lf each
4.2-	1- Joint Repair 84'
6.1-	1 – Spall 1 ea. Joint Repair 37'
5.2-	1 – Joint Repair 14'
3.6-	1 – Joint Repair 39' Wall Injection 30'
4.9-	1 - Spall 2 ea. Joint Repair 17' Inj Wall 15'
1.14-	1 – Spall 1 Joint Repair 16'
3.7-	1 – Spalls 4ea. Joint 12'
5.9-	1 - Spalls 3 ea Joint 13'
6.2-	1 – Joint Repair 29' Patch 5'x1'
5.3-	1 – Joint Repair 34'
1.15-	1 – Joint Repair 23'
4.10-	1 – Joint Repair 31'
5.7-	1 – Joint Repair 39'
4.5-	1 – Spalls 2 ea.
2.10-	5 – Joint Repair 106'
3.3-	2 – Wall Injection 15' Joint Repair 40'
4.3-	5
5.4-	5
5.5-	5
2.13-	5
2.11-	1 – Wall Injection 10'
2.12-	5
5.6-	5
4.6-	5
6.3-	1 – Joint Repair 72'
5.10-	1 – Joint Repair 37'
3.8-	1 – Spalls 2 ea Joint Repair 20'
1.16-	1 – Spalls 6 ea Joint repair 20'

4.11-	1 – Joint Repair 48'
5.8-	1 – Joint Repair 36'
6.4-	1 – Joint Repair 35'
5.11-	1 – Joint Repair 31'
3.9-	1 – Spalls 10 Joint Repair 26'
1.17-	1 – Wall Injection 11'
3.11-	5
3.10	1 – Joint Repair 2'

Submitted: March 23rd 2015

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