day
DAY ENVIRONMENTAL, INC.

ENVIRONMENTAL CONSULTANTS
AN AFFILIATE OF DAY ENGINEERING, P.C.

November 16, 2016

Ms. Charlotte Theobald
NYSDEC
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, New York 14414

Re: Proposed SMP Modifications
Andrews Street Site
Rochester, New York
NYSDEC Site #E828144

Dear Ms. Theobald:

On behalf of the City of Rochester, Day Environmental, Inc. (DAY) is proposing modifications to the Site Management Plan (SMP) dated August 2015 for the above-referenced property (Site). The proposed modifications are the result of evaluating cumulative groundwater monitoring data.

Proposed Treatment at Select Source and Plume Core Monitoring Well Locations

The enclosed Table 1 and Table 2 show cumulative analytical laboratory volatile organic compound (VOC) results for groundwater samples collected from overburden and bedrock groundwater monitoring wells, respectively. As shown, VOC concentrations have recently increased (i.e., rebounded) at some overburden monitoring wells within the former source and plume core areas. Figure 1 depicts the locations of existing on-site and off-site monitoring wells associated with the Site. The highest increases of VOCs occurred at monitoring well locations MW-17, MW-03A, and MW-02. These increases are in part likely the result of Supplemental ISCO IRM injection points previously being intentionally located away from existing monitoring wells in order to avoid day lighting of potassium permanganate around the grout columns and well casings of the monitoring wells. As such, it is possible that VOCs in close proximity to certain monitoring wells may not have been completely remediated by the initial ISCO injections.

To facilitate remediation of residual VOCs in the groundwater, it is requested that the NYSDEC approve select existing groundwater monitoring wells be used as temporary ISCO injection wells. Currently, monitoring wells MW-01, MW-02, MW-03A, MW-16, MW-17, MW-18 and MW-19 are proposed to be used as injection wells. If the results of future groundwater monitoring warrant other monitoring wells be used as injection wells, the NYSDEC will be contacted for concurrence. The proposed treatment involves the installation of CARUS passive release potassium permanganate cylinders (RemOx® SR), which offers the advantage of not requiring the injection of solutions or slurries under hydraulic pressure that have the potential to negatively impact the integrity of the monitoring wells or result in surface daylighting of the oxidant. The RemOx® SR

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cylinders are not permanent; thus, they can be removed from the wells to allow monitoring groundwater quality. The use of RemOx® SR cylinders in some of the existing monitoring wells at the Andrews Street Site should further reduce the remaining VOC plume and treat VOCs that are located in a small radius around these monitoring wells.

Based on past discussions between representatives of the City of Rochester Division of Environmental Quality and the NYSDEC Division of Environmental Remediation in Albany, New York, monitoring wells have been used as temporary ISCO injection wells on several projects managed by the NYSDEC. The rationale was based in part on the fact that monitoring wells are often located in key strategic locations within the source area or core of a contaminant plume. As a result, such monitoring wells are in prime locations to assist with the remediation or polishing of the contaminant source area or core plume. Based on these conversations, a precedent exists for using monitoring wells to assist with groundwater remediation.

Prior to the installation of passive release RemOx® SR cylinders into the existing monitoring wells, the wells will be conditioned with a dispersant solution of sodium hexametaphosphate (SHMP). Using guidance provided by Carus, the following mixtures of SHMP and water will be injected at the monitoring wells:

MW-01: Approximately 30 pounds of SHMP and approximately 300 gallons of potable water

MW-02: Approximately 35 pounds of SHMP and approximately 350 gallons of potable water

MW-03A: Approximately 40 pounds of SHMP and approximately 400 gallons of potable water

MW-16: Approximately 35 pounds of SHMP and approximately 350 gallons of potable water

MW-17: Approximately 30 pounds of SHMP and approximately 300 gallons of potable water

MW-18: Approximately 40 pounds of SHMP and approximately 400 gallons of potable water

MW-19: Approximately 40 pounds of SHMP and approximately 400 gallons of potable water

The potable water will be sourced from Monroe County, NY or Rochester, NY. The SHMP keeps manganese dioxide in suspension; thus, preventing potential impact on the wells. A Material Safety Data Sheet for SHMP is included in Attachment 1.

Subsequent to injection of the SHMP well conditioner, and based on past groundwater table conditions at each well, the following number of 1.35-inch diameter x 18-inch long RemOx® SR cylinders will be installed in the wells using plastic mesh sleeves, stainless steel cable ties and polypropylene rope:

MW-01: 9 cylinders

MW-02: 9 cylinders

MW-03A: 11 cylinders

MW-16: 12 cylinders

MW-17: 9 cylinders

MW-18: 11 cylinders

MW-19: 11 cylinders

The cylinders will be placed to intercept the screened intervals of the monitoring wells, and are anticipated to be installed below the average top of groundwater inside each monitoring well casing. As warranted, new RemOx® SR cylinders may be replaced in one or more monitoring wells when preceding sets of RemOx® SR cylinders are deemed as expended. In addition, new RemOx® SR cylinders will likely be placed in existing injection wells in the 2016/2017 timeframe. The NYSDEC will be contacted when this work is scheduled. A Material Safety Data Sheet for Potassium Permanganate is included in Attachment 1.

The RemOx® SR cylinders will be kept in the monitoring wells no more than three weeks prior to each future groundwater monitoring event. At that point, the cylinders will be removed from each monitoring well. Two weeks subsequent to removing the RemOx® SR cylinders, each well will be redeveloped using typical development techniques before initiating a groundwater sampling event using Passive Diffusive Bag (PDB) sampling equipment. As previously identified, the PDBs do not allow potassium permanganate rich solutions to diffuse through the PDB membrane.

Proposed Modification to Groundwater Monitoring at MW-01

The current SMP requires three PDBs be used to collect groundwater samples from well MW-01 at depths of 17 feet below the ground surface (bgs), 23 feet bgs and 24.5 feet bgs during groundwater monitoring events. It has become increasingly difficult to install the string of three PDBs at well MW-01 due to apparent hang up at threaded joints in the polyvinyl chloride riser and/or screen. Although total concentrations of VOCs detected in groundwater samples between sampling events are shown to vary, a comparison of the concentrations of detected VOCs at the three depth intervals during specific events are similar. For the above reasons, it is proposed that only one PDB be used to collect one groundwater sample from well MW-01 at a depth of approximately 23 feet bgs for future groundwater monitoring events.

Proposed Decommissioning of Select Monitoring Wells

As previously presented, Table 1 and Table 2 show cumulative analytical laboratory VOC results for groundwater samples collected from overburden and bedrock groundwater monitoring wells, respectively. More than one year of Post-COC groundwater monitoring has been completed. As shown, many of the overburden and bedrock monitoring wells have consistently shown little or no presence of VOCs associated with the Site. The majority of these wells are located along the perimeter of the Site, or at off-site locations. Per Section 3.3.1.2 of the August 2015 NYSDEC-approved SMP, it is requested that the NYSDEC approve the decommissioning of monitoring wells MW-08, MW-09, MW-09R, MW-10, MW-10R, MW-12, MW-13, MW-14, MW-14R and MW-21 (refer to Figure 1). The wells will be decommissioned in accordance with NYSDEC's CP-43 Groundwater Monitoring Well Decommissioning Procedures, dated November 3, 2009.

Proposed Revision of Site Management Plan

If the NYSDEC approves installation of RemOx® SR cylinders in select monitoring wells, or decommissioning of some of the existing monitoring wells, the August 2015 SMP will be revised to reflect these changes, and a Draft of the revised SMP will be provided to the NYSDEC for review. After addressing and NYSDEC comments, the revised SMP will replace the August 2015 version of the SMP.

Applicable provisions set forth in the August 2015 SMP, which includes the July 2015 Health and Safety Plan (HASP) and July 2015 Quality Assurance Project Plan (QAPP), will be implemented during fieldwork associated with this work.

Where applicable, individuals involved with implementation of the fieldwork will be 29 CFR 1910.120 HAZWOPER trained, and current HAZWOPER certifications for these individuals will be made available upon request.

If there are any questions, please contact this office.

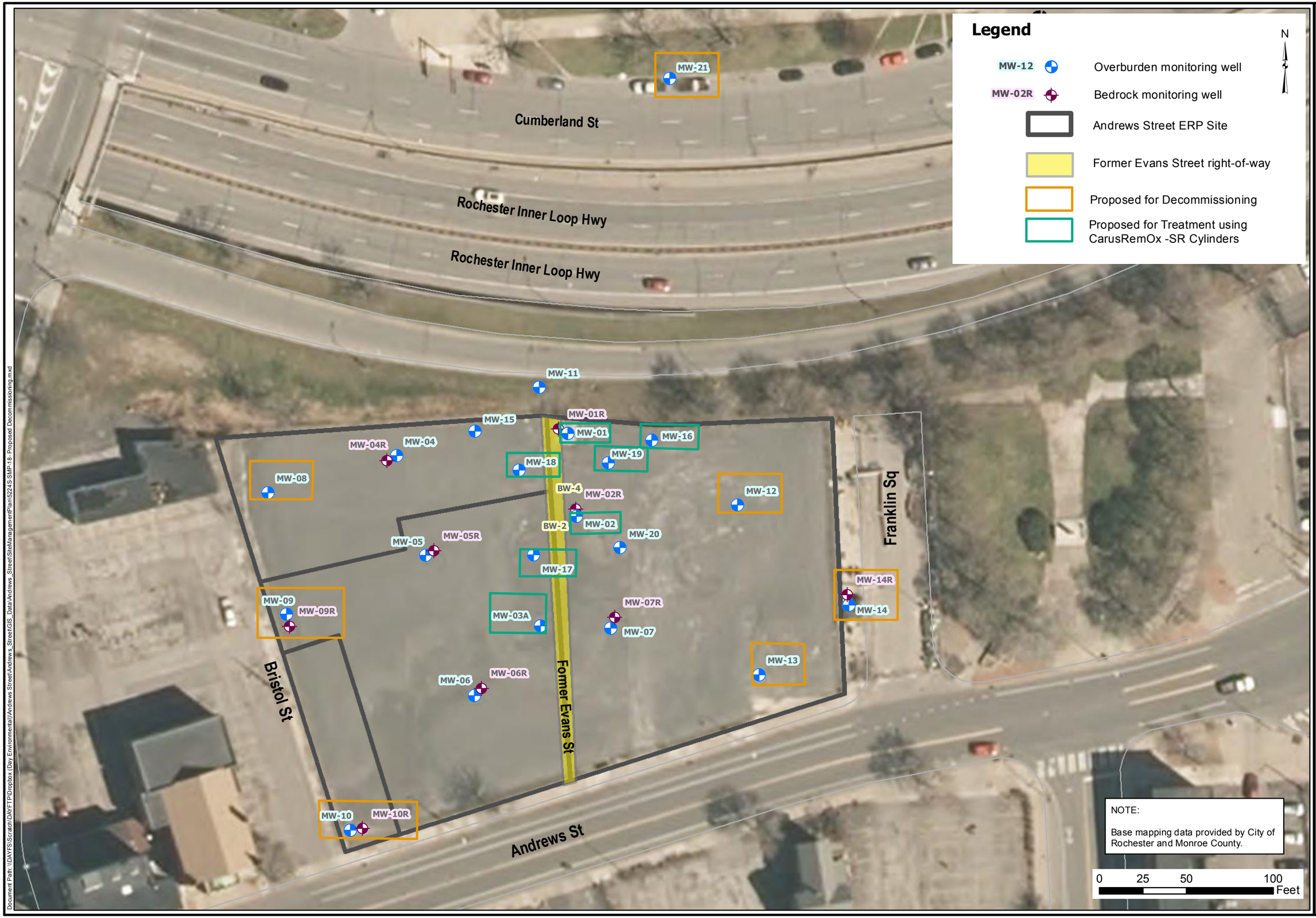
Very truly yours,
Day Environmental, Inc.

