October 12, 2016
Discharge Monitoring Report #156
(117-3005011.18)

Mr. Ralph Erickson, Pretreatment Coordinator
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, WI 53713-3398

RE: Monthly Discharge Monitoring Report (September 2016), Hydraulic Barrier System, Hydrite Chemical Co., Cottage Grove, Wisconsin

Dear Mr. Erickson:

Tetra Tech, on behalf of Hydrite Chemical Co., has prepared this discharge monitoring report to comply with the reporting requirements listed in Part 3 of the reissued Wastewater Discharge Permit for the Hydrite Chemical Co. Cottage Grove facility Hydraulic Barrier System (Permit No. NTO-88.05). This report provides information on the operation history and discharge monitoring results for the Hydraulic Barrier System for the month of September 2016. The following information is being provided in accordance with Section 3.01 of Part 3 (Reporting) of the Wastewater Discharge Permit for the Hydrite Chemical Co. Cottage Grove facility Hydraulic Barrier System:

- Sample Type: Groundwater

- Place sample collected: Sample tap on the hydraulic barrier system effluent line located in the manhole east of the Main Street lift station.

- Date and time that the sample was collected: September 13, 2016 at 12:50 pm.

- The person that collected the sample: Todd Thomson, Senior Environmental Technician, Tetra Tech.

- The persons and laboratory performing the analyses: Pace Analytical Services Chemists, Pace Analytical Services, Inc., Green Bay, Wisconsin.

TETRA TECH
175 N. Corporate Drive, Suite 100, Brookfield, WI 53045
Tel 262.792.1282 Fax 262.792.1310 www.tetratech.com

- Dates the analyses were performed and analytical techniques used:
    1. EPA Method 8260 for Volatile Organic Compounds (VOCs), September 15, 2016.
    2. Total Suspended Solids by Method SM 2540D, September 15, 2016.
    3. Carbonaceous Biochemical Oxygen Demand by Method SM 5201B, September 19, 2016.
    4. Total Kjeldahl Nitrogen by EPA Method 351.2, September 20, 2016.
    5. Total Phosphorus by EPA Method 365.4, September 23, 2016.

- The analytical results for the monthly effluent sample collected from the hydraulic barrier system during this reporting period are included as Attachment A to this report and are summarized on Table 1 and Table 2.

- Total VOCs time series charts for the effluent samples collected from the hydraulic barrier system are provided as Chart 1 and Chart 2. Chart 1 displays the total VOCs concentrations and average pumping rates for the barrier system from 2003 to present, which is the year the barrier system was brought on-line. Chart 2 displays the total VOCs concentrations and average pumping rates for the barrier system from 2008 to present. A chart showing the total mass of VOCs and chlorinated VOCs discharged to the sanitary sewer is provided as Chart 3.

- The current month discharge and cumulative total discharge volumes are provided below:

Reporting Period	Groundwater Discharge Volume (gallons)
September 2016 Discharge Volume (August 31 through September 27, 2016)	4,189,661
Cumulative Total Discharge Volume (October 8, 2003 through September 27, 2016)	735,275,549

<u>Hydraulic Barrier System Operation and Maintenance History for the Month of September 2016</u>

Groundwater was pumped from extraction wells P-128, P-130, and P-164 during this reporting period. Total flow readings taken from the 3-inch Badger Magnetoflow® electromagnetic water meter (mag meter) indicate the hydraulic barrier system operated at an average pumping rate of 115 gallons per minute (gpm) in September.

Tetra Tech personnel treated extraction well P-164 with muriatic acid solution September 20th through September 21st to maintain the sustainable pumping rate of the well at the target rate of 50 to 55 gpm. Approximately 3 gallons of muriatic acid was poured into P-164 with the pump off followed by about 2 gallons of tap water. The pump was then turned on for about 15 seconds to

introduce the muriatic acid solution into the discharge line of the pump. The pump was then turned off for approximately 20 hours to allow the muriatic solution to break down the slime bacteria build-up in the well and pump components. Extraction wells P-128 and P-130 were operating while P-164 was shut down for the muriatic acid solution treatment.

Based on meter readings collected from the water meters in the manholes at extraction wells P-128 and P-130 and the total barrier system flow readings from the mag meter, the extraction wells operated at the pumping rates listed below during this reporting period:

Extraction Wells Pumping Rates for September 2016

- P-128: 35.3 to 36.2 gpm
- P-130: 26.6 to 26.9 gpm
- P-164: 54.0 to 57.0 gpm (No pumping from P-164 for about 20 hours September 20th to September 21st.)

Occasions when the barrier system was shut down and re-started are listed below:

- Village of Cottage Grove Public Works Department personnel performed the weekly test of the backup generator in the 110 Main Street lift station building on September 6th, September 13th, September 20th and September 27th. The hydraulic barrier system automatically shut down during the generator tests and was re-started the same day by Tetra Tech personnel after the generator tests were completed.

- A temporary power interruption caused the barrier system to shut down at 8:30 am on Sunday, September 4th. The barrier system was re-started the same day at 7:53 pm by Hydrite Chemical personnel.

- The barrier system automatically shut down at approximately 1:15 pm on Sunday, September 18th due to the failure of lift station pump #1, which was caused by a pressure sensor fault. Village of Cottage Grove Public Works Department personnel repaired the pump. The barrier system was then re-started the same day by Hydrite Chemical personnel at 7:39 pm.

- The hydraulic barrier system automatically shut down at 1:15 pm on Tuesday, September 20th after the lift station backup generator test was completed due to a high lift station sump water level alarm condition. The alarm condition was cleared and the barrier system was re-started the same day by Tetra Tech personnel at 2:15 pm.

- The barrier system automatically shut down at 1:15 pm on Saturday, September 24th due to a high lift station sump water level alarm condition caused by the failure of a lift station electronic probe. The malfunctioning probe was repaired by Village of Cottage Grove

Public Works Department personnel. The barrier system was then re-started the same day by Hydrite Chemical personnel at 7:45 pm.

This report was prepared by,

Tetra Tech

Mark A. Manthey, P.G.
Associate Hydrogeologist

encl.

cc: Mr. JJ Larson - Village of Cottage Grove (Electronic copy via email.)
Mr. Chris Hampton – Town of Cottage Grove
Mr. Thomas J. Miazga - Hydrite Chemical Co.
Mr. Raymond R. Krueger - Michael, Best & Friedrich, LLP
Mr. Michael R. Schmoller – Wisconsin Department of Natural Resources (Electronic copy via email.)

TABLES
AND CHARTS

Table 1. Summary of Hydraulic Barrier System Effluent Monitoring VOCs Analytical Results, Hydrite Chemical Co., Cottage Grove Facility

Sample Identification					EFFLUENT	
Lab Sample Identification					40138168011	
Date Sample Collected					09/13/16	
Dilution Factor					10	
COMPOUND	Units	Detection Limits	NR140 ES	NR140 PAL		
1,1,1-Trichloroethane	ug/L	0.50	200	40	163	
2-Butanone (MEK)	ug/L	3.0	460	90		U
4-Methyl-2-Pentanone (MIBK)	ug/L	2.1	500	50	45.9	J
Acetone	ug/L	3.0	1000	200		U
cis-1,2-Dichloroethene	ug/L	0.26	70	7	1400	
Methylene chloride	ug/L	0.23	5.0	0.5	23.3	
Tetrachloroethene	ug/L	0.50	5.0	0.5	5.4	J
Toluene	ug/L	0.50	1000	200	236	
Trichloroethene	ug/L	0.33	5.0	0.5	29.9	
Vinyl chloride	ug/L	0.18	0.2	0.02	99.2	
Xylenes (total)	ug/L	1.5	10000	1000	110	
TOTAL VOCs	ug/L				2112.7	
Total Chlorinated VOCs	ug/L				1720.8	

Notes:
Blank spaces indicate the compound was analyzed but not detected. The detection limits for each compound are equal to the target detection limits multiplied by the corresponding dilution factor for each sample.
VOCs - Volatile organic compounds.
DUP - Duplicate sample.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
L1 - Analyte recovery in the laboratory control sample was above QC limits. Results may be biased high.
L3 - Analyte recovery in the laboratory control sample exceeded QC limits. Anayte presence below reporting limits in associated samples. Results unaffected by high bias.
MO - Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
U - Indicates the compound was analyzed but not detected.
Z3 - Methylene chloride is a comman laboratory contaminant. Results for this analyte should be considered estimated unless the amount found in the sample is 3 to 5 times higher than that found in the method blank.
1q - Analyte was detected in the associated method blank. Sample was analyzed with a second method blank that was no-detect. Due to limitations of the LIMS system, only initial method blank results are reported.
ug/L - micrograms per liter which is equivalent to parts per billion (ppb)
NR140 ES - The compound's Enforcement Standard as listed in Chapter NR140 of the Wisconsin Administrative Code.
NR140 PAL - The compound's Preventive Action Limit as listed in Chapter NR140 of the Wisconsin Administrative Code.
Madison Metropolitan Sewerage District Total VOCs discharge limit for hydraulic barrier system = 1,000,000 ug/L or 1,000 mg/L.
"Effluent" samples are collected from the sample spigot on the combined effluent discharge line for the barrier system located in the manhole by the Village of Cottage Grove lift station.

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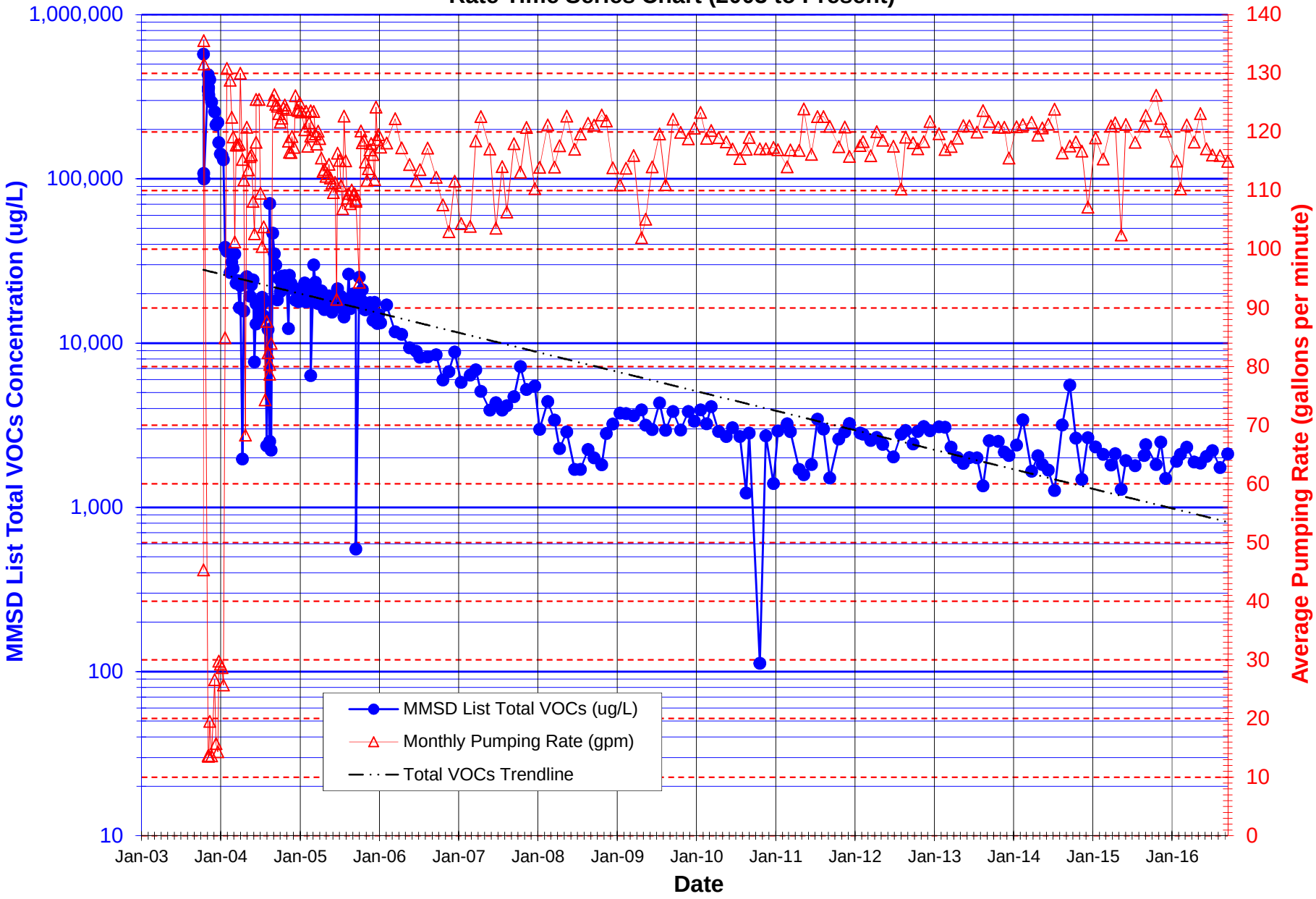
Table 2. Summary of Hydraulic Barrier System Effluent Monitoring Inogranic Parameters Analytical Results, Hydrite Chemical Co., Cottage Grove Facility

Sample Identification	EFFLUENT
Lab Sample Identification	40138168011
Date Sample Collected	09/13/16
Parameter	
Carbonaceous Biochemical Oxygen Demand (CBOD)	<2.0
Nitrogen, Total Kjeldahl	<0.22
Phosphorus	<0.052
Total Suspended Solids	1.0 J

Notes: mg/L - milligrams per liter, which is equivalent to parts per million.
H1 - Analysis conducted outside the recognized method holding time.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
B - The compound was detected in an associated field blank, trip blank or method blank as well as in the sample at a similar concentration.
D3 - Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
N - Spiked sample recovery not within control lilmits
Q - Qualitative mass spectral evidence of analyte present; concentration is between the detection limit and limit of quantitation.
<2.0 - The compound was analyzed but not detected above its method detection limit of 2.0 ug/L.