Jeffrey A. Danzinger
Associate Principal

ec: Joseph Biondolillo (City of Rochester)

Enclosures
Figure 1
Table 1 and Table 2
Attachment 1 – Material Safety Data Sheets

JD7801 / 5224S-16



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DESIGNED BY	DRAWN BY	SCALE
JAD	CCD/CPS	AS NOTED
DATE 11-2016	DATE DRAWN 11-2016	DATE ISSUED 11-09-2016

DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
300, 304-308, 320 ANDREWS STREET
AND 25 EVANS STREET
ROCHESTER, NEW YORK

ENVIRONMENTAL RESTORATION PROJECT NYSDEC SITE NO.: E828144

Drawing Title
Proposed Monitoring Well Decommissioning Locations and Proposed Monitoring Well Treatment Locations

Project No.
5224S-16

FIGURE 1

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	134 MW-01 1/9/12 LF 20.5 ft	164 MW-01 6/27/12 PDB 15 ft	165 MW-01 6/27/12 PDB 23.0 ft	597 MW-01 9/5/13 PDB 17.0 ft	598 MW-01 9/5/13 PDB 23.0 ft	599 MW-01 9/5/13 PDB 24.5 ft	667 MW-01 10/20/14 Bailer 14-17 ft	668 MW-01 11/12/14 PDB 17.0 ft	669 MW-01 11/12/14 PDB 23.0 ft	670 MW-01 11/12/14 PDB 24.5 ft	698 MW-01 3/16/15 PDB 17.0 ft	699 MW-01 3/16/15 PDB 23.0 ft	700 MW-01 3/16/15 PDB 24.5 ft	726 MW-01 6/9/15 PDB 17 ft	727 MW-01 6/9/15 PDB 23 ft	728 MW-01 6/9/15 PDB 24.5 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	0.79 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	5.8	5.2	U	U	U	U	U	U	U	U	U	U	U J	U J	U J
Acetone	50	U	**65** X	**62** X	R	R	R	U	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.3 J
Chloroform	7	4.6	3	3.7	U	U	U	U	U	0.28 J	0.26 J	U	U	U	U	U	U
Chloromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromomethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	**120** X	**93** X	**130** X	**19.3** X	**220** E X	**69** JD X	U	3.5	**34.9** X	**37** X	1.7	3.7	4	U	2.2	3.3
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	1.7	0.93 J	1.6	U	1.7	1.7	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	**48000** D X	**4800** D X	**35000** D X	**1400** D X	**15500** D X	**9300** D X	**4050** X	**280** D X	**2100** D X	**1800** D X	**92.5** X	**100** X	**94.3** X	**81.3** X	**92.6** X	**130** X
Toluene	5	U	0.65 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	**230** J X	**90** X	**250** J X	**21.8** X	**190** JD X	**200** D X	**136** X	**13.4** X	**110** X	**110** X	4.7	**10.6** X	**11.1** X	4.6	**8.9** X	**10.2** X
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	0.59 J	0.47 J	0.59 J	U	0.79 J	0.82 J	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U J	U J
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		48357.68	5058.85	35453.09	1441.1	15912.49	9571.52	4186	296.9	2245.18	1947.26	98.9	114.3	109.4	85.9	103.7	143.8
Total TICs (1)		U	U	U	U	U	U	U	0.58	U	6	U	U	3.3	2.9	2.8	2.7
Total VOCs and TICs (1)		48357.68	5058.85	35453.09	1441.1	15912.49	9571.52	4186	297.48	2245.18	1953.26	98.9	114.3	112.7	88.8	106.5	146.5

U = Not Detected
NA = Not Available
LF - Low Flow
J = Estimated value

= Round 1 RI Groundwater Sample
= Round 2 RI Groundwater Sample
= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	754 MW-01 9/3/15 PDB 17 ft	755 MW-01 9/3/15 PDB 23 ft	756 MW-01 9/3/15 PDB 24.5 ft	782 MW-01 12/7/15 PDB 17 ft	783 MW-01 12/7/15 PDB 23 ft	784 MW-01 12/7/15 PDB 24.5 ft	810 MW-01 3/29/16 PDB 17 ft	811 MW-01 3/29/16 PDB 23 ft	812 MW-01 3/29/16 PDB 24.5 ft	840 MW-01 7/12/16 PDB 17 ft	841 MW-01 7/12/16 PDB 23 ft	842 MW-01 7/12/16 PDB 24.5 ft	868 MW-01 10/11/16 PDB 17 ft	869 MW-01 10/11/16 PDB 23 ft	870 MW-01 10/11/16 PDB 24.5 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	0.47 J	0.55 J	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetone	50	U	6.7	U	U	U	U	U	U	U	U	U	U	5.2	4.2 J	5
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	0.71 J	0.54 J	U	U	U
Chloromethane	5	U	U	U	U	U	U	U J	U J	U J	U	U	U	U	U	U
Bromomethane	5	U	U	U	U	U	U	U J	U J	U J	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	1.2	**32.1** X	**32.7** X	**10.6** X	**11.1** X	**10.8** X	1.9	**9.3** X	**6.2** X	**27.4** X	**200** D X	**200** D X	4.1	**5.5** X	**7.7** X
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	0.32 J	U	U	U	U	U	U	U	1.8 J	2.1	U	U	U
Tetrachloroethene	5	**79.6** X	**230** D X	**150** X	**130** X	**110** X	**59.4** X	**30** X	**72** X	**57.1** X	**80.8** X	**480** D X	**240** D X	**9.5** X	**12** X	**23.7** X
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	4.6	**30** X	**67.5** X	**22.7** X	**24.3** X	**20.3** X	**6.4** X	**19.4** X	**19.3** X	**23** X	**180** X	**200** X	1.9	2.7	**5.5** X
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U J	U	U J	U	U	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U J	U J	U J	U J	U J	U J	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U		U	U	U	U	U	U	U	U	U
Total VOCs		85.4	298.8	250.52	163.3	145.4	90.5	38.3	100.7	82.6	131.2	862.98	643.19	20.7	24.4	41.9
Total TICs (1)		1.8	2	1.8	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs and TICs (1)		87.2	300.8	252.32	163.3	145.4	90.5	38.3	100.7	82.6	131.2	862.98	643.19	20.7	24.4	41.9

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
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TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
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D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	135 MW-02 1/9/12 LF 22.0 ft	168 MW-02 6/27/12 PDB 17.0 ft	169 MW-02 6/27/12 PDB 22.0 ft	601 MW-02 9/5/13 PDB 17.0 ft	602 MW-02 9/5/13 PDB 22.0 ft	603 MW-02 9/5/13 PDB 25.5 ft	671 MW-02 11/12/14 PDB 23.8 ft	701 MW-02 3/16/15 PDB 23.8 ft	729 MW-02 6/9/15 PDB 23.8 ft	757 MW-02 9/3/15 PDB 23.8 ft	785 MW-02 12/7/15 PDB 23.8 ft	813 MW-02 3/29/16 PDB 23.8 ft	843 MW-02 7/12/16 PDB 23.8 ft	871 MW-02 10/11/16 PDB 23.8 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	0.81 J	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	5.8	6.1	U	U	U	U	U	U J	2.3 J	U	U	U	U
Acetone	50	U	**67** X	**68** X	R	R	R	9.5	U	U	U	U	U	U	3.7 J
Benzene	1	U	U	U	U	U	U	U	0.36 J	U	0.36 J	0.49 J	0.36 J	U	0.3 J
Chloroform	7	0.62 J	U	U	U	U	U	1.1	0.45 J	U	0.23 J	0.44 J	U	U	U
Chloromethane	5	U	U	U	U	U	U	U	U	U	U	U	U J	U	U
Bromomethane	5	U	U	U	U	U	U	U	U	U	U J	U	U J	U	U
Cis-1,2-Dichloroethene	5	**62** X	**7.8** X	**22** X	**8.1** X	**51.7** X	**49.5** X	U	U	U	U	**48.8** X	**83.4** X	**94.8** J X	**100** X
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	1	U	U	U	0.68 J	2.9	U	U	U	U	U	0.49 J	0.89 J	0.85 J
Tetrachloroethene	5	**19000** D X	**180** X	**530** D X	**460** D X	**8900** D X	**8400** D X	0.46 J	0.22 J	2.7	**47.9** X	**300** D X	**180** X	**130** X	**140** X
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	**180** J X	**16** X	**36** X	**16.3** X	**140** X	**190** X	U	U	U	U	**30.4** X	**37.6** J	**38** X	**40.4** X
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	0.46 J	U	U	U	0.51 J	0.56 J	U	U	U	U J	0.29 J	U	0.58 J	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U J	U	U J	U J	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		19244.89	276.6	662.1	484.4	9092.89	8642.96	11.06	1.03	2.7	50.79	380.42	301.85	264.27	285.25
Total TICs (1)		U	U	U	U	U	U	U	3.4	20.4	15.2	U	5.8	11.7	11.6
Total VOCs and TICs (1)		19244.89	276.6	662.1	484.4	9092.89	8642.96	11.06	4.43	23.1	65.99	380.42	307.65	275.97	296.85

U = Not Detected
NA = Not Available
LF - Low Flow
J = Estimated value

= Round 1 RI Groundwater Sample
= Round 2 RI Groundwater Sample
= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	136 MW-03 1/5/12 LF 22.0 ft	171 MW-03 6/27/12 PDB 22.0 ft	172 MW-03 6/27/12 PDB Dup 22.0 ft	525 MW-03A 2/1/13 PDB 22-23 ft	575 MW-03A 9/5/13 PDB 17.0 ft	576 MW-03A 9/5/13 PDB 22.0 ft	577 MW-03A 9/5/13 PDB 28.0 ft	672 MW-03A 11/12/14 PDB 17.0 ft	702 MW-03A 3/16/15 PDB 17.0 ft	730 MW-03A 6/9/15 PDB 17.0 ft	758 MW-03A 9/3/15 PDB 17.0 ft	786 MW-03A 12/7/15 PDB 17.0 ft	814 MW-03A 3/29/16 PDB 17.0 ft	844 MW-03A 7/12/16 PDB 17.0 ft	872 MW-03A 10/11/16 PDB 17.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U J	U	U	U	U	U
Acetone	50	U J	U	U	10.3	R	R	R	U	U	U	U	U	U	U	4.2 J
Benzene	1	U	U	U	U	0.37 J	U	U	U	0.22 J	0.32 J	0.27 J	0.22 J	U	U J	U
Chloroform	7	U	U	U	1.5	0.62 J	0.66 J	0.66 J	1.5	0.67 J	0.53 J	0.31 J	0.42 J	U	0.4 J	U
Chloromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U J	U	U
Bromomethane	5	U	U	U	U	U	U	U	U	U	U	U J	U	U JU	U	U
Cis-1,2-Dichloroethene	5	1.8	2.2	2.2	**9.9** X	**71.6** X	**75.3** X	**78.7** X	U	U	U	3.5	**47.6** X	**74.2** X	**50.7** X	**27.6** X
Methyl tert-butyl Ether	10	U J	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	1.1	1.1	1.2	1.2	U	U	U	U	U	1.3	1.1	0.56 J
Tetrachloroethene	5	**1300** D X	**1300** D X	**2900** D X	**9600** D X	**4800** D X	**4300** D X	**1700** D X	**130** X	**98.4** X	**400** D X	**610** D X	**810** D X	**760** D X	**740** D X	**670** D X
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Trichloroethene	5	**44** X	**48** X	**48** X	**260** D X	**190** D X	**170** D X	**190** X	U	U	U	**7.4** X	**51.3** X	**60.9** X	**51.9** X	**48.3** X
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	U	U J	U	0.64 J	0.46 J	U
Carbon Disulfide	NA	U	U	U	U	0.27 J	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U	U J	U	U J	U J	U J	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U J	U
Total VOCs		1345.8	1350.2	2950.2	9882.8	5063.96	4547.16	1970.56	131.5	99.29	400.85	621.48	909.54	897.04	844.56	750.66
Total TICs (1)		U	U	U	U	U	U	U	U	2.1	2.6	1.6	U	U	U	U
Total VOCs and TICs (1)		1345.8	1350.2	2950.2	9882.8	5063.96	4547.16	1970.56	131.5	101.39	403.45	623.08	909.54	897.04	844.56	750.66

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	137 MW-04 1/6/12 LF 23.0 ft	173 MW-04 6/27/12 PDB 23.0 ft	565 MW-04 9/5/13 PDB 23.0 ft	673 MW-04 11/12/14 PDB 23.0 ft	703 MW-04 3/16/15 PDB 23.0 ft	731 MW-04 6/9/15 PDB 23.0 ft	759 MW-04 9/3/15 PDB 23.0 ft	787 MW-04 12/7/15 PDB 23.0 ft	815 MW-04 3/29/16 PDB 23.0 ft	845 MW-04 7/12/16 PDB 23.0 ft	873 MW-04 10/11/16 PDB 23.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	7.6	U	U	U	U J	U	U	U	U	U
Acetone	50	U J	76 X	R	U	U	U	U	U	U	U	4.6 J
Benzene	1	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	4.5	0.58 J	U	U	U	U	U	U
Chloromethane	5	U	U	U	U	U	0.22 J	U	U	U J	U	U
Bromomethane	5	U	U	U	U	U	U	U J	U	U J	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Methyl tert-butyl Ether	10	3.6 J	U	U	U	U	U	U	0.44 J	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U J	U	U	U	0.28 J	0.46 J	U	U	0.98 J	U	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U J	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	1.4	1	1.5	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U J	U	U J	U J	2.8	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		3.6	83.6	0	4.5	2.26	1.68	1.5	0.44	0.98	2.8	4.6
Total TICs (1)		0.9	U	U	U	U	10.36	1.4	U	U	U	U
Total VOCs and TICs (1)		4.5	83.6	0	4.5	2.26	12.04	2.9	0.44	0.98	2.8	4.6

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
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X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	138 MW-05 1/9/12 LF 23.3 ft	174 MW-05 6/27/12 PDB 23.0 ft	567 MW-05 9/5/13 PDB 23.0 ft	568 MW-05 9/5/13 PDB 17.0 ft	569 MW-05 9/5/13 PDB 28.0 ft	674 MW-05 11/12/14 PDB 17.0 ft	704 MW-05 3/16/15 PDB 17.0 ft	732 MW-05 6/9/15 PDB 17.0 ft	760 MW-05 9/3/15 PDB 17.0 ft	788 MW-05 12/7/15 PDB 17.0 ft	816 MW-05 3/29/16 PDB 17.0 ft	846 MW-05 7/12/16 PDB 17.0 ft	874 MW-05 10/11/16 PDB 17.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U J	U	U	U	U	U
Acetone	50	U	U	R	R	R	U	U	U	U	U	U	U	4.3 J
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	0.89 J	0.7 J	0.77 J	0.5 J	0.85 J	U	U	U	U	U	U	U
Chloromethane	5	U	U	U	U	U	U	U	U	U	U	U J	U	U
Bromomethane	5	U	U	U	U	U	U	U	U	U J	U	U J	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Methyl tert-butyl Ether	10	U J	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	**260** D X	**110** X	**110** X	**150** X	**37.1** X	**11.2** X	**88.7** X	**120** X	**80.2** X	**46.6** X	**69.3** X	**75.8** X	**51.6** X
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	2.9	2.1	2	1.5	U	1	1.6	0.89 J	1.3	0.88 J	1	0.7 J
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U J	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U J	U	U J	U J	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		260	113.79	112.8	152.77	39.1	12.05	89.7	121.6	81.09	47.9	70.18	76.8	56.6
Total TICs (1)		U	U	U	U	U	4.6	U	U	1.7	U	U	U	U
Total VOCs and TICs (1)		260	113.79	112.8	152.77	39.1	16.65	89.7	121.6	82.79	47.9	70.18	76.8	56.6

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
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PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	139 MW-06 1/6/12 LF 20.5 ft		176 MW-06 6/27/12 PDB 20.5 ft		571 MW-06 9/5/13 PDB 17.0 ft		572 MW-06 9/5/13 PDB 21.0 ft		573 MW-06 9/5/13 PDB 28.0 ft		675 MW-06 11/12/14 PDB 17.0 ft		705 MW-06 3/16/15 PDB 17.0 ft		733 MW-06 6/9/15 PDB 17.0 ft		761 MW-06 9/3/15 PDB 17.0 ft		789 MW-06 12/7/15 PDB 17.0 ft		817 MW-06 3/29/16 PDB 17.0 ft		847 MW-06 7/12/16 PDB 17.0 ft		875 MW-06 10/11/16 PDB 17.0 ft	
1,1-Dichloroethane	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
1,1-Dichloroethene	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
2-Butanone	50	U		U		U		U		U		U		U		U J		U		U		U		U		U	
Acetone	50	U J		U		R		R		R		U		U		U		U		U		U		U		3.9 J	
Benzene	1	U		U		U		U		U		U		U		U		U		U		U		U		U	
Chloroform	7	U		U		U		U		U		0.64 J		0.28 J		U		U		U		U		U		U	
Chloromethane	5	U		U		U		U		U		U		U		U		U		U		U J		U		U	
Bromomethane	5	U		U		U		U		U		U		U		U		U J		U		U J		U		U	
Cis-1,2-Dichloroethene	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
Methyl tert-butyl Ether	10	U J		U		U		U		U		U		U		U		U		U		U		U		U	
Methylene chloride	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
trans-1,2-Dichloroethene	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
Tetrachloroethene	5	**14** J	**X**	**26**	**X**	**20.4**	**X**	**14.9**	**X**	**6.2**	**X**	3		**6.8**	**X**	**11.1**	**X**	4.8		**10**	**X**	**7.2**	**X**	**8.8**	**X**	**8.5**	**X**
Toluene	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
Ethylbenzene	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
Xylenes (Total)	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
Trichloroethene	5	U		U		U		U		U		U		U		U		U		U		U		0.66 J		0.54 J	
Trichlorofluoromethane	5	U		U		U		U		U		U		U		U		U		U		U		U		U	
Vinyl Chloride	2	U		U		U		U		U		U		U		U		U J		U		U		U		U	
Carbon Disulfide	NA	U		U		U		U		U		U		U		U		U		U		U		U		U	
Cyclohexane	NA	U		U		U		U		U		U		U		U J		U		U J		U J		U		U	
Methylcyclohexane	NA	U		U		U		U		U		U		U		U		U		U		U		U		U	
Bromodichloromethane	NA	U		U		U		U		U		U		U		U		U		U		U		U		U	
Total VOCs		14		26		20.4		14.9		6.2		3.64		7.08		11.1		4.8		10		7.2		9.46		12.94	
Total TICs (1)		U		U		U		U		U		U		U		2.6		1.8		U		U		U		U	
Total VOCs and TICs (1)		14		26		20.4		14.9		6.2		3.64		7.08		13.7		6.6		10		7.2		9.46		12.94	

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

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TIC = Tentatively Identified Compound
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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	140 MW-07 1/9/12 LF 22.5 ft	177 MW-07 6/27/12 PDB 22.5 ft	608 MW-07 9/5/13 PDB 22.5 ft	676 MW-07 11/12/14 PDB 22.5 ft	706 MW-07 3/16/15 PDB 22.5 ft	734 MW-07 6/9/15 PDB 22.5 ft	762 MW-07 9/3/15 PDB 22.5 ft	790 MW-07 12/7/15 PDB 22.5 ft	818 MW-07 3/29/16 PDB 22.5 ft	848 MW-07 7/12/16 PDB 22.5 ft	876 MW-07 10/11/16 PDB 22.5 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U J	U	U	U	U	U
Acetone	50	U	U	R	U	U	U	U	U	U	U	4.5 J
Benzene	1	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	0.43 J	U	U	U	U	U	U	U
Chloromethane	5	U	U	U	U	U	U	U	U	U J	U	U
Bromomethane	5	U	U	U	U	U	U	U J	U	U J	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	U	1.5	0.79 J	U	1.4
Methyl tert-butyl Ether	10	U J	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U	U	4.5	0.71 J	1	**30.1 X**	**35 X**	**100 X**	**61.7 X**	**23 X**	**110 X**
Toluene	5	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	U	U	0.85 J	**5.7 X**	2.6	0.54 J	**7 X**
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U J	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	1.1	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U J	U	U J	U J	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		0	0	4.5	1.14	1	30.1	36.95	107.2	65.09	23.54	122.9
Total TICs (1)		U	U	U	6.2	1.7	2.6	1.7	U	U	U	U
Total VOCs and TICs (1)		0	0	4.5	7.34	2.7	32.7	38.65	107.2	65.09	23.54	122.9

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= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	141 MW-08 1/4/12 LF 16.6 ft	178 MW-08 6/27/12 PDB 18.0 ft	561 MW-08 9/5/13 PDB 18.0 ft	677 MW-08 11/12/14 PDB 18.0 ft	707 MW-08 3/16/15 PDB 18.0 ft	735 MW-08 6/9/15 PDB 18.0 ft	763 MW-08 9/3/15 PDB 18.0 ft	791 MW-08 12/7/15 PDB 18.0 ft	819 MW-08 3/29/16 PDB 18.0 ft	849 MW-08 7/12/16 PDB 18.0 ft	877 MW-08 10/11/16 PDB 18.0 ft	142 MW-09 1/6/12 LF 20.0 ft	179 MW-09 6/27/12 PDB 20.0 ft	559 MW-09 9/5/13 PDB 20.0 ft	143 MW-10 1/5/12 LF 20.8 ft	180 MW-10 6/27/12 PDB 25.0 ft	557 MW-10 9/5/13 PDB 25.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	6.8	U	U	U	U J	U	U	U	U	U	U	U	U	U	U	U
Acetone	50	U J	81 X	R	U	U	U	U	U	U	U	4.4 J	U J	U	R	U J	U	R
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloromethane	5	U	U	U	U	U	U	U	U	U J	U	U	U	U	U	U	U	U
Bromomethane	5	U	U	U	U	U	U	U J	U	U J	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U	U J	U	U	U J	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U	U	U	0.65 J	U	0.56 J	U	0.91 J	0.45 J	U	0.48 J	U J	U	U	U J	U	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	1.5	17 X	11 X
Vinyl Chloride	2	U	U	U	U	U	U	U J	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U J	U	U J	U J	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		0	87.8	0	0.65	0	0.56	0	0.91	0.45	0	4.88	0	0	0	1.5	17	11
Total TICs (1)		U	U	U	U	U	2.5	1.7	U	U	U	U	U	U	U	U	U	U
Total VOCs and TICs (1)		0	87.8	0	0.65	0	3.06	1.7	0.91	0.45	0	4.88	0	0	29.5	1.5	17	11

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TIC = Tentatively Identified Compound

VOC = Volatile Organic Compound

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X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	144 MW-11 1/5/12 LF 13.0 ft	181 MW-11 6/27/12 PDB 13.0 ft	182 MW-11 6/27/12 PDB 21.0 ft	562 MW-11 9/5/13 PDB 15.0 ft	563 MW-11 9/5/13 PDB 10.0 ft	564 MW-11 9/5/13 PDB 21.0 ft	678 MW-11 11/12/14 PDB 15.0 ft	708 MW-11 3/16/15 PDB 15.0 ft	736 MW-11 6/9/15 PDB 15.0 ft	764 MW-11 9/3/15 PDB 15.0 ft	792 MW-11 12/7/15 PDB 15.0 ft	820 MW-11 3/29/16 PDB 15.0 ft	850 MW-11 7/12/16 PDB 15.0 ft	878 MW-11 10/11/16 PDB 15.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U J	1.6 J	U	U	U	U
Acetone	50	1 J	U	U	R	R	R	U	U	U	U	U	U	U	3.8 J
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U	U	U	0.4 J
Chloromethane	5	U	U	U	U	U	U	U	U	U	U	U	U J	U	U
Bromomethane	5	U	U	U	U	U	U	U	U	U	U	U	U J	U	U
Cis-1,2-Dichloroethene	5	2.4	3.3	3	U	U	U	U	U	U	U	U	U	0.63 J	1.5
Methyl tert-butyl Ether	10	U J	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	**220** D X	**130** X	**90** X	**28.5** X	**5.1** X	**20.5** X	**16.2** X	**7.6** X	3.6	U	**8.5** X	**15.7** X	**55.9** X	**1300** D X
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	4.4	**5.2** X	4.2	0.51 J	U	0.42 J	U	U	U	U	U	0.54 J	1.9	**16.9** X
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U J	U	U J	U J	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		227.8	138.5	97.2	29.01	5.1	20.92	16.2	7.6	3.6	1.6	8.5	16.24	58.43	1322.6
Total TICs (1)		0.55	U	U	U	U	U	U	U	2.6	1.6	U	2.4	U	U
Total VOCs and TICs (1)		228.35	138.5	97.2	29.01	5.1	20.92	16.2	7.6	6.2	3.2	8.5	18.64	58.43	1322.6

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	145 MW-12 1/4/12 LF 21.1 ft	183 MW-12 6/27/12 PDB 21.1 ft	610 MW-12 9/5/13 PDB 21.0 ft	146 MW-13 1/4/12 LF 19.8 ft	184 MW-13 6/27/12 PDB 15.0 ft	185 MW-13 6/27/12 LF 15.0 ft	611 MW-13 9/5/13 PDB 15.0 ft	679 MW-13 11/12/14 PDB 15.0 ft	709 MW-13 3/16/15 PDB 15.0 ft	737 MW-13 6/9/15 PDB 15.0 ft	765 MW-13 9/3/15 PDB 15.0 ft	793 MW-13 12/7/15 PDB 15.0 ft	821 MW-13 3/29/16 PDB 15.0 ft	851 MW-13 7/12/16 PDB 15.0 ft	879 MW-13 10/11/16 PDB 15.0 ft	147 MW-14 1/3/12 LF 22.7 ft	186 MW-14 6/27/12 PDB 22.7 ft	612 MW-14 9/5/13 PDB 22.5 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U J	U	U	U	U	U	U	U	U
Acetone	50	U J	U	R	U J	44	U	R	U	U	U	U	U	U	U	4.4 J	U J	U	R
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U J	U	U	U	U	U
Bromomethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U J	U	U	U	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U	U	U	U	U	U	U	0.54 J	0.24 J	0.34 J	U	0.47 J	0.35 J	U	U	U	U	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U	U J	U	U J	U J	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		0	0	0	0	44	0	0	0.54	0.24	0.34	0	0.47	0.35	0	4.4	0	0	0
Total TICs (1)		U	U	U	U	U	U	U	U	U	2.5	1.9	U	U	U	U	U	U	U
Total VOCs and TICs (1)		0	0	0	0	44	0	0	0.54	0.24	2.84	1.9	0.47	0.35	0	4.4	0	0	0