Chart 1. Hydrite Chemical Co. Hydraulic Barrier System MMSD List Total VOCs and Average Pumping Rate Time Series Chart (2003 to Present)



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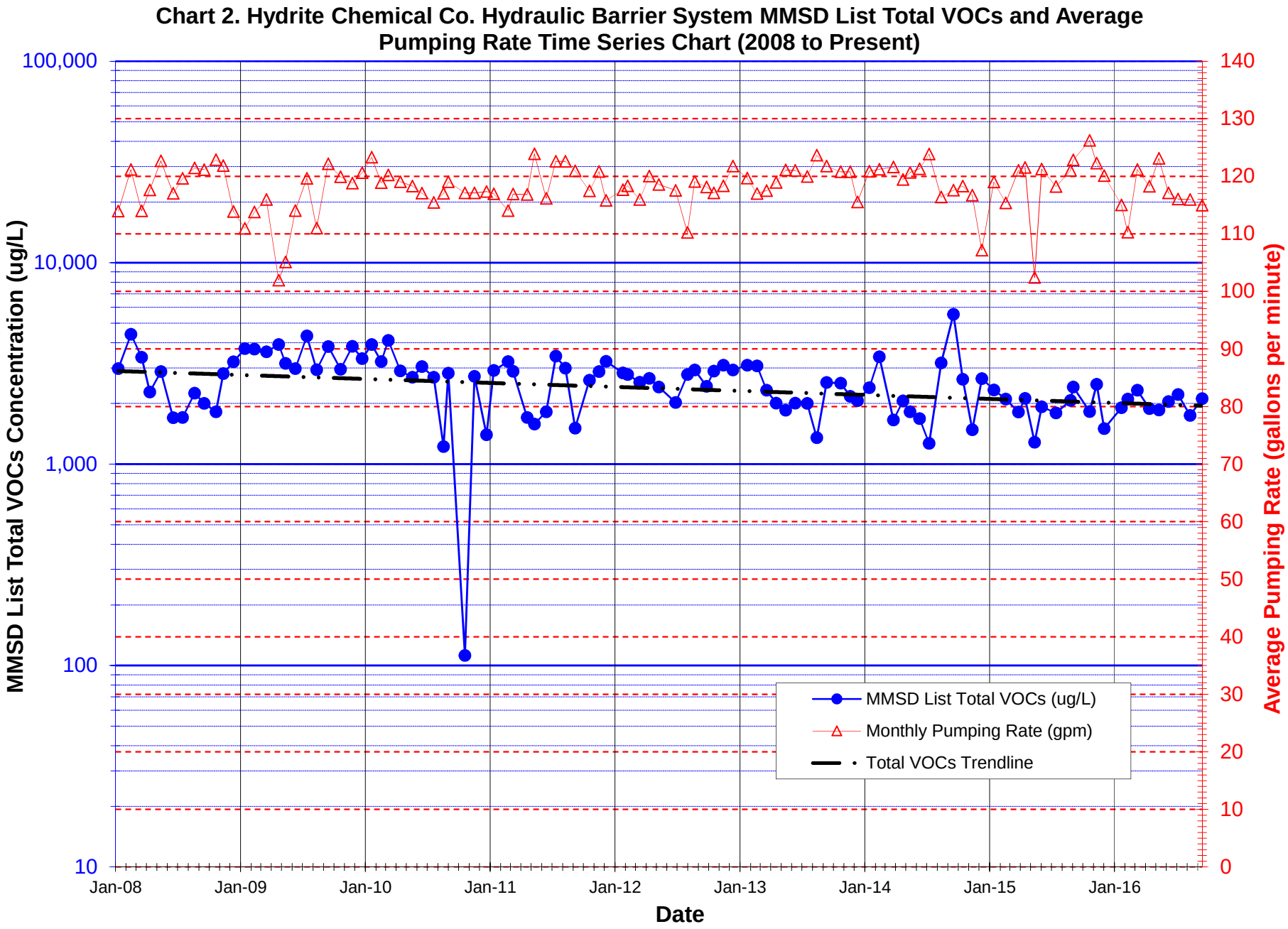
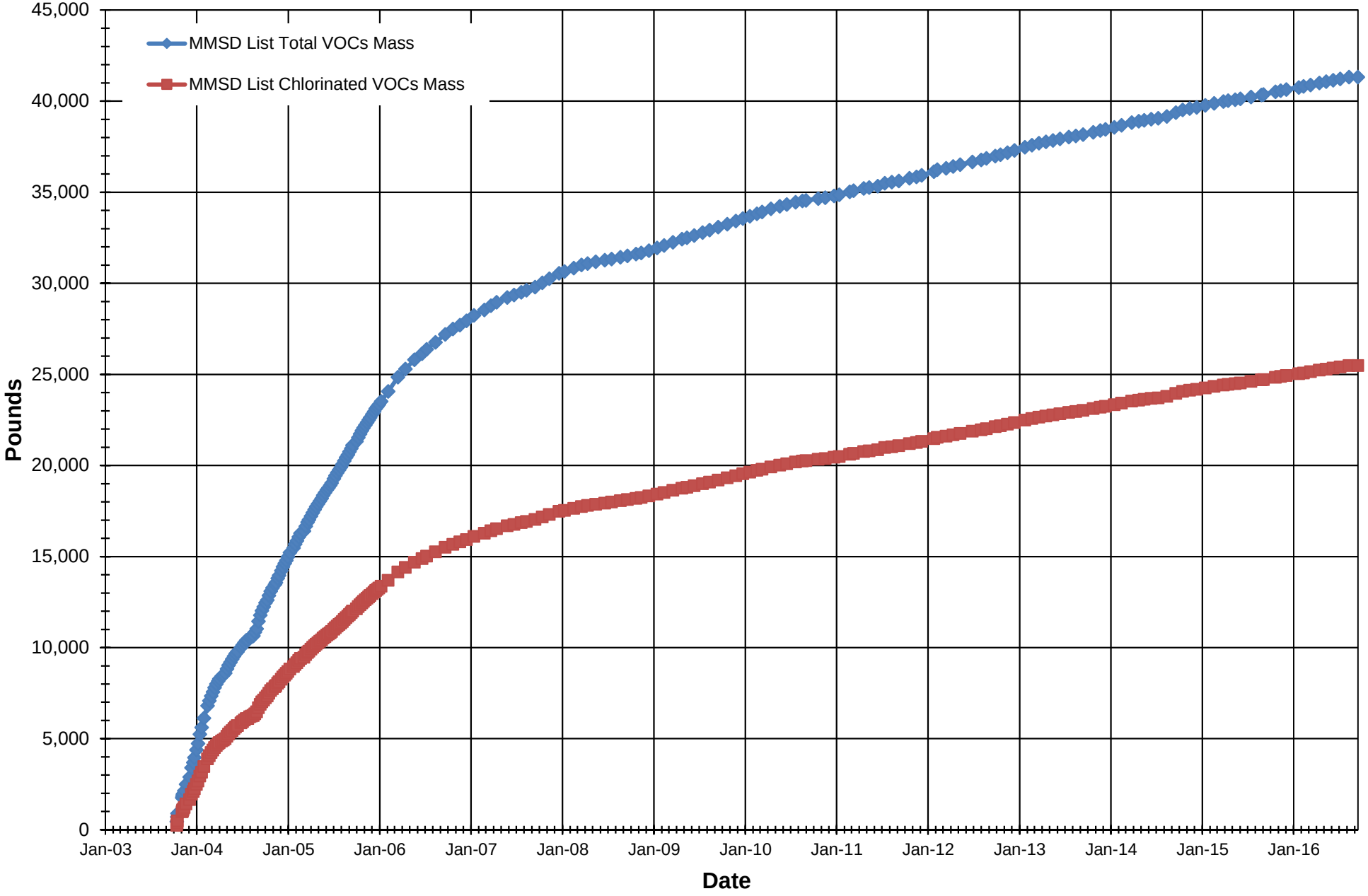