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VOC = Volatile Organic Compound

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	526 MW-15 2/1/13 PDB 22-23 ft	529 MW-D* 2/1/13 PDB 22-23 ft	585 MW-15 9/5/13 PDB 17.0 ft	586 MW-15 9/5/13 PDB 22.5 ft	587 MW-15 9/5/13 PDB 28.0 ft	680 MW-15 11/12/14 PDB 17.0 ft	710 MW-15 3/16/15 PDB 17.0 ft	738 MW-15 6/9/15 PDB 17.0 ft	766 MW-15 9/3/15 PDB 17.0 ft	794 MW-15 12/7/15 PDB 17.0 ft	822 MW-15 3/29/16 PDB 17.0 ft	852 MW-15 7/12/16 PDB 17.0 ft	880 MW-15 10/11/16 PDB 17.0 ft
1,1-Dichloroethane	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U J	U J	U J	U	U	U J	U	U	U	U	U
Acetone	50	16.5	17.7	R	R	R	U	U	U	U	U	U	U	4.3 J
Benzene	1	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U J	U J	U J	0.92 J	U	U	U	U	U	U	U
Chloromethane	5	U	U	U J	U J	U J	U	U	U	U	U	U J	U	U
Bromomethane	5	U	U	U J	U J	U J	U	U	U	U	U	U J	U	U
Cis-1,2-Dichloroethene	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Methyl tert-butyl Ether	10	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U	U	0.48 J	U J	U J	0.6 J	0.3 J	U	U	0.48 J	1.2	U	U
Toluene	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U	U J	U J	U J	0.6 J	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U J	U J	U J	U	U	U J	U	U J	U J	10.2	U
Methylcyclohexane	NA	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U	U J	U J	U J	U	U	U	U	U	U	U	U
Total VOCs		16.5	17.7	0.48	0	0	2.12	0.3	0	0	0.48	1.2	10.2	4.3
Total TICs (1)		U	U	U	U	U	U	U	U	1.6	U	U	U	U
Total VOCs and TICs (1)		16.5	17.7	0.48	0	0	2.12	0.3	0	1.6	0.48	1.2	10.2	4.3

U = Not Detected
NA = Not Available
LF - Low Flow
J = Estimated value

= Round 1 RI Groundwater Sample
= Round 2 RI Groundwater Sample
= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.
* = Duplicate of Sample 526 collected from monitoring well MW-15

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	527 MW-16 2/1/13 PDB 22-23 ft	594 MW-16 9/5/13 PDB 17.0 ft	595 MW-16 9/5/13 PDB 22.5 ft	596 MW-16 9/5/13 PDB 28.0 ft	681 MW-16 11/12/14 PDB 22.5 ft	711 MW-16 3/16/15 PDB 22.5 ft	739 MW-16 6/9/15 PDB 22.5 ft	767 MW-16 9/3/15 PDB 22.5 ft	795 MW-16 12/7/15 PDB 22.5 ft	823 MW-16 3/29/2016 PDB 22.5 ft	853 MW-16 7/12/2016 PDB 22.5 ft	881 MW-16 10/11/2016 PDB 22.5 ft
1,1-Dichloroethane	5	U	U J	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U J	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U J	U	U	U	U	U	U	U	U	U	U
Acetone	50	10.8	R	R	R	U	U	U	U	U	U	U	4.2 J
Benzene	1	U	U J	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U J	U	U	U	U	U	0.21 J	U	U	U	U
Chloromethane	5	U	U J	U	U	U	U	0.21 J	U	U	U J	U	U
Bromomethane	5	U	U J	U	U	U	U	**5.3 X**	U	U	U J	U	U
Cis-1,2-Dichloroethene	5	U	U J	U	U	0.84 J	2	U	U	U	U	**11.3 X**	**8.3 X**
Methyl tert-butyl Ether	10	U	U J	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U J	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U J	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U	U J	U	U	**24.9 X**	**110 X**	**45.5 X**	U	1.8	0.72 J	**89.2 X**	**68.2 X**
Toluene	5	U	U J	U	U	U	U	0.54 J	U	U	U	U	U
Ethylbenzene	5	U	U J	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U J	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U J	U	U	**6.6 X**	**9.6 X**	**7.3 X**	U	U	U	**6.9 X**	**5.3 X**
Trichlorofluoromethane	5	U	U J	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U J	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U J	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U J	U	U	U	U	U	U	U J	U J	U	U
Methylcyclohexane	NA	U	U J	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	NA	U	U J	U	U	U	U	U	U	U	U	U	U
Total VOCs		10.8	0	0	0	32.34	121.6	58.85	0.21	1.8	0.72	107.4	86
Total TICs (1)		U	U	U	U	U	U	U	1.9	U	U	U	U
Total VOCs and TICs (1)		10.8	0	0	0	32.34	121.6	58.85	2.11	1.8	0.72	107.4	86

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= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	528 MW-17 2/1/13 PDB 18-19 ft	578 MW-17 9/5/13 PDB 14.0 ft	579 MW-17 9/5/13 PDB 17.0 ft	580 MW-17 9/5/13 PDB 24.0 ft	682 MW-17 11/12/14 PDB 15.5 ft	712 MW-17 3/16/15 PDB 15.5 ft	740 MW-17 6/9/15 PDB 15.5 ft	768 MW-17 9/3/15 PDB 15.5 ft	796 MW-17 12/7/15 PDB 15.5 ft	824 MW-17 3/29/16 PDB 15.5 ft	838* MW-17 5/3/16 LF 15.5 ft	839* MW-17 5/3/16 LF 15.5 ft	854 MW-17 7/12/16 PDB 15.5 ft	882 MW-17 10/11/16 PDB 15.5 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetone	50	21.4 JD	R	R	R	**210** X	U	U	7	U	U	U	U	U	4.6 J
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U	0.27 J
Chloroform	7	U	U	U	U	U	0.64 J	U	U	U	U	U	U	0.53 J	0.46 J
Chloromethane	5	U	U	U	U	U	U	0.21 J	U	U	U J	U	U	U	U
Bromomethane	5	U	U	U	U	U	U	**5.3** X	U	U	U J	U	U	U	U
Cis-1,2-Dichloroethene	5	1.1	**20.3** X	**22.2** X	**22.1** X	U	U	4.3	**5.3** X	**26.4** X	**58.9** X	U	U	3	**18.8** X
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	0.67 J	1	U	U	U	U
Tetrachloroethene	5	**82.6** D X	**88.7** X	**86.8** X	**69.6** X	U	**34.6** X	**410** D X	**410** D X	**650** D X	**16000** D X	**10300** X	**10600** X	**6000** D X	**8500** D X
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	3.3 JD	**11.9** X	**11.6** X	**11.6** X	U	U	**7.7** X	**6.7** X	**28.7** X	**72.1** X	U	U	**7.3** X	**41.8** X
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	0.73 J	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U J	U	U	U J	U J	U	U	10.3	U
Methylcyclohexane	NA	U	U	U	U	U	U J	U	U	U	0.37 J	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		108.4	120.9	120.6	103.3	210	35.24	427.51	429	705.77	16133.1	10300	10600	6021.13	8565.93
Total TICs (1)		U	U	U	U	68.5	0.76	U	U	U	U	U	U	U	U
Total VOCs and TICs (1)		108.4	120.9	120.6	103.3	278.5	36	427.51	429	705.77	16133.1	10300	10600	6021.13	8565.93

U = Not Detected
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= Round 1 RI Groundwater Sample
= Round 2 RI Groundwater Sample
= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound
UJ = Not Detected at an estimated detection limit as qualified by the data validator.
X = Exceeds Groundwater Standard or Guidance Value.

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

* Sample 838 collected using low-flow bladder pump method. MW-17 then purged until groundwater was purple with KMnO4, then Sample 839 collected using low-flow bladder pump method.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	588 MW-18 9/5/13 PDB 17.0 ft	589 MW-18 9/5/13 PDB 21.5 ft	590 MW-18 9/5/13 PDB 28.0 ft	683 MW-18 11/12/14 PDB 21.5 ft	713 MW-18 3/16/15 PDB 21.5 ft	741 MW-18 6/9/15 PDB 21.5 ft	769 MW-18 9/3/15 PDB 21.5 ft	797 MW-18 12/7/15 PDB 21.5 ft	825 MW-18 3/29/16 PDB 21.5 ft	855 MW-18 7/12/16 PDB 21.5 ft	883 MW-18 10/11/16 PDB 21.5 ft
1,1-Dichloroethane	5	U J	U J	U J	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U J	U J	U J	U	U	U	U	U	U	U	U
2-Butanone	50	U J	U J	U J	U	U	U	U	U	U	U	U
Acetone	50	R	R	R	14.3	U	U	U	U	U	U	4.1 J
Benzene	1	U J	U J	U J	0.64 J	U	U	U	U	U	U	U
Chloroform	7	U J	U J	U J	1	U	U	U	U	U	U	U
Chloromethane	5	U J	U J	U J	U	U	U	U	U	U	U	U
Bromomethane	5	U J	U J	U J	U	U	U J	U	U	U	U	U
Cis-1,2-Dichloroethene	5	2.5 J	3.8 J	3.5 J	U	U	U	U	0.91 J	1.3	3.9	4.3
Methyl tert-butyl Ether	10	U J	U J	U J	U	U	U	U	U	U	U	U
Methylene chloride	5	U J	U J	U J	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U J	U J	U J	U	U	U	U	U	U	U	U
Tetrachloroethene	5	**1100** D **X**	**1600** D **X**	**330** D **X**	U	U	U	**19.1** **X**	**27.4** **X**	**26.9** **X**	**36.2** **X**	**24.8** **X**
Toluene	5	U J	U J	U J	U	U	U	U	U	U	U	U
Ethylbenzene	5	U J	U J	U J	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U J	U J	U J	U	U	U	U	U	U	U	U
Trichloroethene	5	**8.1** J **X**	**8.9** J **X**	**29.5** J **X**	U	U	U	U	2.7	3.1	2.5	2.3
Trichlorofluoromethane	5	U J	U J	U J	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U J	U J	U J	U	U	U	U	U	U	0.24 J	U
Carbon Disulfide	NA	U J	U J	U J	U	U	U	U	U	U	U	U
Cyclohexane	NA	U J	U J	U J	U J	U	U	U	U J	U	U	U
Methylcyclohexane	NA	U J	U J	U J	U J	U	0.22 J	U	U	U	U	U
Bromodichloromethane	NA	U J	U J	U J	U	U	U	U	U	U	U	U
Total VOCs		1110.6	1612.7	363	15.94	0	0.22	19.1	31.01	31.3	42.84	35.5
Total TICs (1)		U	U	U	U	U	U	1.9	U	U	U	U
Total VOCs and TICs (1)		1110.6	1612.7	363	15.94	0	0.22	21	31.01	31.3	42.84	35.5

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= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	591 MW-19 9/5/13 PDB 17.0 ft	592 MW-19 9/5/13 PDB 21.0 ft	593 MW-19 9/5/13 PDB 28.0 ft	684 MW-19 11/12/14 PDB 28.0 ft	714 MW-19 3/16/15 PDB 28.0 ft	742 MW-19 6/9/15 PDB 28.0 ft	770 MW-19 9/3/15 PDB 28.0 ft	798 MW-19 12/7/15 PDB 28.0 ft	826 MW-19 3/29/16 PDB 28.0 ft	856 MW-19 7/12/16 PDB 28.0 ft	884 MW-19 10/11/16 PDB 28.0 ft
1,1-Dichloroethane	5	U J	U J	U J	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U J	U J	U J	U	U	U	U	U	U	U	U
2-Butanone	50	U J	U J	U J	U	U	U	U	U	U	U	U
Acetone	50	R	R	R	U	U	U	U	U	U	U	3.6 J
Benzene	1	U J	U J	U J	U	U	U	U	U	U	U	U
Chloroform	7	U J	U J	U J	U	0.49 J	U	U	U	U	U	U
Chloromethane	5	U J	U J	U J	U	U	U	U	U	U	U	U
Bromomethane	5	U J	U J	U J	U	U	U J	U	U	U	U	U
Cis-1,2-Dichloroethene	5	1.2 J	**6** J X	**17** J X	U	U	U	U	2.7	3.4	**11.1** X	**12.4** X
Methyl tert-butyl Ether	10	U J	U J	U J	U	U	U	U	U	U	U	U
Methylene chloride	5	U J	U J	U J	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U J	U J	U J	U	U	U	U	U	U	U	U
Tetrachloroethene	5	**7.6** J X	**440** D X	**840** D X	U	**39.7** X	1	0.39 J	**5.1** X	**5.4** X	**7.4** X	4.4
Toluene	5	U J	U J	U J	U	U	U	U	0.2 J	U	U	U
Ethylbenzene	5	U J	U J	U J	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U J	U J	U J	U	U	U	U	U	U	U	U
Trichloroethene	5	1.6 J	**10.8** J X	**120** J X	U	U	U	U	1.9	2.8	**6.9** X	**6.1** X
Trichlorofluoromethane	5	U J	U J	U J	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U J	U J	U J	U	U	U	U	U	U	0.86 J	1.4
Carbon Disulfide	NA	U J	U J	U J	U	U	U	U	U	U	U	U
Cyclohexane	NA	U J	U J	U J	U	U J	U	U	U J	U	U	U
Methylcyclohexane	NA	U J	U J	U J	U	U J	U	U	U	U	U	U
Bromodichloromethane	NA	U J	U J	U J	U	U	U	U	U	U	U	U
Total VOCs		10.4	456.8	977	0	40.19	1	0.39	9.9	11.6	26.26	27.9
Total TICs (1)		U	U	U	U	U	U	2	U	U	U	U
Total VOCs and TICs (1)		10.4	456.8	977	0	40.19	1	2.39	9.9	11.6	26.26	27.9

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
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Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	605 MW-20 9/5/13 PDB 17.0 ft	606 MW-20 9/5/13 PDB 22.0 ft	607 MW-20 9/5/13 PDB 28.0 ft	685 MW-20 11/12/14 PDB 22.0 ft	715 MW-20 3/16/15 PDB 22.0 ft	743 MW-20 6/9/15 PDB 22.0 ft	771 MW-20 9/3/15 PDB 22.0 ft	799 MW-20 12/7/15 PDB 22.0 ft	827 MW-20 3/29/16 PDB 22.0 ft	857 MW-20 7/12/16 PDB 22.0 ft	885 MW-20 10/11/16 PDB 22.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U	U
Acetone	50	R	R	R	U	U	U	U	U	U	U	4.3 J
Benzene	1	U	U	U	U	0.21 J	**3.3** X	**1.5** X	**1.5** X	U	0.64 J	0.47 J
Chloroform	7	U	U	U	0.48 J	0.28 J	U	U	U	U	U	U
Chloromethane	5	U	U	U	U	U	U	U	U	U	U	U
Bromomethane	5	U	U	U	U	U	**5.1** X	U	U	U	U	U
Cis-1,2-Dichloroethene	5	0.91 J	1.1	1.1	U	U	U	2.1	2.5	0.39 J	1.8 J	1.3
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	**110** X	**400** D X	**200** X	1.1	**24.1** X	2.9	1.5	2.6	2	2.1	1.7
Toluene	5	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	0.27 J	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	1.23 J	U	U	U	U	U
Trichloroethene	5	**65.6** X	**62** X	**53.5** X	U	U	0.88 J	1.9	3.4	1.2	3.2	2.8
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	U	U
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U J	U	U	U J	U	U	U
Methylcyclohexane	NA	U	U	U	U	U J	0.66 J	U	U	U	U	U
Bromodichloromethane	NA	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		176.51	463.1	254.6	1.58	24.59	14.34	7	10	3.59	7.74	10.57
Total TICs (1)		U	U	U	U	U	51.7	11.7	U	U	U	U
Total VOCs and TICs (1)		176.51	463.1	254.6	1.58	24.59	66.04	18.7	10	3.59	7.74	10.57

U = Not Detected
NA = Not Available
LF - Low Flow
J = Estimated value

= Round 1 RI Groundwater Sample
= Round 2 RI Groundwater Sample
= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 1

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Overburden Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	555 MW-21 9/5/13 PDB 23 ft	582 BW-01 9/5/13 PDB 10.5 ft	583 BW-02 9/5/13 PDB 10.5 ft	688 BW-02 11/12/14 PDB 10.5 ft	581 BW-03 9/5/13 PDB 10.5 ft	584 BW-04 9/5/13 PDB 10.5 ft	689 BW-04 11/12/14 PDB 10.5 ft
1,1-Dichloroethane	5	U	U J	U J	U	U J	U J	U
1,1-Dichloroethene	5	U	U J	U J	U	U J	U J	U
2-Butanone	50	U	U J	U J	U	U J	U J	U
Acetone	50	R	R	R	U	R	R	U
Benzene	1	U	U J	U J	U	U J	U J	U
Chloroform	7	U	U J	U J	0.86 J	U J	U J	0.66 J
Chloromethane	5	U	U J	U J	U	1.2 J	U J	U
Bromomethane	5	U	U J	U J	U	U J	U J	U
Cis-1,2-Dichloroethene	5	U	4.5 J	**29.8** J X	**19.7** X	**22.7** J X	**23** J X	**9.7** X
Methyl tert-butyl Ether	10	U	U J	U J	U	U J	U J	U
Methylene chloride	5	U	U J	U J	U	U J	U J	U
trans-1,2-Dichloroethene	5	U	0.83 J	U J	U	0.3 J	0.49 J	U
Tetrachloroethene	5	U	**28.1** J X	**72.9** J X	**120** X	**66.3** J X	**36** J X	**62.6** X
Toluene	5	U	U J	U J	U	U J	U J	U
Ethylbenzene	5	U	U J	U J	U	U J	U J	U
Xylenes (Total)	5	U	U J	U J	U	U J	U J	U
Trichloroethene	5	U	**13** J X	**10.8** J X	**41** X	**10.9** J X	**12.9** J X	**21.2** X
Trichlorofluoromethane	5	U	U J	U J	U	U J	U J	U
Vinyl Chloride	2	U	U J	U J	U	U J	U J	U
Carbon Disulfide	NA	U	U J	U J	U	U J	U J	U
Cyclohexane	NA	U	U J	U J	U	0.56 J	U J	U
Methylcyclohexane	NA	U	U J	U J	U	U J	U J	U
Bromodichloromethane	NA	U	U J	U J	U	0.25 J	U J	U
Total VOCs		U	46.43	113.5	181.56	102.21	72.39	94.16
Total TICs (1)		U	U	U	U	U	U	U
Total VOCs and TICs (1)		U	46.43	113.5	181.56	102.21	72.39	94.16

U = Not Detected
NA = Not Available
LF - Low Flow
J = Estimated value

= Round 1 RI Groundwater Sample
= Round 2 RI Groundwater Sample
= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

UJ = Not Detected at an estimated detection limit as qualified by the data validator.

X = Exceeds Groundwater Standard or Guidance Value.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDE

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

134	Sample ID
MW-01	Sample Location
1/9/2012	Sample Date
LF 20.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Mat

Table 2

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Bedrock Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	148 MW-01R 1/9/12 LF 39.5 ft	187 MW-01R 6/27/12 LF - 39.5 ft	188 MW-01R 6/27/12 PDB 39.5 ft	190 MW-01R 6/27/12 PDB 33.0 ft	600 MW-01R 9/5/13 PDB 39.5 ft	690 MW-01R 11/12/14 PDB 39.5 ft	718 MW-01R 3/16/15 PDB 39.5 ft	746 MW-01R 6/9/15 PDB 39.5 ft	774 MW-01R 9/3/15 PDB 39.5 ft	802 MW-01R 12/7/15 PDB 39.5 ft	830 MW-01R 3/29/16 PDB 39.5 ft	860 MW-01R 7/12/16 PDB 39.5 ft	888 MW-01R 10/11/16 PDB 39.5 ft
1,1-Dichloroethane	5	0.59 J	0.75 J	0.67 J	0.76 J	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	6	U	U	U	U	U	U	U	U	U	U
Acetone	50	U	U	71 X	43	R	U	U	U	U	U	U	U	3.8 J
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	1.8	1.2	1.3	1.4	0.78 J	2.4	3.3	3.6	2.9	2.4	2.9	2.7	3.8
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U J	U	U	U	U	U	U	U	U	U	U	U	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	2.1 X	1.5	1.9	1.8	1.4	1.6	2.1 X	1.7	1.2	0.9 J	0.89 J	0.9 J	1.4
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		4.49	3.45	80.87	46.96	2.18	4	5.4	5.3	4.1	3.3	3.79	3.6	9
Total TICs (1)		U	U	U	U	U	U	U	U	2	U	U	27.2	U
Total VOCs and TICs (1)		4.49	3.45	80.87	46.96	2.18	4	5.4	5.3	6.1	3.3	3.79	30.8	9

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= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound
UJ = Not Detected at an estimated detection limit as qualified by the data validator
X = Exceeds Groundwater Standard or Guidance Value.

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

148	Sample ID
MW-01R	Sample Location
1/9/2012	Sample Date
LF 39.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 2

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Bedrock Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	149 MW-02R 1/9/12 LF 39.0 ft	191 MW-02R 6/27/12 PDB 39.0 ft	604 MW-02R 9/5/13 PDB 39.0 ft	691 MW-02R 11/12/14 PDB 39.0 ft	719 MW-02R 3/16/15 PDB 39.0 ft	747 MW-02R 6/9/15 PDB 39.0 ft	775 MW-02R 9/3/15 PDB 39.0 ft	803 MW-02R 12/7/15 PDB 39.0 ft	831 MW-02R 3/29/16 PDB 39.0 ft	861 MW-02R 7/12/16 PDB 39.0 ft	889 MW-02R 10/11/16 PDB 39.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U	U
Acetone	50	1.9 J	U	R	U	U	U	U	U	U	U	3.9 J
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	5	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	2.3	5.7 X	2.4	3.2	7.8 X	14.7 X	8.6 X	10.8 X	10 X	7.7 X	7.5 X
Methyl tert-butyl Ether	10	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U J	U	U	U	U	U	U	U	U	U	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	1.5	1.8	0.53 J	0.45 J	0.29 J	U	0.92 J
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	0.99 J	2.7 X	1.6	1.2	1.3	1.4	0.74 J	0.97 J	0.89 J	0.84 J	0.82 J
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U	U	U
Total VOCs		5.19	8.4	4	4.4	15.6	17.9	9.87	12.22	11.18	8.54	13.14
Total TICs (1)		U	U	U	U	U	U	2.4	U	U	24.6	U
Total VOCs and TICs (1)		5.19	8.4	4	4.4	15.6	17.9	12.27	12.22	11.18	33.14	13.14

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= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound

µg/L = micrograms per Liter or parts per billion (ppb).
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D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