Chart 2. Hydrite Chemical Co. Hydraulic Barrier System MMSD List Total VOCs and Average Pumping Rate Time Series Chart (2008 to Present)
MMSD List Total VOCs Concentration (ug/L)
100,000
10,000
1,000
100
10
Average Pumping Rate (gallons per minute)
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Date
MMSD List Total VOCs (ug/L)
Monthly Pumping Rate (gpm)
Total VOCs Trendline

Chart 3. Hydrite Chemical Co. Hydraulic Barrier System Cumulative Mass of MMSD List Total VOCs and Chlorinated VOCs Discharged to Sanitary Sewer



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ATTACHMENT A
HYDRAULIC BARRIER SYSTEM
LABORATORY ANALYTICAL REPORT

TETRA TECH GEO REMEDIATION SYSTEM EFFLUENT WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT	Hydrite Chemical Co., Cottage Grove Facility Layer 5 Hydraulic Barrier System Monitoring	Temp. & pH	HANNA
PROJECT NO.	117-3005011.18	Conductivity	HANNA
LOCATION	Cottage Grove, WI	ORP	NA
PERSONNEL	Todd M. Thomson	DO	NA

SAMPLE ID	Effluent			
WATER TYPE	Groundwater			
DATE (month/day/year)	9-13-16			
CLOCK TIME (Military)	12:50			
FLOW METER READING (gallons)	3717525			
FLOW RATE (gpm)*	116			
SAMPLING DEVICE	Sample Spigot on 6-inch discharge line			
FIELD TEMPERATURE (°C)	11.9			
pH	7.75			
ELECTRICAL CONDUCTIVITY at 25° C (uS/cm)	656			
COLOR	CLEAR			
ODOR	NONE			
CLARITY	CLEAR			
SAMPLING PARAMETERS	# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)			
TCL VOCs (Method SW846 8260B)	3-40 ml; G; HCl-L; No			
Carbonaceous Biochemical Oxygen Demand (CBOD, 5 day) (Method SM 5210B)	1-liter; P; None; No	*48-hour hold time.		
Nitrogen, Total Kjeldahl (EPA Method 351.2), & Phosphorous (EPA Method 365.4)	1-500 ml; P; H_2SO_4-L; No			
Total Suspended Solids (Method SM 2540D)	1-liter; P; None; No			
NAME OF LABORATORY	Pace Analytical			
DATE SENT TO LAB	9-13-16			
SAMPLER'S NAME	TMT			

Note: gpm = gallons per minute

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

October 05, 2016

Mark Manthey
Tetra Tech Geo
175 North Corporate Drive
Suite 100
Brookfield, WI 53045

RE: Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Dear Mark Manthey:
Enclosed are the analytical results for sample(s) received by the laboratory on September 14, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten
brian.basten@pacelabs.com
Project Manager

Enclosures

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Green Bay, WI 54302
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CERTIFICATIONS

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
Virginia VELAP ID: 460263
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
US Dept of Agriculture #: S-76505
Virginia VELAP Certification ID: 460263
Virginia VELAP ID: 460263
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444

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SAMPLE SUMMARY

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40138168001	**P-53**	Water	09/12/16 11:50	09/14/16 09:20
40138168002	**P-53 DUP**	Water	09/12/16 11:55	09/14/16 09:20
40138168003	**P-54**	Water	09/12/16 13:40	09/14/16 09:20
40138168004	**P-115**	Water	09/12/16 14:40	09/14/16 09:20
40138168005	**P-115 DUP**	Water	09/12/16 14:45	09/14/16 09:20
40138168006	**VILLAGE WELL NO. 1**	Water	09/13/16 09:20	09/14/16 09:20
40138168007	**VILLAGE WELL NO. 2**	Water	09/13/16 09:40	09/14/16 09:20
40138168008	**P-128**	Water	09/13/16 11:50	09/14/16 09:20
40138168009	**P-164**	Water	09/13/16 12:15	09/14/16 09:20
40138168010	**P-164 DUP**	Water	09/13/16 12:20	09/14/16 09:20
40138168011	**EFFLUENT**	Water	09/13/16 12:50	09/14/16 09:20
40138168012	**TB-1**	Water	09/13/16 00:00	09/14/16 09:20