148	Sample ID
MW-01R	Sample Location
1/9/2012	Sample Date
LF 39.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 2

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Bedrock Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	150 MW-04R 1/6/12 LF 34.0 ft		192 MW-04R 6/27/12 LF 34.0 ft		193 MW-04R 6/27/12 LF DUP 34.0 ft		194 MW-04R 6/27/12 PDB 34.0 ft		195 MW-04R 6/27/12 PDB 39.0 ft		566 MW-04R 9/5/13 PDB 34.0 ft		692 MW-04R 11/12/14 PDB 34.0 ft		720 MW-04R 3/16/15 PDB 34.0 ft		748 MW-04R 6/9/15 PDB 34.0 ft		776 MW-04R 9/3/15 PDB 34.0 ft		804 MW-04R 12/7/15 PDB 34.0 ft		832 MW-04R 3/29/16 PDB 34.0 ft		862 MW-04R 7/12/16 PDB 34.0 ft		890 MW-04R 10/11/16 PDB 34.0 ft	
1,1-Dichloroethane	5	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
1,1-Dichloroethene	5	U		U		U		U		U		U		U		0.44 J		U		0.26 J		U		0.34 J		U		U	
2-Butanone	50	U		U		U		6.8		7.8		U		U		U		U		U		U		U		U		U	
Acetone	50	U J		U		U		**74**	**X**	**75**	**X**	R		U		U		U		U		U		U		U		3.9 J	
Carbon Disulfide	NA	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Benzene	1	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Cyclohexane	NA	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Methylcyclohexane	NA	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Chloroform	7	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Cis-1,2-Dichloroethene	5	1.5		0.92 J		0.69 J		1.7		1.7		0.31 J		**25.1**	**X**	**160**	**X**	**190**	**X**	**110**	**X**	**78.4**	**X**	**130**	**X**	**100**	**X**	**59.3**	**X**
Methyl tert-butyl Ether	10	U J		U		U		U		U		U		U		U		U		U		U		U		U		U	
Methylene chloride	5	U		U		1.2		U		U		U		1.7		U		U		U		U		U		U		U	
trans-1,2-Dichloroethene	5	U		U		U		U		U		U		U		U		U		U		U		0.34 J		U		U	
Tetrachloroethene	5	**46 J**	**X**	**42**	**X**	U		**95**	**X**	**97**	**X**	**130**	**X**	**80.6**	**X**	**9.9**	**X**	**11.1**	**X**	2.3		1.8		2.8		0.75 J		0.32 J	
Toluene	5	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Trichloroethene	5	**7.8**	**X**	4.6		2.5		**12**	**X**	**12**	**X**	**14.1**	**X**	**68.4**	**X**	**28.8**	**X**	**54.9**	**X**	**25.9**	**X**	**17.6**	**X**	**32.5**	**X**	**24.1**	**X**	**14.3**	**X**
Trichlorofluoromethane	5	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Vinyl Chloride	2	U		U		U		0.74 J		0.75 J		0.48 J		U		U		U		U		U		U		U		U	
Ethylbenzene	5	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Xylenes (Total)	5	U		U		U		U		U		U		U		U		U		U		U		U		U		U	
Total VOCs		55.3		47.52		4.39		190.24		194.25		144.89		175.8		199.14		256		138.46		97.8		165.98		124.85		77.82	
Total TICs (1)		U		U		U		U		U		U		U		U		U		2.7		U		U		26.4		U	
Total VOCs and TICs (1)		55.3		47.52		4.39		190.24		194.25		144.89		175.8		199.14		256		141.16		97.8		165.98		151.25		77.82	

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= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound
µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

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Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

148	Sample ID
MW-01R	Sample Location
1/9/2012	Sample Date
LF 39.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 2

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Bedrock Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	151 MW-05R 1/9/12 LF 33.5 ft	196 MW-05R 6/27/12 PDB 33.5 ft	197 MW-05R 6/27/12 PDB 40.0 ft	570 MW-05R 9/5/13 PDB 33.5 ft	693 MW-05R 11/12/14 PDB 33.5 ft	721 MW-05R 3/16/15 PDB 33.5 ft	749 MW-05R 6/9/15 PDB 33.5 ft	777 MW-05R 9/3/15 PDB 33.5 ft	805 MW-05R 12/7/15 PDB 33.5 ft	833 MW-05R 3/29/16 PDB 33.5 ft	863 MW-05R 7/12/16 PDB 33.5 ft	891 MW-05R 10/11/16 PDB 33.5 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	6.5	6.4	U	U	U	U	U	U	U	U	U
Acetone	50	U	77 X	73 X	R	U	U	U	U	U	U	U	3.8 J
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U	U
Benzene	1	U	0.95 J	1.6 X	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	0.51 J	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	U	1.4	12 X	5.8 X	1.2	1.9	1.4	0.97 J	0.77 J	0.99 J	U	0.54 J
Methyl tert-butyl Ether	10	U J	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	32 X	U	U	U	U	U	U	U	U	U	U	U
Toluene	5	U	0.41 J	0.87 J	U	0.34 J	0.24 J	0.34 J	0.41 J	0.4 J	0.34 J	U	U
Trichloroethene	5	10 X	3.4	7.1 X	U	3.1	0.37 J	0.72 J	0.27 J	U	0.5 J	U	0.32 J
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	0.39 J	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	1.4 J	U	U	U	U	U
Total VOCs		42	89.66	100.97	5.8	4.64	2.51	4.76	1.65	1.17	1.83	0	4.66
Total TICs (1)		U	U	U	U	U	U	U	2.3	U	U	23.4	U
Total VOCs and TICs (1)		42	89.66	100.97	5.8	4.64	2.51	4.76	3.95	1.17	1.83	23.4	4.66

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NA = Not Available
LF - Low Flow
J = Estimated value

= Round 1 RI Groundwater Sample
= Round 2 RI Groundwater Sample
= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
= Performance Monitoring Sample After ISCO

PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound
UJ = Not Detected at an estimated detection limit as qualified by the data validator
X = Exceeds Groundwater Standard or Guidance Value.

µg/L = micrograms per Liter or parts per billion (ppb).
E = Value Exceeds Calibration Range.

Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

148	Sample ID
MW-01R	Sample Location
1/9/2012	Sample Date
LF 39.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 2

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Bedrock Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	152 MW-06R 1/6/12 LF 39.0 ft	198 MW-06R 6/27/12 PDB 39.0 ft	574 MW-06R 9/5/13 PDB 39.0 ft	694 MW-06R 11/12/14 PDB 39.0 ft	722 MW-06R 3/16/15 PDB 39.0 ft	750 MW-06R 6/9/15 PDB 39.0 ft	778 MW-06R 9/3/15 PDB 39.0 ft	806 MW-06R 12/7/15 PDB 39.0 ft	834 MW-06R 3/29/16 PDB 39.0 ft	864 MW-06R 7/12/16 PDB 39.0 ft	892 MW-06R 10/11/16 PDB 39.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U	U
Acetone	50	U J	U	R	U	U	U	U	U	U	U	3.5 J
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	0.36 J	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	0.27 J	0.75 J	0.46 J	U	U
Methyl tert-butyl Ether	10	U J	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U J	U	0.57 J	U	U	U	U	U	U	U	U
Toluene	5	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	0.34 J	U	U	U
Ethylbenzene	5	U	U	U	U	U	0.29 J	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	1.1 J	U	U	U	U	U
Total VOCs		0	0	0.57	0	0	1.75	0.27	1.09	0.46	0	3.5
Total TICs (1)		0.45	U	U	U	U	U	2.1	U	U	22.9	U
Total VOCs and TICs (1)		0.45	0	0.57	0	0	1.75	2.37	1.09	0.46	22.9	3.5

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= Round 3 Supplemental RI Groundwater Sample
= Round 4 Supplemental RI Groundwater Sample (Pre-ISCO Baseline Sample)
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PDB - Passive Diffusion Bag
TIC = Tentatively Identified Compound
VOC = Volatile Organic Compound
UJ = Not Detected at an estimated detection limit as qualified by the data validator
X = Exceeds Groundwater Standard or Guidance Value.

µg/L = micrograms per Liter or parts per billion (ppb).
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Groundwater Standards or Guidance Values referenced in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

148	Sample ID
MW-01R	Sample Location
1/9/2012	Sample Date
LF 39.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Table 2

RI/AA Report
300, 304-308 Andrews St and 25 Evans St
Rochester, NY

NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Bedrock Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	153 MW-07R 1/9/12 LF 41.0 ft	199 MW-07R 6/27/12 PDB 41.0 ft	609 MW-07R 9/5/13 PDB 41.0 ft	695 MW-07R 11/12/14 PDB 41.0 ft	723 MW-07R 3/16/15 PDB 41.0 ft	751 MW-07R 6/9/15 PDB 41.0 ft	779 MW-07R 9/3/15 PDB 41.0 ft	807 MW-07R 12/7/15 PDB 41.0 ft	835 MW-07R 3/29/16 PDB 41.0 ft	865 MW-07R 7/12/16 PDB 41.0 ft	893 MW-07R 10/11/16 PDB 41.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U	U	U
Acetone	50	U	U	R	U	U	U	U	U	U	U	3.6 J
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U J	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Methyl tert-butyl Ether	10	U J	U	U	U	U	U	U	U	U	U	U
Methylene chloride	5	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Toluene	5	U	0.58 J	U	0.3 J	0.22 J	0.28 J	0.29 J	0.31 J	0.29 J	U	U
Trichloroethene	5	U	U	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	0.25 J	U	U	U	U	U
Xylenes (Total)	5	U	U	U	U	U	0.91 J	U	U	U	U	U
Total VOCs		0	0.58	U	0.3	0.22	1.44	0.29	0.31	0.29	0	3.6
Total TICs (1)		U	U	U	U	U	U	1.7	U	U	22.7	U
Total VOCs and TICs (1)		0	0.58	U	0.3	0.22	1.44	1.99	0.31	0.29	22.7	3.6

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(1) Refer to the analytical laboratory report for individual TICs detected and associated flags.

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NYSDEC Site #E828144

Summary of Detected VOCs in mg/L or ppb

Bedrock Groundwater Samples

Contaminant	X Groundwater Standard or Guidance Value	154 MW-09R 1/6/12 LF 35.0 ft	200 MW-09R 6/27/12 PDB 35.0 ft	560 MW-09R 9/5/13 PDB 35.0 ft	155 MW-10R 1/5/12 LF 35.0 ft	201 MW-10R 6/27/12 PDB 35.0 ft	558 MW-10R 9/5/13 PDB 35.0 ft	156 MW-14R 1/3/12 LF 41.0 ft	202 MW-14R 6/27/12 PDB 41.0 ft	613 MW-14R 9/5/13 PDB 41.0 ft
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U
2-Butanone	50	U	U	U	U	U	U	U	U	U
Acetone	50	U J	U	R	U J	U	R	U J	U	R
Carbon Disulfide	NA	U	U	U	U	U	U	U	U	U
Benzene	1	U	U	U	U	U	U	U	U	U
Cyclohexane	NA	U	U	U	U	U	U	U	U	U
Methylcyclohexane	NA	U	U	U	U	U	0.38 J	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U
Cis-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U
Methyl tert-butyl Ether	10	U J	U	U	U J	U	U	U	U	U
Methylene chloride	5	U	U	0.22 J	U	U	U	U	U	U
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U J	U	U	U J	U	U	U	U	U
Toluene	5	0.48	U	U	U	U	U	U	U	U
Trichloroethene	5	U	U	U	U	U	U	U	U	U
Trichlorofluoromethane	5	U	U	U	U	U	U	U	U	U
Vinyl Chloride	2	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	0.23 J	U	U	U
Xylenes (Total)	5	U	U	U	U	U	U	U	U	U
Total VOCs		0.48	0	0.22	0	0	0.61	0	0	U
Total TICs (1)		U	U	6.7 J	U	U	U	U	U	U
Total VOCs and TICs (1)		0.48	0.22	6.92	0	0	0.61	0	0	U

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MW-01R	Sample Location
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LF 39.5 ft	Sample Method with Sample Collection Depth in Feet Below the Ground Surface Prior to Installation of #2 Crusher Run (CR2) Cover System Material as a Supplemental Interim Remedial Measure.

Attachment 1

Material Safety Data Sheets

CHEMTREC: **800-424-9300 (USA)**
202-483-7616
(Outside USA & Canada)

Mexichem

CANUTEC: **613-996-6666**

NOTE: Use CHEMTREC and CANUTEC phone numbers only in the event of a chemical emergency.

FROM: **QUIMIR, SA DE CV**
Vía José López Portillo No. 39
Tultitlán, Estado de México
CP 54960 - México
Tel: (5255) 5899-11-10; Fax (5255) 5899-11-17

MATERIAL SAFETY DATA SHEET
---------- MSDS ----------

SODIUM HEXAMETAPHOSPHATE

1. Product Identification

Synonyms:	Hexasodium Metaphosphate, Hexasodium Salt,
CAS No:	68915-31-1
Molecular Weight:	1286 - 1898.
Chemical Formula:	$Na_{(n+2)}P_nO_{(3n+1)}$ where n=12 to 18
MSDS Preparation Date:	January 2000
MSDS Review Date:	September 2008

2. Typical Composition / Information on Ingredients

Component	Unit	Content	CASRN
Na_{16}-P_{14}-O_{43}	%	99.8	68915-31-1
Water	%	0.17	7732-18-5
Sodium Silicate	%	0.01	61981-08-6

3. Hazards Identification

Emergency Overview:

Fine white, odorless powder or white granules. Is hygroscopic. Will not burn. Can decompose at high temperatures forming irritating/toxic phosphorus oxides. Essentially non-toxic.

EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE :

Eye Contact:
Dust or mist from solutions may cause eye irritation and pain, based on its moderate alkalinity. There is no human or animal information available.

Inhalation:
Dust or mists from solutions can probably cause irritation of the nose and throat. High concentrations may cause coughing and choking. There is no human or animal information available, but is probably irritating because it is moderately alkaline.

Skin Contact :
No effects are expected if it is promptly rinsed off skin.