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SAMPLE ANALYTE COUNT

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40138168001	**P-53**	EPA 8260	HNW	38	PASI-G
40138168002	**P-53 DUP**	EPA 8260	HNW	38	PASI-G
40138168003	**P-54**	EPA 8260	HNW	38	PASI-G
40138168004	**P-115**	EPA 8260	HNW	38	PASI-G
40138168005	**P-115 DUP**	EPA 8260	HNW	38	PASI-G
40138168008	**P-128**	EPA 8260	HNW	38	PASI-G
40138168009	**P-164**	EPA 8260	HNW	38	PASI-G
40138168010	**P-164 DUP**	EPA 8260	HNW	38	PASI-G
40138168011	**EFFLUENT**	EPA 8260	HNW	38	PASI-G
		SM 2540D	JMN	1	PASI-G
		SM 5210B	DEY	1	PASI-G
		EPA 351.2	TMK	1	PASI-G
		EPA 365.4	DAW	1	PASI-G
40138168012	**TB-1**	EPA 8260	HNW	38	PASI-G

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PROJECT NARRATIVE

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Method: **EPA 8260**
Description: 8260 MSV
Client: Tetra Tech GEO - Brookfield
Date: October 05, 2016

General Information:
10 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: Tetra Tech GEO - Brookfield
Date: October 05, 2016

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Method: **SM 5210B**
Description: 5210B cBOD, 5 day
Client: Tetra Tech GEO - Brookfield
Date: October 05, 2016

General Information:
1 sample was analyzed for SM 5210B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with SM 5210B with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Method: **EPA 351.2**
Description: 351.2 Total Kjeldahl Nitrogen
Client: Tetra Tech GEO - Brookfield
Date: October 05, 2016

General Information:
1 sample was analyzed for EPA 351.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 351.2 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Method: **EPA 365.4**
Description: 365.4 Total Phosphorus
Client: Tetra Tech GEO - Brookfield
Date: October 05, 2016

General Information:
1 sample was analyzed for EPA 365.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 365.4 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 235887

1q: Analyte was measured in the associated method blank at a concentration of -0.063 mg/L.

- EFFLUENT (Lab ID: 40138168011)
  - Phosphorus

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Sample: EFFLUENT **Lab ID: 40138168011** Collected: 09/13/16 12:50 Received: 09/14/16 09:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260								
Acetone	**<29.5**	ug/L	200	29.5	10		09/15/16 15:16	67-64-1	
Benzene	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	71-43-2	
Bromodichloromethane	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	75-27-4	
Bromoform	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	75-25-2	
Bromomethane	**<24.3**	ug/L	50.0	24.3	10		09/15/16 15:16	74-83-9	
2-Butanone (MEK)	**<29.8**	ug/L	200	29.8	10		09/15/16 15:16	78-93-3	
Carbon disulfide	**<6.1**	ug/L	50.0	6.1	10		09/15/16 15:16	75-15-0	
Carbon tetrachloride	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	56-23-5	
Chlorobenzene	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	108-90-7	
Chloroethane	**162**	ug/L	10.0	3.7	10		09/15/16 15:16	75-00-3	
Chloroform	**<25.0**	ug/L	50.0	25.0	10		09/15/16 15:16	67-66-3	
Chloromethane	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	74-87-3	
Dibromochloromethane	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	124-48-1	
1,1-Dichloroethane	**480**	ug/L	10.0	2.4	10		09/15/16 15:16	75-34-3	
1,2-Dichloroethane	**<1.7**	ug/L	10.0	1.7	10		09/15/16 15:16	107-06-2	
1,1-Dichloroethene	**77.2**	ug/L	10.0	4.1	10		09/15/16 15:16	75-35-4	
cis-1,2-Dichloroethene	**1400**	ug/L	10.0	2.6	10		09/15/16 15:16	156-59-2	
trans-1,2-Dichloroethene	**9.9J**	ug/L	10.0	2.6	10		09/15/16 15:16	156-60-5	
1,2-Dichloropropane	**<2.3**	ug/L	10.0	2.3	10		09/15/16 15:16	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	10061-01-5	
trans-1,3-Dichloropropene	**<2.3**	ug/L	10.0	2.3	10		09/15/16 15:16	10061-02-6	
Ethylbenzene	**26.5**	ug/L	10.0	5.0	10		09/15/16 15:16	100-41-4	
2-Hexanone	**<11.1**	ug/L	50.0	11.1	10		09/15/16 15:16	591-78-6	
Methylene Chloride	**23.3**	ug/L	10.0	2.3	10		09/15/16 15:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	**45.9J**	ug/L	50.0	21.4	10		09/15/16 15:16	108-10-1	
Styrene	**<5.0**	ug/L	10.0	5.0	10		09/15/16 15:16	100-42-5	
1,1,2,2-Tetrachloroethane	**<2.5**	ug/L	10.0	2.5	10		09/15/16 15:16	79-34-5	
Tetrachloroethene	**5.4J**	ug/L	10.0	5.0	10		09/15/16 15:16	127-18-4	
Toluene	**236**	ug/L	10.0	5.0	10		09/15/16 15:16	108-88-3	
1,1,1-Trichloroethane	**163**	ug/L	10.0	5.0	10		09/15/16 15:16	71-55-6	
1,1,2-Trichloroethane	**<2.0**	ug/L	10.0	2.0	10		09/15/16 15:16	79-00-5	
Trichloroethene	**29.9**	ug/L	10.0	3.3	10		09/15/16 15:16	79-01-6	
Vinyl acetate	**<9.2**	ug/L	50.0	9.2	10		09/15/16 15:16	108-05-4	
Vinyl chloride	**99.2**	ug/L	10.0	1.8	10		09/15/16 15:16	75-01-4	
Xylene (Total)	**110**	ug/L	30.0	15.0	10		09/15/16 15:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	89	%	70-130		10		09/15/16 15:16	460-00-4	
Dibromofluoromethane (S)	108	%	70-130		10		09/15/16 15:16	1868-53-7	
Toluene-d8 (S)	97	%	70-130		10		09/15/16 15:16	2037-26-5	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**1.0J**	mg/L	2.0	0.95	1		09/15/16 11:16		
5210B cBOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
Carbonaceous BOD, 5 day	**<2.0**	mg/L	2.0	2.0	1	09/14/16 10:25	09/19/16 10:14		

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ANALYTICAL RESULTS

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Sample: EFFLUENT **Lab ID: 40138168011** Collected: 09/13/16 12:50 Received: 09/14/16 09:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	**<0.22**	mg/L	0.73	0.22	1	09/20/16 13:55	09/20/16 18:38	7727-37-9	
365.4 Total Phosphorus	Analytical Method: EPA 365.4 Preparation Method: EPA 365.4								
Phosphorus	**<0.052**	mg/L	0.40	0.052	1	09/23/16 08:30	09/23/16 13:47	7723-14-0	1q

Sample: TB-1 **Lab ID: 40138168012** Collected: 09/13/16 00:00 Received: 09/14/16 09:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260								
Acetone	**6.1J**	ug/L	20.0	3.0	1		09/16/16 09:26	67-64-1	
Benzene	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	71-43-2	
Bromodichloromethane	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	75-27-4	
Bromoform	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	75-25-2	
Bromomethane	**<2.4**	ug/L	5.0	2.4	1		09/16/16 09:26	74-83-9	
2-Butanone (MEK)	**<3.0**	ug/L	20.0	3.0	1		09/16/16 09:26	78-93-3	
Carbon disulfide	**<0.61**	ug/L	5.0	0.61	1		09/16/16 09:26	75-15-0	
Carbon tetrachloride	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	56-23-5	
Chlorobenzene	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	108-90-7	
Chloroethane	**<0.37**	ug/L	1.0	0.37	1		09/16/16 09:26	75-00-3	
Chloroform	**<2.5**	ug/L	5.0	2.5	1		09/16/16 09:26	67-66-3	
Chloromethane	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	74-87-3	
Dibromochloromethane	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	124-48-1	
1,1-Dichloroethane	**<0.24**	ug/L	1.0	0.24	1		09/16/16 09:26	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		09/16/16 09:26	107-06-2	
1,1-Dichloroethene	**<0.41**	ug/L	1.0	0.41	1		09/16/16 09:26	75-35-4	
cis-1,2-Dichloroethene	**<0.26**	ug/L	1.0	0.26	1		09/16/16 09:26	156-59-2	
trans-1,2-Dichloroethene	**<0.26**	ug/L	1.0	0.26	1		09/16/16 09:26	156-60-5	
1,2-Dichloropropane	**<0.23**	ug/L	1.0	0.23	1		09/16/16 09:26	78-87-5	
cis-1,3-Dichloropropene	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	10061-01-5	
trans-1,3-Dichloropropene	**<0.23**	ug/L	1.0	0.23	1		09/16/16 09:26	10061-02-6	
Ethylbenzene	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	100-41-4	
2-Hexanone	**<1.1**	ug/L	5.0	1.1	1		09/16/16 09:26	591-78-6	
Methylene Chloride	**<0.23**	ug/L	1.0	0.23	1		09/16/16 09:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<2.1**	ug/L	5.0	2.1	1		09/16/16 09:26	108-10-1	
Styrene	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.25**	ug/L	1.0	0.25	1		09/16/16 09:26	79-34-5	
Tetrachloroethene	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	127-18-4	
Toluene	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	108-88-3	
1,1,1-Trichloroethane	**<0.50**	ug/L	1.0	0.50	1		09/16/16 09:26	71-55-6	
1,1,2-Trichloroethane	**<0.20**	ug/L	1.0	0.20	1		09/16/16 09:26	79-00-5	
Trichloroethene	**<0.33**	ug/L	1.0	0.33	1		09/16/16 09:26	79-01-6	
Vinyl acetate	**<0.92**	ug/L	5.0	0.92	1		09/16/16 09:26	108-05-4	
Vinyl chloride	**<0.18**	ug/L	1.0	0.18	1		09/16/16 09:26	75-01-4	

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ANALYTICAL RESULTS

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Sample: TB-1 **Lab ID: 40138168012** Collected: 09/13/16 00:00 Received: 09/14/16 09:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260								
Xylene (Total)	**<1.5**	ug/L	3.0	1.5	1		09/16/16 09:26	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	85	%	70-130		1		09/16/16 09:26	460-00-4	
Dibromofluoromethane (S)	110	%	70-130		1		09/16/16 09:26	1868-53-7	
Toluene-d8 (S)	96	%	70-130		1		09/16/16 09:26	2037-26-5	

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QUALITY CONTROL DATA

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

QC Batch: 234871 | Analysis Method: EPA 8260
QC Batch Method: EPA 8260 | Analysis Description: 8260 MSV
Associated Lab Samples: 40138168001, 40138168002, 40138168003, 40138168004, 40138168005, 40138168008, 40138168009, 40138168010, 40138168011, 40138168012

METHOD BLANK: 1391508 | Matrix: Water
Associated Lab Samples: 40138168001, 40138168002, 40138168003, 40138168004, 40138168005, 40138168008, 40138168009, 40138168010, 40138168011, 40138168012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	<0.50	1.0	09/15/16 09:37	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	09/15/16 09:37	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	09/15/16 09:37	
1,1-Dichloroethane	ug/L	<0.24	1.0	09/15/16 09:37	
1,1-Dichloroethene	ug/L	<0.41	1.0	09/15/16 09:37	
1,2-Dichloroethane	ug/L	<0.17	1.0	09/15/16 09:37	
1,2-Dichloropropane	ug/L	<0.23	1.0	09/15/16 09:37	
2-Butanone (MEK)	ug/L	<3.0	20.0	09/15/16 09:37	
2-Hexanone	ug/L	<1.1	5.0	09/15/16 09:37	
4-Methyl-2-pentanone (MIBK)	ug/L	<2.1	5.0	09/15/16 09:37	
Acetone	ug/L	<3.0	20.0	09/15/16 09:37	
Benzene	ug/L	<0.50	1.0	09/15/16 09:37	
Bromodichloromethane	ug/L	<0.50	1.0	09/15/16 09:37	
Bromoform	ug/L	<0.50	1.0	09/15/16 09:37	
Bromomethane	ug/L	<2.4	5.0	09/15/16 09:37	
Carbon disulfide	ug/L	<0.61	5.0	09/15/16 09:37	
Carbon tetrachloride	ug/L	<0.50	1.0	09/15/16 09:37	
Chlorobenzene	ug/L	<0.50	1.0	09/15/16 09:37	
Chloroethane	ug/L	<0.37	1.0	09/15/16 09:37	
Chloroform	ug/L	<2.5	5.0	09/15/16 09:37	
Chloromethane	ug/L	<0.50	1.0	09/15/16 09:37	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	09/15/16 09:37	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	09/15/16 09:37	
Dibromochloromethane	ug/L	<0.50	1.0	09/15/16 09:37	
Ethylbenzene	ug/L	<0.50	1.0	09/15/16 09:37	
Methylene Chloride	ug/L	<0.23	1.0	09/15/16 09:37	
Styrene	ug/L	<0.50	1.0	09/15/16 09:37	
Tetrachloroethene	ug/L	<0.50	1.0	09/15/16 09:37	
Toluene	ug/L	<0.50	1.0	09/15/16 09:37	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	09/15/16 09:37	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	09/15/16 09:37	
Trichloroethene	ug/L	<0.33	1.0	09/15/16 09:37	
Vinyl acetate	ug/L	<0.92	5.0	09/15/16 09:37	
Vinyl chloride	ug/L	<0.18	1.0	09/15/16 09:37	
Xylene (Total)	ug/L	<1.5	3.0	09/15/16 09:37	
4-Bromofluorobenzene (S)	%	85	70-130	09/15/16 09:37	
Dibromofluoromethane (S)	%	109	70-130	09/15/16 09:37	
Toluene-d8 (S)	%	98	70-130	09/15/16 09:37	