Ingestion:
Is low in oral toxicity, based on animal lethality studies. In small amounts, it is used as a food additive. Ingestion of very large amounts may cause nausea, vomiting, cramps, abdominal pain, diarrhea and severe inflammation of the stomach and intestinal tract Ingestion is not a typical route of occupational exposure.

EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Inhalation:
In general, long-term exposures to high concentrations of dust may cause increased mucous flow in the nose and respiratory system airways. This condition usually disappears after exposure stops. Controversy exists as to the role exposure to dust has in the development of chronic bronchitis (inflammation of the air passages into the lungs). Other factors such as smoking and general air pollution are more important,
but dust exposure may also contribute.

Skin Sensitization:
No information on history of previous allergies was reported.

Ingestion:

Kidney damage has been observed in rats following long-term ingestion of very high doses. The high doses are not relevant to occupational settings. Ingestion is not a typical route of occupational exposure.

4. Fire Fighting Measures.

Fire:

This material does not burn. Move containers from fire area if it can be done without risk. Otherwise, use water in flooding quantities as a spray or fog to keep fire-exposed containers cool and absorb heat to help prevent rupture. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective equipment (Bunker Gear) will not provide adequate protection. Chemical resistant clothing (e.g. chemical splash suit and positive pressure self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) may be necessary.

Explosion:

Not sensitive. Stable material.

Fire Extinguishing Media:

This material does not burn. Use extinguishing media appropriate to the surrounding fire conditions.(19)

Special Information:

In the event of a fire, wear full protecting clothing and NOISH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

5. Accidental Release Measures.

Precautions :

Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment. Notify government occupational health and safety and environmental authorities.

Clean-Up :

Prevent material from entering sewers or waterways. Contain spills of sodium hemametaphosphate solutions with earth, sand, or absorbent material which does not react with spilled material.

Small Spills (Solutions):

Soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labelled containers. Flush area with water.

Small Spills (Solids):

Shovel or sweep up dry material; avoid generating dust. Place in clean, dry, labelled containers and cover. Flush area with water.

6. Handling and Storage.

Handling :

Avoid generating dusts. Prevent the release of dust into the workplace air. Use in a well ventilated area, separate from the storage area. The use of compressed air to clean equipment, clothing, etc., is not recommended. Do not use with incompatible materials such as strong acids and strong bases. Label and avoid damaging containers. Maintain handling equipment. Practice good housekeeping.

Storage :

Store in suitable labelled containers. Protect from damage. It is good practice to keep storage containers closed when not in use and when empty.

7. Exposure Controls / Personal Protection

NOTE : Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. This general information can be used to help develop specific control measures. Ensure that control systems are properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations.

Sampling And Analysis :

Use appropriate instrumentation and sampling strategy (location, timing, duration, frequency, and number of samples). Interpretation of the sampling results is related to these variables and the analytical method. Sampling should be carried out by trained personnel.

Engineering Controls :

Engineering methods to control hazardous conditions are preferred. Use local exhaust ventilation, and process enclosure if necessary, to control airborne dust or mist from solutions. Use a ventilation system which is resistant to alkaline materials. Supply

sufficient replacement air to make up for air removed by exhaust system. Personal protective equipment may also be required.

Personal Protective Equipment :
If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have appropriate equipment available for use in emergencies such as spills. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

Respiratory Protection Guidelines :
No specific guidelines are available. An approved respirator suitable for protection from dusts and mists may be adequate.

Eye/Face Protection :
Chemical safety goggles. A face shield may also be necessary.

Skin Protection :
Impervious gloves, coveralls, boots, and/or other resistant protective clothing. Have a safety shower/eye-wash fountain readily available in the immediate work area.

Resistance Of Materials For Protective Clothing :
No specific guidelines are available.

Exposure Controls/Personal Protection Comments :
Remove contaminated clothing promptly. Keep contaminated clothing in closed containers. Discard or launder before rewearing. Inform laundry personnel of contaminant's hazards. Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

8. Physical and Chemical Properties

Appearance And Odour : Fine white powder or white granules. Odourless. Is hygroscopic (absorbs moisture from the air)

Odour Threshold: Odourless

Melting Point: Anhydrous form decomposes at 550 deg C.

Relative Density (Specific Gravity): 2.45 (water = 1)

Solubility In Water: Soluble

PH : 6.5 – 7.1 (1% solution)

9. Stability and Reactivity

Stability: Stable

Hazardous Polymerization: Does not occur.

Conditions To Avoid: High temperatures, moisture, generation of dust.

Incompatibility - Materials To Avoid : Strong Oxidizing Agents (e.g. perchlorates, peroxides) - reaction may be violent.

Strong Acids (e. g. sulfuric acid) - may react violently.

Stability And Reactivity Comments: Is probably stable in alkaline aqueous solution, but breaks down (hydrolyzes) to orthophosphate under acidic conditions.

10. Toxicological Information.

LD50 (oral, rat): 3053 mg/kg

Skin Irritation (rabbit, guinea pig):
Negligible irritation and no visible tissue damage was observed after a 50% solution was applied to intact and abraded skin.

11. Disposal Considerations

Review federal, provincial and local government requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. Disposal by secure landfill may be acceptable.

12. Transport Information

** CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG)
SHIPPING INFORMATION **

This chemical is not specifically listed in the Canadian Transportation of Dangerous Goods Regulations.

** U.S. DEPARTMENT OF TRANSPORT (DOT) HAZARDOUS MATERIALS SHIPPING INFORMATION (49 CFR) **

This chemical is not specifically listed in the U.S. hazardous materials shipping regulations (49 CFR, Table 172-101). However it may be regulated as part of a chemical family or group Not Otherwise Specified (N.O.S.) (eg. mercury- based pesticides). Consult the regulation.

13. Regulatory Information

--------\Chemical Inventory Status - Part 1\----------
Ingredient TSCA EC Japan Australia ---------- ----
Polyphosphoric Acids, Sodium Salts (68915-31-1) Yes

--------\Chemical Inventory Status - Part 2\----------
--Canada--
Ingredient Korea DSL NDSL Phil.
---------- ----- --- ---- -----
Polyphosphoric Acids, Sodium Salts (68915-31-1)

--------\Federal, State & International Regulations - Part 1\----------
-SARA 302- ------SARA 313------
Ingredient RQ TPQ List Chemical Catg.
---------- --- ----- ---- ----------
Polyphosphoric Acids, Sodium Salts (68915-31-1) --------\Federal, State & International Regulations - Part 2\----------RCRA- -TSCA-
Ingredient CERCLA 261.33 8(d) ---------- ------ ---- ------
Polyphosphoric Acids, Sodium Salts (68915-31-1) No No No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Mixture / Solid)
Australian Hazchem Code: No information found.
Australian Poison Schedule: No information found.
WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

14. Other Information.

NFPA Ratings:
Health: 1 Flammability: 0 Reactivity: 0

Label Hazard Warning:

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY
BE HARMFUL IF SWALLOWED OR INHALED.

Label Precautions:
Keep container closed.
Use with adequate ventilation.
Avoid breathing dust.
Wash thoroughly after handling.
Avoid contact with eyes, skin and clothing.

Label First Aid:
If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. If swallowed, give large amounts of water to drink. Never give anything by mouth to an unconscious person.
Get medical attention.

Disclaimer:

Quimir S.A. de C.V. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. A properly trained person using this product intends this document only as a guide to the appropriate precautionary handling of the material. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.
****

Section 1 Identification of the Substance/Preparation and of the Company/Undertaking

SUBSTANCE/PREPARATION NAME:	Potassium permanganate, $KMnO_4$
PRODUCT NAME:	CARUS™ Potassium Permanganate
TRADE NAME:	CARUS™ Potassium Permanganate
SYNONYMS:	Permanganic acid potassium salt, Chameleon mineral, Condy's crystal, Permanganate of potash

USES OF SUBSTANCE: CARUS™ Potassium Permanganate is an oxidant recommended for applications that require a strong oxidant.

COMPANY NAME (Europe): CARUS EUROPE	**COMPANY ADDRESS:**	C/ Secundino Roces, 3-Planta 1ª – Oficina 14, 33428 Cayes – Llanera, Asturias - Spain
	INFORMATION:	(34) 985-785-513
	EMERGENCY TELEPHONE:	(34) 985-785-513
COMPANY NAME (US): CARUS CORPORATION	**COMPANY ADDRESS:**	315 Fifth Street Peru, IL 61354, USA
	INFORMATION:	(815) 223-1500 (815) 224-6816 (FAX) www.caruscorporation.com (Web) salesmkt@caruscorporation.com (Email)
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Section 2 Hazards Identification

GLOBAL HARMONIZED SYSTEM (GHS) OF CLASSIFICATION OF THE PREPARATION

Oxidizing solid, Category 2
Acute toxicity, Category 4
Aquatic toxicity (acute), Category 1
Aquatic toxicity (chronic), Category 1

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

Signal Word: DANGER
Label Codes: GHS03, GHS07, GHS09
Hazard Statements: H272, H302, H400, H410

H272 - May intensify fire, oxidizer
H302 - Harmful, if swallowed
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Section 2 Hazards Identification (contd.)

EU LABEL
HAZARD SYMBOLS: **O, Xn, N**
RISK PHRASES: **8,22, 50/53**

OTHER HAZARDS

EYE CONTACT
CARUS™ Potassium Permanganate is damaging to eye tissue on contact. It may cause burns that result in damage to the eye.

SKIN CONTACT
Momentary contact of solution at room temperature may be irritating to the skin, leaving brown stains. Prolonged contact is damaging to the skin. Concentrated solutions at elevated temperature and crystals are damaging to the skin.

INHALATION
Acute inhalation toxicity data are not available. However, airborne concentrations of potassium permanganate in the form of dust or mist may cause damage to the respiratory tract.

INGESTION
CARUS™ Potassium Permanganate, if swallowed, may cause burns to mucous membranes of the mouth, throat, esophagus, and stomach.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS) RATINGS
Health: 1 - Slight
Flammability: 0 - None
Reactivity: 0 - None
Personnel Protective Equipment: goggles face shield, apron, respirator and proper gloves.

Section 3 Composition/Information on Ingredients

HAZARDOUS COMPONENT	CAS NO.	EINECS	%	HAZARD DATA
Potassium Permanganate	7722-64-7	231-760-3	>97.5	**PEL/C** 5 mg Mn per m^3 of air **TLV-TWA** 0.2 mg Mn per m^3 of air

Section 4 First Aid Measures

EYES
Immediately flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Do not attempt to neutralize chemically. Seek medical attention immediately. **Note to physician**: Decomposition products are alkaline. Insoluble decomposition product formed is brown colored manganese dioxide.

SKIN
Immediately wash contaminated areas with water. Remove contaminated clothing and footwear. Wash clothing and decontaminate footwear before reuse. Seek medical attention immediately if irritation is severe or persistent.

Section 4 First Aid Measures (contd.)

INHALATION
Remove person from contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.

INGESTION
Never give anything by mouth to an unconscious or convulsing person. If person is conscious, give large quantities of water or milk. Seek medical attention immediately.

Section 5 Fire Fighting Measures

NFPA* HAZARD SIGNS

Health Hazard	1	=	Materials that under emergency conditions, can cause significant irritation. Materials that on the skin could cause irritation.
Flammability Hazard	0	=	Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone and sand.
Instability Hazard	0	=	Materials that in themselves are normally stable, even under fire conditions.
Special Hazard	OX	=	Oxidizer

***National Fire Protection Association 704 (USA)**

FIRST RESPONDERS
Wear protective gloves, boots, goggles, and respirator. In case of fire, wear positive pressure breathing apparatus. Approach incident with caution.

FLASHPOINT
None

FLAMMABLE OR EXPLOSIVE LIMITS
Lower: Nonflammable Upper: Nonflammable

EXTINGUISHING MEDIA
Use large quantities of water. Water will turn pink to purple when in contact with potassium permanganate. Dike to contain. Do not use dry chemicals, CO_2, Halon® or foams, because they are not effective.

SPECIAL FIREFIGHTING PROCEDURES
If material is involved in fire, flood with water. Cool all affected containers with large quantities of water. Apply water from as far a distance as possible. Wear self-contained breathing apparatus and full protective clothing.

UNUSUAL FIRE AND EXPLOSION
Powerful oxidizing material. May decompose spontaneously if exposed to heat (135°C / 275°F). May be explosive in contact with certain other chemicals (Section 10). May react violently with finely divided and readily oxidizable substances. Increases burning rate of combustible material.

Section 6 Accidental Release Measures

PERSONAL PRECAUTIONS
Ensure adequate ventilation. Avoid dust formation. Personnel should wear protective clothing suitable for the task. Remove all ignition sources and incompatible materials before attempting clean up.