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QUALITY CONTROL DATA

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

LABORATORY CONTROL SAMPLE: 1391509

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.8	104	70-131	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	95	67-130	
1,1,2-Trichloroethane	ug/L	20	18.8	94	70-130	
1,1-Dichloroethane	ug/L	20	22.4	112	70-133	
1,1-Dichloroethene	ug/L	20	19.1	96	70-130	
1,2-Dichloroethane	ug/L	20	21.0	105	70-130	
1,2-Dichloropropane	ug/L	20	21.4	107	70-130	
Benzene	ug/L	20	22.6	113	60-135	
Bromodichloromethane	ug/L	20	19.7	98	70-130	
Bromoform	ug/L	20	17.8	89	70-130	
Bromomethane	ug/L	20	15.8	79	33-130	
Carbon disulfide	ug/L	20	22.4	112	70-139	
Carbon tetrachloride	ug/L	20	20.6	103	70-138	
Chlorobenzene	ug/L	20	19.3	97	70-130	
Chloroethane	ug/L	20	18.6	93	51-130	
Chloroform	ug/L	20	21.9	110	70-130	
Chloromethane	ug/L	20	15.5	78	25-132	
cis-1,2-Dichloroethene	ug/L	20	20.5	103	69-130	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	70-130	
Dibromochloromethane	ug/L	20	17.5	88	70-130	
Ethylbenzene	ug/L	20	19.0	95	70-136	
Methylene Chloride	ug/L	20	20.1	101	70-130	
Styrene	ug/L	20	18.5	92	70-133	
Tetrachloroethene	ug/L	20	17.4	87	70-138	
Toluene	ug/L	20	19.1	96	70-130	
trans-1,2-Dichloroethene	ug/L	20	20.3	102	70-131	
trans-1,3-Dichloropropene	ug/L	20	17.4	87	69-130	
Trichloroethene	ug/L	20	19.4	97	70-130	
Vinyl chloride	ug/L	20	20.1	101	49-130	
Xylene (Total)	ug/L	60	57.7	96	70-135	
4-Bromofluorobenzene (S)	%			96	70-130	
Dibromofluoromethane (S)	%			107	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1392114 1392115

Parameter	Units	40138152006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	<1.2	400	400	430	429	108	107	70-134	0	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.62	400	400	367	380	92	95	67-130	3	20	
1,1,2-Trichloroethane	ug/L	<0.49	400	400	377	387	94	97	70-130	3	20	
1,1-Dichloroethane	ug/L	<0.60	400	400	479	482	120	120	70-134	0	20	
1,1-Dichloroethene	ug/L	<1.0	400	400	382	412	96	103	68-136	8	20	
1,2-Dichloroethane	ug/L	<0.42	400	400	467	472	117	118	70-130	1	20	
1,2-Dichloropropane	ug/L	<0.58	400	400	461	440	115	110	70-130	5	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1392114 1392115

Parameter	Units	40138152006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	<1.2	400	400	475	498	119	125	57-138	5	20	
Bromodichloromethane	ug/L	<1.2	400	400	426	418	106	105	70-130	2	20	
Bromoform	ug/L	<1.2	400	400	353	376	88	94	70-130	6	20	
Bromomethane	ug/L	<6.1	400	400	351	365	88	91	33-130	4	27	
Carbon disulfide	ug/L	<1.5	400	400	485	510	121	128	70-153	5	20	
Carbon tetrachloride	ug/L	<1.2	400	400	426	443	107	111	70-138	4	20	
Chlorobenzene	ug/L	<1.2	400	400	389	400	97	100	70-130	3	20	
Chloroethane	ug/L	<0.94	400	400	387	403	97	101	51-130	4	20	
Chloroform	ug/L	<6.2	400	400	467	473	117	118	70-130	1	20	
Chloromethane	ug/L	<1.2	400	400	337	360	84	90	25-132	7	20	
cis-1,2-Dichloroethene	ug/L	<0.64	400	400	420	458	105	114	61-140	8	20	
cis-1,3-Dichloropropene	ug/L	<1.2	400	400	414	423	104	106	70-130	2	20	
Dibromochloromethane	ug/L	<1.2	400	400	360	365	90	91	70-130	1	20	
Ethylbenzene	ug/L	146	400	400	528	526	96	95	70-138	0	20	
Methylene Chloride	ug/L	<0.58	400	400	442	483	110	121	70-130	9	20	
Styrene	ug/L	<1.2	400	400	407	402	102	101	70-138	1	20	
Tetrachloroethene	ug/L	<1.2	400	400	369	360	92	90	70-148	2	20	
Toluene	ug/L	1.4J	400	400	393	400	98	100	70-130	2	20	
trans-1,2-Dichloroethene	ug/L	<0.64	400	400	430	451	107	113	70-133	5	20	
trans-1,3-Dichloropropene	ug/L	<0.57	400	400	360	362	90	90	69-130	1	20	
Trichloroethene	ug/L	<0.83	400	400	430	429	108	107	70-131	0	20	
Vinyl chloride	ug/L	<0.44	400	400	430	460	107	115	49-133	7	20	
Xylene (Total)	ug/L	635	1200	1200	1690	1710	88	89	70-135	1	20	
4-Bromofluorobenzene (S)	%						93	91	70-130			
Dibromofluoromethane (S)	%						110	111	70-130			
Toluene-d8 (S)	%						98	97	70-130			

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QUALITY CONTROL DATA

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

QC Batch: 234964 | Analysis Method: SM 2540D
QC Batch Method: SM 2540D | Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 40138168011

METHOD BLANK: 1392343 | Matrix: Water
Associated Lab Samples: 40138168011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<0.48	1.0	09/15/16 11:15	

LABORATORY CONTROL SAMPLE: 1392344

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	112	112	80-120	

SAMPLE DUPLICATE: 1392345

Parameter	Units	40138166001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	336	354	5	5	