ENVIRONMENTAL PRECAUTIONS
Do not flush into sanitary sewer system or surface water. If accidental release into the environment occurs, inform the responsible authorities. Keep the product away from drains, sewers, surface and ground water and soil.

Section 6 Accidental Release Measures (contd.)

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Clean up spills immediately by sweeping or shoveling up the material. Do not return spilled material to the original container; transfer to a clean metal or plastic drum. To clean up potassium permanganate solutions, follow either of the following two options.

Option # 1: Dilute to approximately 6% with water, and then reduce with sodium thiosulfate, a bisulfite or ferrous salt solution. The bisulfite or ferrous salt may require some dilute sulfuric acid (10% w/w) to promote reduction. Neutralize with sodium carbonate to neutral pH, if acid was used. Decant or filter and deposit sludge in approved landfill. Where permitted, the sludge may be drained into sewer with large quantities of water.

Option # 2: Absorb with inert media like diatomaceous earth or inert floor dry, collect into a drum and dispose of properly. Does not use saw dust or other incompatible media. Disposal of all materials shall be in full and strict compliance with all federal, state, and local regulations pertaining to permanganates.

To clean contaminated floors, flush with abundant quantities of water into sewer, if permitted by federal, state, and local regulations. If not, collect water and treat as described above.

Section 7 Handling and Storage

WORK/HYGIENIC PRACTICES

Wash hands thoroughly with soap and water after handling potassium permanganate. Do not eat, drink or smoke when working with potassium permanganate. Wear proper protective equipment. Remove clothing if it becomes contaminated.

VENTILATION REQUIREMENTS

Provide sufficient mechanical and/or local exhaust to maintain exposure below the TLV/TWA.

CONDITIONS FOR SAFE STORAGE

Store in accordance with NFPA 430 requirements for Class II oxidizers. Protect containers from physical damage. Store in a cool, dry area in closed containers. Segregate from acids, peroxides, formaldehyde, and all combustible, organic, or easily oxidizable materials including antifreeze and hydraulic fluid.

SPECIFIC USES

Refer to SECTION 1.

Section 8 Exposure Controls and Personal Protection

RESPIRATORY PROTECTION

In cases where overexposure to dust may occur, the use of an approved NIOSH-MSHA dust respirator or an air supplied respirator is advised. Engineering or administrative controls should be implemented to control dust.

EYE

Face shield, goggles, or safety glasses with side shields should be worn. Provide eyewash in working area.

GLOVES

Rubber or plastic gloves should be worn.

OTHER PROTECTIVE EQUIPMENT

Chemically resistant clothing covering arms and legs, and rubber or plastic apron should be worn. **Caution:** If clothing becomes contaminated, wash off immediately.

Section 9 Physical and Chemical Properties

APPEARANCE	Dark purple solid with metallic luster
ODOR	Odorless
pH OF THE SUBSTANCE	Not applicable
BOILING POINT/BOILING RANGE	Not applicable
FLASH POINT	Not applicable
FLAMMABILITY (SOLID, GAS)	Not flammable
EXPLOSIVE PROPERTIES	Explosive in contact with sulfuric acid or peroxides, or readily oxidizable substances
OXIDIZING PROPERTIES	Strong oxidizer
VAPOR PRESSURE	Not applicable
RELATIVE DENSITY (AT 20°C)	2.7
SOLUBILITY	
WATER SOLUBILITY	6% (by weight) at 20°C and 20% (by weight) at 65°C
PARTITION COEFFICEINT: n-OCTONAL/WATER	
VISCOSITY	Not applicable
VAPOUR DENSITY	Not applicable
EVAPORATION RATE	Not applicable
MELTING POINT	Starts to decompose with evolution of oxygen (O_2) at temperatures above 150°C. Once initiated, the decomposition is exothermic and self sustaining.

Section 10 Stability and Reactivity

STABILITY
Under normal conditions, the material is stable.

CONDITIONS TO AVOID
Contact with incompatible materials or heat (150°C / 302ºF) could result in violent exothermic chemical reaction.

MATERIALS TO AVOID
Acids, peroxides, formaldehyde, anti-freeze, hydraulic fluids and all combustible organic or readily oxidizable inorganic materials including metal powders. With hydrochloric acid, chlorine gas is liberated.

HAZARDOUS DECOMPOSITION PRODUCTS
When involved in a fire, potassium permanganate may liberate corrosive fumes.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION
Material is not known to polymerize.

Section 11 Toxicological Information

EXPOSURE SYMPTOMS DESCRIPTION

INHALATION
The product may be absorbed into the body by inhalation. Major effects of exposure: respiratory disorder, cough.

INGESTION
Harmful, if swallowed. The estimated lethal human dose is 10 g. Ingestion may cause nausea, vomiting, sore throat, stomach-ache, and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur.

Section 11 Toxicological Information (contd.)

SKIN CONTACT

The product may be absorbed into the body through the skin. Major effects of exposure: severe irritation, damage to the skin, and brown staining of skin.

EYE CONTACT

Contact with eye is damaging to eye tissues. It may cause severe burns that result in damage to the eye.

ACUTE TOXICITY

LC 50 inhalation: No data available.
LD 50 dermal: No data available.
LD 50 oral rat: 780 mg/kg male (14 days); 525 mg/kg female (14 days).
Harmful if swallowed. ALD: 10g. Ingestion may cause nausea, vomiting, sore throat, stomach-ache and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur.

CHRONIC TOXICITY

No known cases of chronic poisoning due to permanganates have been reported. Prolonged exposure, usually over many years, to heavy concentrations of manganese oxides in the form of dust and fumes may lead to chronic manganese poisoning, chiefly involving the central nervous system.

CARCINOGENICITY

Potassium permanganate has not been classified as a carcinogen by ACGIH, NIOSH, OSHA, NTP, or IARC.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Potassium permanganate will cause further irritation of tissue, open wounds, burns or mucous membranes.

Section 12 Ecological Information

ECO TOXICITY

The aquatic toxicity data for potassium permanganate is given below:

Rainbow trout, 96 hour LC_{50} for potassium permanganate:	1.8 mg/L
Bluegill sunfish, 96 hour LC_{50} for potassium permanganate:	2.3 mg/L
Milk fish (Chanos Chanos)/ 96 hour LC_{50} for potassium permanganate:	>1.4mgl

MOBILITY

Miscible in water.

PERSISTENCE AND DEGRADABILITY

Permanganate has a low estimated lifetime in the environment, being readily converted by oxidizable materials to insoluble MnO_2.

BIOACCULUMATIVE POTENTIAL

In non-reducing and non-acidic environments, MnO_2 is insoluble and has a very low bioaccumulative potential.

OTHER ADVERSE EFFECTS

Harmful to aquatic organisms.

Section 13 Disposal Considerations

WASTE DISPOSAL

Offer surplus and non-recyclable product or solutions to a licensed disposal company. Disposal of all materials shall be in full and strict compliance with all federal, state, and local regulations. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. When it becomes a waste, potassium permanganate is considered a D001 hazardous (ignitable) waste. For disposal of potassium permanganate solutions, follow procedures in Section 6 and deactivate the permanganate to insoluble manganese dioxide. Dispose of it in a permitted landfill. Contact Carus Corporation for additional recommendations. Packaging materials must be triple rinsed to remove all GT-1020 prior to re-cycling or disposal.

RCRA P-Series: None listed. **RCRA U-Series:** None listed.

Section 14 Transport Information

USA (Land, DOT) and Canada (TDG)	**ID Number:**	UN 1490
	Proper Shipping Name:	Potassium permanganate
	Hazard Class:	Oxidizer
	Packing Group:	II
	Division:	5.1
European Labeling in accordance Road/Rail Transport (ADR/RID)	**ID Number:**	UN 1490
	ADR/RID Class:	5.1
	Description of Goods:	Potassium permanganate
	Packing Group:	II
	Hazard Identification No.:	50
European Labeling in accordance with EC directive (Water, IMDG)	**ID Number:**	UN 1490
	Proper Shipping Name:	Potassium permanganate
	Hazard Class:	Oxidizer
	Packing Group:	II
	Division:	5.1
	Marine Pollutant:	No
European Labeling in accordance with EC directive (Air, IATA)	**ID Number:**	UN 1490
	Proper Shipping Name:	Potassium permanganate
	Hazard Class:	Oxidizer
	Packing Group:	II
	Division:	5.1

Section 15 Regulatory Information

EUROPEAN AND INTERNATIONAL REGULATIONS

MARKINGS ACCORDING TO EU GUIDELINES

The product has been classified and marked in accordance with EU directives/ordinances on hazardous materials.

CHEMICAL NAME	CAS NO.	EINECS	UN NUMBER
Potassium Permanganate	7722-64-7	231-760-3	UN 1490

Section 15 Regulatory Information (contd.)

LABELING INFORMATION

Oxidizer

Harmful

Dangerous to the Environment

RISK PHRASES

8	Contact with combustibles may case fire.
22	Harmful if swallowed.
50/53	Very toxic to aquatic organisms, may cause long-term effects in the aquatic environment.

SAFETY PHRASES

60	This material and its container must be disposed of as hazardous waste.
61	Avoid releases to the environment. Refer to special instructions / Safety data sheet.

US FEDERAL REGULATIONS:

CHEMICAL INVENTORY STATUS – PART 1

Ingredient	CAS. NO.	TSCA	EC	Japan	Australia	China
Potassium permanganate	7722-64-7	Yes	Yes	Yes	Yes	Yes

CHEMICAL INVENTORY STATUS – PART 2 --- CANADA --

Ingredient	CAS. NO.	Korea	DSL	NDSL	New Zealand	PHIL
Potassium permanganate	7722-64-7	Yes	Yes	No	Yes	

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR, Canada) and the MSDS contains all of the information required by the CPR.

FEDERAL, STATE & INTERNATIONAL REGULATIONS – PART 1

		SARA 302		SARA 313	
Ingredient	CAS. NO.	RQ	TPQ	List	Chemical Category
Potassium permanganate	7722-64-7	No	No	Yes	Yes (Manganese compounds)

FEDERAL, STATE & INTERNATIONAL REGULATIONS – PART 2

Ingredient	CAS. NO.	CERCLA	RCRA	TSCA 8(d)
Potassium permanganate	7722-64-7	Yes (RQ = 100 lbs)	D001	No

FEDERAL, STATE & INTERNATIONAL REGULATIONS – PART 2

Ingredient	CAS. NO.	CWC	TSCA 12(b)	CDTA	SARA 311/312
Potassium permanganate	7722-64-7	No	No		4545 Kg

Ingredient	CAS. NO.	Acute	Chronic	Fire	Pressure	Reactivity	Pure/Liquid
Potassium permanganate	7722-64-7	Yes	Yes	Yes	No	No	Pure

Ingredient	CAS. NO.	Australian Hazchem	WHMIS	IDL
Potassium permanganate	7722-64-7	IYE	C, D2B	Yes

Section 16 Other Information

ADR/RID	Agreement on Dangerous Goods by Road /Regulations Concerning the International Transport of Dangerous Goods by Rail
C	Ceiling Exposure Limit
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	Inventory of Existing Chemical Substances (European)
DOT	Department of Transportation
DSL/NDSL	The Domestic Substances and the Non-Domestic Substances List (Canada)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IDL	Ingredient Disclosure List
IMDG	International Maritime Dangerous Goods
OSHA	Occupational Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
MSHA	Mine Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
TDG	Transport Dangerous Goods (Canada)
TSCA	Toxic substances control Act
TLV-TWA	Threshold Limit Value-Time Weighted Average
UN	United Nations
WHMIS	Workplace Hazardous Materials Information System

The information contained herein is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change and, therefore, holders and users should satisfy themselves that they are aware of all current data and regulations relevant to their particular use of product. CARUS CORPORATION DISCLAIMS ALL LIABILITY FOR RELIANCE ON THE COMPLETENESS OR ACCURACY OR THE INFORMATION INCLUDED HEREIN. CARUS CORPORATION MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTIABILITY OR FITNESS FOR PARTICULAR USE OR PURPOSE OF THE PRODUCT DESCRIBED HEREIN. All conditions relating to storage, handling, and use of the product are beyond the control of Carus Corporation, and shall be the sole responsibility of the holder or user of the product.

This safety data sheet was reviewed according to Annex II of the regulation of the European Parliament and European Council (EC) No. 1907/2006-REACH and 1272/2008.

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CARUS EUROPE IS A DIVISION OF CARUS CORPORATION

Chithambarathanu Pillai (S.O.F.)
April 2010

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OUR COMMITMENT TO SUSTAINABILITY