SAMPLE DUPLICATE: 1392346

Parameter	Units	40138190003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	200	195	3	5	

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

QC Batch: 234833 | Analysis Method: SM 5210B
QC Batch Method: SM 5210B | Analysis Description: 5210B cBOD, 5 day
Associated Lab Samples: 40138168011

METHOD BLANK: 1391170 | Matrix: Water
Associated Lab Samples: 40138168011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Carbonaceous BOD, 5 day	mg/L	<2.0	2.0	09/19/16 10:10	

LABORATORY CONTROL SAMPLE & LCSD: 1391172 1391173

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Carbonaceous BOD, 5 day	mg/L	198	190	201	96	102	84.6-115	6	20	

LABORATORY CONTROL SAMPLE & LCSD: 1391172 1391176

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Carbonaceous BOD, 5 day	mg/L	198	190	185	96	93	84.6-115	3	20	

SAMPLE DUPLICATE: 1391174

Parameter	Units	40138074002 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbonaceous BOD, 5 day	mg/L	8.6	8.1	6	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

QC Batch: 235436 | Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 | Analysis Description: 351.2 TKN
Associated Lab Samples: 40138168011

METHOD BLANK: 1395298 | Matrix: Water
Associated Lab Samples: 40138168011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.22	0.73	09/20/16 18:17	

LABORATORY CONTROL SAMPLE: 1395299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1395300 1395301

Parameter	Units	40137958001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	5.1	5	5	10.3	10.3	104	103	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1395302 1395303

Parameter	Units	40138168011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	<0.22	5	5	5.2	5.1	101	100	90-110	2	20	

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QUALITY CONTROL DATA

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

QC Batch: 235887 | Analysis Method: EPA 365.4
QC Batch Method: EPA 365.4 | Analysis Description: 365.4 Phosphorus
Associated Lab Samples: 40138168011

METHOD BLANK: 1398486 | Matrix: Water
Associated Lab Samples: 40138168011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	<0.052	0.40	09/23/16 13:45	

LABORATORY CONTROL SAMPLE: 1398487

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	5	5.3	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1398488 1398489

Parameter	Units	40138240001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.17J	5	5	5.4	5.2	105	100	90-110	4	20	

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QUALIFIERS

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G	Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

1q	Analyte was measured in the associated method blank at a concentration of -0.063 mg/L.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 117-3005011.17 HYDRITE CHEMICA
Pace Project No.: 40138168

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40138168001	**P-53**	EPA 8260	234871		
40138168002	**P-53 DUP**	EPA 8260	234871		
40138168003	**P-54**	EPA 8260	234871		
40138168004	**P-115**	EPA 8260	234871		
40138168005	**P-115 DUP**	EPA 8260	234871		
40138168008	**P-128**	EPA 8260	234871		
40138168009	**P-164**	EPA 8260	234871		
40138168010	**P-164 DUP**	EPA 8260	234871		
40138168011	**EFFLUENT**	EPA 8260	234871		
40138168012	**TB-1**	EPA 8260	234871		
40138168011	**EFFLUENT**	SM 2540D	234964		
40138168011	**EFFLUENT**	SM 5210B	234833	SM 5210B	235260
40138168011	**EFFLUENT**	EPA 351.2	235436	EPA 351.2	235510
40138168011	**EFFLUENT**	EPA 365.4	235887	EPA 365.4	235935

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UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

Pace Analytical®
www.pacelabs.com

CHAIN OF CUSTODY

40138468

(Please Print Clearly)

Company Name:	TETRA TECH
Branch/Location:	BROOKFIELD
Project Contact:	MARK MANTHEY
Phone:	(262) 792-1282
Project Number:	117-3005011.17
Project Name:	HYDRITE CHEMICAL
Project State:	WI.
Sampled By (Print):	TODD M. THOMSON
Sampled By (Sign):	
PO #:	Regulatory Program:

Data Package Options (billable)
- ☐ EPA Level III
- ☐ EPA Level IV

MS/MSD
- ☐ On your sample (billable)
- ☐ NOT needed on your sample

Matrix Codes
A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, Sl = Sludge, W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

***Preservation Codes**
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	VOC TCL 8260	VOC 524.2	CBOD	TSS	TKN	PHOSPHORUS	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
FILTERED? (YES/NO)					N	N	N	N	N	N			
PRESERVATION (CODE)*					B	B	A	A	C	C			
001	P-53	9-12	11:50	GW	3							3-40mlVB	
002	P-53 Dup	9-12	11:55		3								
003	P-54	9-12	13:40		3								
004	P-115	9-12	14:40		3								
005	P-115 Dup	9-12	14:45		3								
006	VILLAGE WELL No. 1	9-13	09:20			3							
007	VILLAGE WELL No. 2	9-13	09:40			3							
008	P-128	9-13	11:50		3								
009	P-164	9-13	12:15		3								
010	P-164 Dup	9-13	12:20		3								
011	EFFLUENT	9-13	12:50		3		1	1	(1 →)		2-1LpA 1-250mlpC		
012	TB-1	—	—	DC	1						LAB PREPARED	1-40mlVB	

Quote #:	
Mail To Contact:	MARK MANTHEY
Mail To Company:	TETRA TECH
Mail To Address:	175N. CORPORATE DR. SUITE 100 BROOKFIELD, WI. 53120
Invoice To Contact:	SAME AS ABOVE
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed: STANDARD

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	9-13-16 16:00	[signature]	
[signature]	9-14-16 0830	[signature]	9-14-16 0920

PACE Project No. 40138468
Receipt Temp = ROI °C
Sample Receipt pH OK / Adjusted
Cooler Custody Seal Present / Not Present Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Pace Analytical

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project # **WO#: 40138168**

40138168

Client Name: Tetra Tech

Courier: ☐ Fed Ex ☐ UPS ☐ Client ☐ Pace Other: CSfagotec

Tracking #:

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other

Thermometer Used N/A **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROT /Corr: **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☒ no

Person examining contents:
Date: 9-14-16
Initials: SKW

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W	☑Yes ☐No ☐N/A	12.
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	☑Yes ☐No ☐N/A	13. ☐ HNO3 ☑ H2SO4 ☐ NaOH ☐ NaOH +ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2, NaOH+ZnAct ≥9, NaOH ≥12)	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	☑Yes ☐No	Initial when completed: SKW Lab Std #ID of preservative Date/Time:
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	14.
Trip Blank Present:	☑Yes ☐No ☐N/A	15.
Trip Blank Custody Seals Present	☑Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased): 369	9-14-16 SKW	

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: **Date:** 9-14-16

F-GB-C-031-Rev.03 (9April2015) SCUR Form